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VOLUME 8. AIR NAVIGATION SERVICES - CERTIFICATION & ADMINISTRATION

CHAPTER 0. AIR TRAFFIC SERVICE PROVIDERS

Section 1. ANS Safety Oversight Inspector – General Guidance

8.0.1.1 General Guidance

8.0.1.1.1 Inspectors responsible for the safety oversight of the provision of air navigation services in Saudi Arabia (ANS Safety Oversight (ANSSO) inspectors) are, by definition and GACA designation, Aviation Safety Inspectors (ASI). Responsibilities include certification, safety oversight and compliance auditing of:

Air Traffic Services;

Aeronautical Telecommunication Services;

Aeronautical Information Services;

Instrument Flight Procedure Design organisations;

Flight Inspection Service providers;

Search and Rescue Service Providers; and

Aviation Meteorology Service providers.

8.0.1.1.2 Responsibilities also include obstacle evaluation, assessment of instrument flight procedures, and evaluations, assessments or other functions relating to the safety of Air Navigation Services in general.

8.0.1.1.3 In addition to adhering to the Technical Guidance Material in this Volume, ANSSO inspectors must comply with the general provisions that apply to all GACA Aviation Safety Inspectors, as outlined in the e-Book Volume 1, Chapter 3, specifically:

Section 1 – Aviation Safety Inspectors Responsibilities;

Section 2 – Inspector Ethics and Conduct;

Section 3 – Access to Aerodromes and Other Areas; and

Section 4 – Inspector Training Requirements to Perform Job Functions

8.0.1.1.4 ANS Safety Oversight Inspectors must also be familiar with the provisions and requirements of e-Book Volume 2 – Safety Management Systems, Volume 13 – Compliance Enforcement and Resolution, and Volume 14 – Designees – Appointment and Management.

VOLUME 8. AIR NAVIGATION SERVICES - CERTIFICATION & ADMINISTRATION

CHAPTER 0. AIR TRAFFIC SERVICE PROVIDERS

Section 2. Five Phase Certification and Approval Process

8.0.2.0 Purpose

8.0.2.0.1 The purpose of this chapter is to provide general information to ANS Safety Oversight inspectors on application of the recommended five phase certification process to be used for the certification (or approval or licensing) of ANS service providers that are required to be certified (or approved or licensed) under the provisions of the GACA Regulations.

8.0.2.0.2 The provisions in this chapter may be adjusted or adapted for the specific circumstances of each organisation being certified; however the basic process will remain the same, enabling inspectors to work more closely with other Departments in GACA where certification (or approval or licensing) requires collaboration between Departments, or where additional certification expertise is required.

8.0.2.0.3 The certification and approval process described below provides for a continuous interaction between the GACA and an applicant, from the applicant's initial enquiry to the issue or denial of the requested certificate/approval by the President (represented by AP, GACA).

8.0.2.0.4 It ensures that the applicant's proposed programs, systems, arrangements, facilities, documentation, personnel and intended methods of compliance are thoroughly reviewed, evaluated and tested by use of a five phase process.

8.0.2.0.5 The five certification phases are:

Phase 1: Pre – application

Phase 2: Formal Application

Phase 3: Document Evaluation

Phase 4: Demonstration and Inspection

Phase 5: Approval or Certificate Issue/Grant or Denial (Certification)

8.0.2.0.6 The basic Flow Chart of the certification process is shown below. For ease of depiction, phases ‘3’ and

'4' are integrated as 'Assessment of Compliance'. A more detailed set of Flow Charts is shown at the end of this chapter.

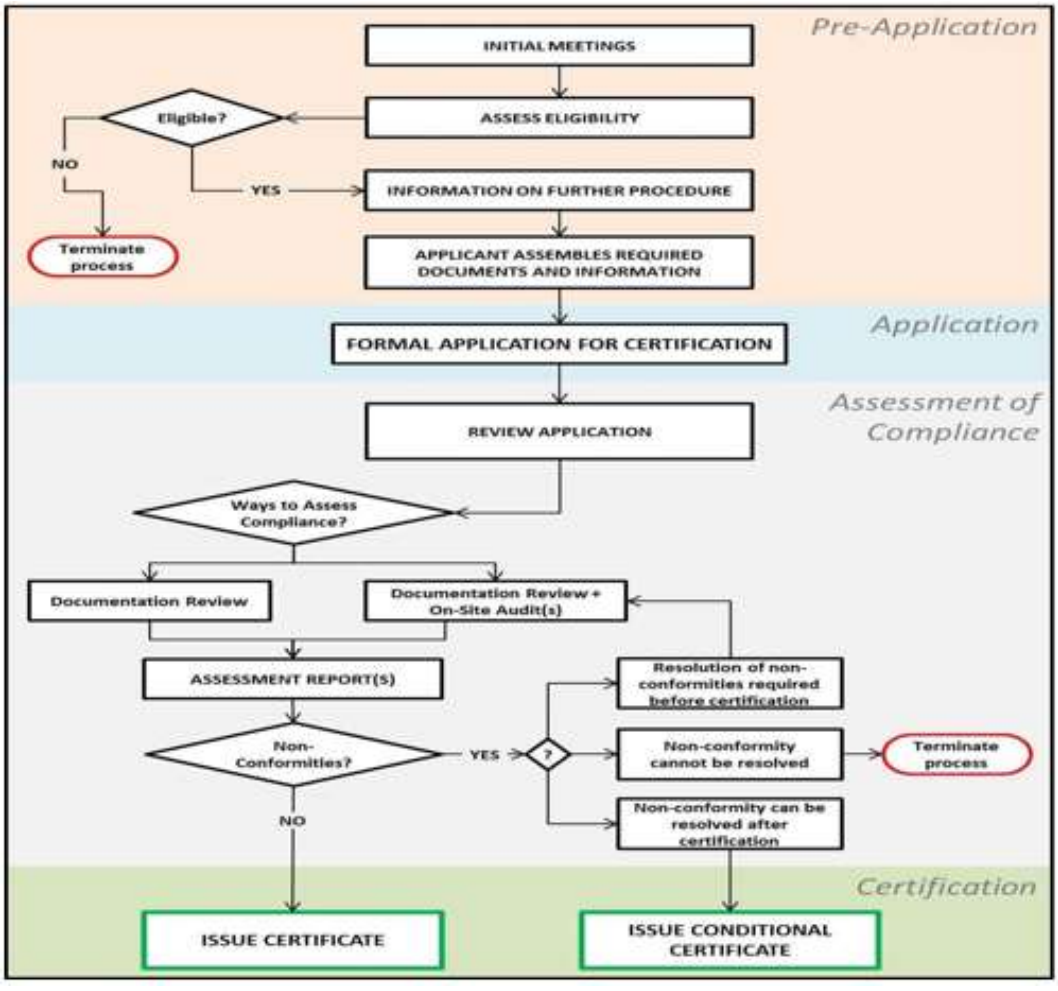


Figure 1: Basic Approval Process

8.0.2.1 Phase 1 - Pre-application Phase

Inspector Guidance: *The pre-application phase is an opportunity for a prospective applicant to determine the requirements for applying for an aviation document, and how they should go about the process. Whilst this is a formal phase of the certification process, it is important that inspectors recognize that some potential applicants will have little or no knowledge of either the process(es) or the documents required. Providing the right guidance and encouragement at this stage can actually enhance both the certification process, and the*

likelihood of ongoing compliance in the future.

8.0.2.1.1 The purpose of the pre-application phase is to meet with the applicant to discuss and answer questions about the certification (or approval or licensing) process, regulatory requirements, the formal application and attachments required and any other related issues.

Inspector Guidance: *The Pre-Application Phase can start in a number of ways. A potential applicant can approach GACA, and indicate that he (individual or organisation) would like to provide a service in KSA. An organisation may already be aware of a requirement for certification and may then approach GACA for further information. That applicant may do this in person, or in writing.*
It is also possible for GACA to initiate the pre-application phase (as is the case in the implementation of new GACARs on 1 March 2016) by directly contacting an organisation to advise them of the need to comply with new regulations.
In all cases GACA should first set up an informal meeting to discuss the potential applicant's needs – in some cases a potential applicant may decide at this point not to proceed, or to consider the matter further before starting a formal process.
If the potential applicant decides to proceed, set up a formal meeting (with record of meeting and minutes) to begin the formal certification process. Once the formal process has begun all communications, meetings and correspondence need to be logged and filed.

8.0.2.1.2 The pre application meeting(s) should accomplish the following:

(a) Discuss the regulations applicable to the proposed operation;

(b) Provide the applicant with a copy of the application form;

(c) Inform the applicant that a formal application is required after a satisfactory completion of the pre-application meeting(s).

8.0.2.1.3 After the pre-applicationmeeting, and havingassessed the complexityof the proposed operation, the affected Section Manager(s), in consultationwith the General Manager,Aerodromes and Airspace (GM A&A), will assign a certification team.

Inspector Guidance: I*t may be difficult to assess what size certification team will be necessary to complete any particular certification – particularly if a certification of this type has not been completed before. Section Managers should talk to Managers of other departments in GACA for guidance. Section Managers should*

also consider using resources (if available) from other departments to assist ANS certifications, or to provide training or mentorship to ANS Safety Oversight inspectors.

8.0.2.1.4 A Certification Project Manager (CPM) will then be selected from the certification team. The assigned certification CPM will be the designated principal spokesperson for the Assistant President GACA (delegate of the President) during the whole process of certification.

8.0.2.1.5 After the CPM has been selected, the GM-A&A will notify the AP GACA both the name of the CPM, and the name of the organisation/entity for which he/she has certification responsibility.

8.0.2.1.6 The designated certification team will conduct preliminary actions as follows:

(a) Create a working certification number (file number) for the potential applicant;

(b) Conduct a review of the initially supplied or available information about the potential applicant;

(c) The assigned CPM will contact the applicant to arrange a formal pre-application meeting.

Inspector Guidance: *Most guidance material on the 5 Phase certification process talks about the pre-application phase being one meeting, or extending over a few days. Experience has shown that for a small operator, or a small operation, it may be possible to provide all of the required information to a potential applicant, and/or to answer all of their questions, at a single meeting.*
In the case of a large operation (e.g., GACA ATS, GACA AIS, GACA MED etc.) with little or no experience of certification processes, the pre-application phase may extend over several months, and may involve a number of meetings, and the exchange of several letters, requests for information, and so on.
It is important for the certification team to provide as much information as possible, and to assist the potential applicant as far as is possible and over whatever period is necessary - without compromising the integrity of GACA.

8.0.2.2 Phase 2 - Formal Application Phase

Inspector Guidance*: For inspectors, the formal application phase is the second phase of the certification process – but for applicants, it may be seen as the first formal interaction with GACA. As in the pre-application phase, inspectors should continue to provide positive guidance and encouragement – particularly when requiring the delivery of documents and manuals.*

8.0.2.2.1 The formal application will include the following –

(a) A completed application form;

(b) Copies of the required documents and manuals;

(c) A statement of compliance (compliance checklist);

(d) A letter indicating when the applicant will be ready for the demonstration and inspections.

8.0.2.2.2 The following are key steps in the formal application phase.

Receive the Formal Application: Ensure that all documents have been submitted and are complete.

Evaluate the Application Package: Based on the initial survey of the application package a decision must be made on whether or not to continue with the certification process.

Inspector Guidance: *in theory an application must contain all of the documents and other materials required by regulation to be submitted with the application. In reality, an applicant may not have all of the required documentation because it is being prepared, or finalized, or because the applicant was not fully aware of the requirements. The certification project manager needs to consider the likelihood that the applicant will provide the remaining materials in a reasonable time, before making a decision to suspend the certification process. This will be particularly relevant for ANS certification where there is no previous experience.*

Conduct an Application Meeting: Any unresolved issues concerning the package must be answered before proceeding to the next phase. This should be done in the most effective way possible, e.g., meetings or correspondence.

Inspector Guidance: *In Phase 1 and Phase 2 the main workload is on the applicant. Through Phase 3 and 4 the workload shifts to the certification team through the document evaluation and demonstration audits.*

8.0.2.3 Phase 3 - Document Compliance / Evaluation Phase

8.0.2.3.1 During this phase, the certification team will review the Application Package by carrying out an in-depth review of the contents of each submitted document for regulatory compliance. The documents to be reviewed include:

(a) The completed application form

(b) All manuals and documents;

(c) The statement of compliance (compliance checklist);

(d) The list of all relevant attachments.

8.0.2.3.2 The CPM must record any discrepancies found in any document and determine in discussion with the applicant options for their resolution.

8.0.2.3.4 The CPM must inform the applicant that the certification process will not continue until all discrepancies are resolved.

Inspector Guidance: *It is important to note here that ALL discrepancies must be resolved. In most cases, it will be up to the certification team to ensure the applicant understands the regulatory requirements and attempts to ensure compliance with those requirements. The danger of accommodating changes or exemptions from regulations is that it establishes patterns of differences with international standards or procedures. If it is not possible for an applicant to comply with a regulatory requirement after discussions, the certification project manager may accommodate a difference, subject to approval by the President.*

8.0.2.3.5 If the discrepancies cannot be resolved or the certification process is stopped, the applicant will be informed in writing about all discrepancies discovered or observed.

8.0.2.4 Phase 4 - Demonstration and Inspection Phase

8.0.2.4.1 The purpose of the demonstration and inspection phase is to validate that an applicant complies with both the regulatory requirements, and the processes and procedures identified in the submitted manuals and other supporting documents. Fundamentally, this phase is aimed at ensuring that:

(a) Employees are familiar with the procedures and capable of performing theirassigned duties;

(b) Facilities can support the operation requested;

(c) Procedures are followed;

(d) Record keeping systems are in place to ensure that the requirements and GACARs are met.

(e) The prospective operator or service provider has in place a system for reporting serious defects, incidents or occurrences.

(f) The number of personnel is sufficient to satisfy the volume and type of work to be performed.

8.0.2.4.2 If discrepancies are noted, the CPM will meet with the applicant to review discrepancies in detail.

8.0.2.4.3 Corrective action must be taken and the assigned CPM should notify the applicant, in writing, that the certification process may not continue if the deficiencies are not addressed.

8.0.2.4.4 Each discrepancy and corrective action must be fully documented and recorded in the certification file.

8.0.2.5 Phase 5 - Certification Phase

8.0.2.5.1 When the applicant has met all regulatory requirements the assigned CPM will complete the following actions:

(a) Document the following information:

1. Findings and recommendations;
2. Discrepancies noted and comments;
3. Date of inspection;
4. The assigned CPM and certification team members, office designator and signature;

(b) Prepare the Approval Certificate which will be signed by the President;

(c) If required, prepare the Operations Specifications (OPS Specs) as appropriate showing the approvals and limitations which will be signed by the President;

(d) Ensure that the certification report contains at least the following (as applicable):

1. A completed copy of any assessment forms or checklists;
2. A copy of the statement of compliance;
3. A completed copy of the inspection forms and checklists;
4. A copy of the certificate issued;
5. A copy of the OPS SPECS issued (if required).

8.0.2.5.2 Successful completion of this task will result in the following:

(a) Issue of an Approval Certificate and OPS SPEC (where applicable);

(b) Notifying the applicant in writing.

8.0.2.5.3 If the certification is unsuccessful, due to either applicant termination or the failure of an inspection, the

General Manager, A&A will be briefed and letters will be written to the applicant describing the reasons for termination or suspension of the certification process.

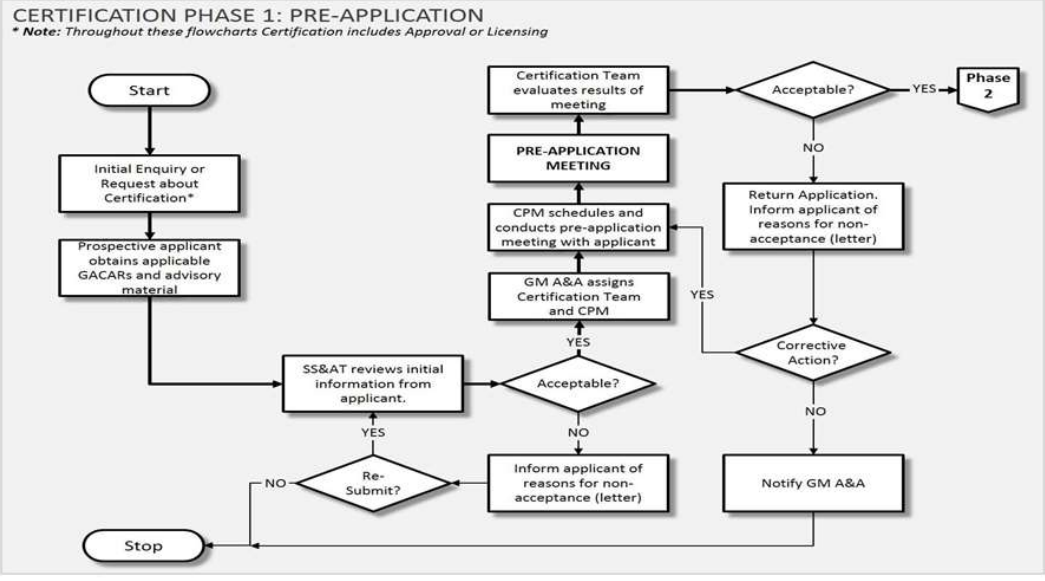
8.0.2.5.4 It is possible that a conditional certification may be granted by the President. This may occur when an identified deficiency and associated corrective action plan is acceptable to the General Manager, A&A. In such circumstances, the issued conditional certificate will contain the specific condition (exemption) under which the certificate is issued, and the time by which that deficiency needs to be rectified.

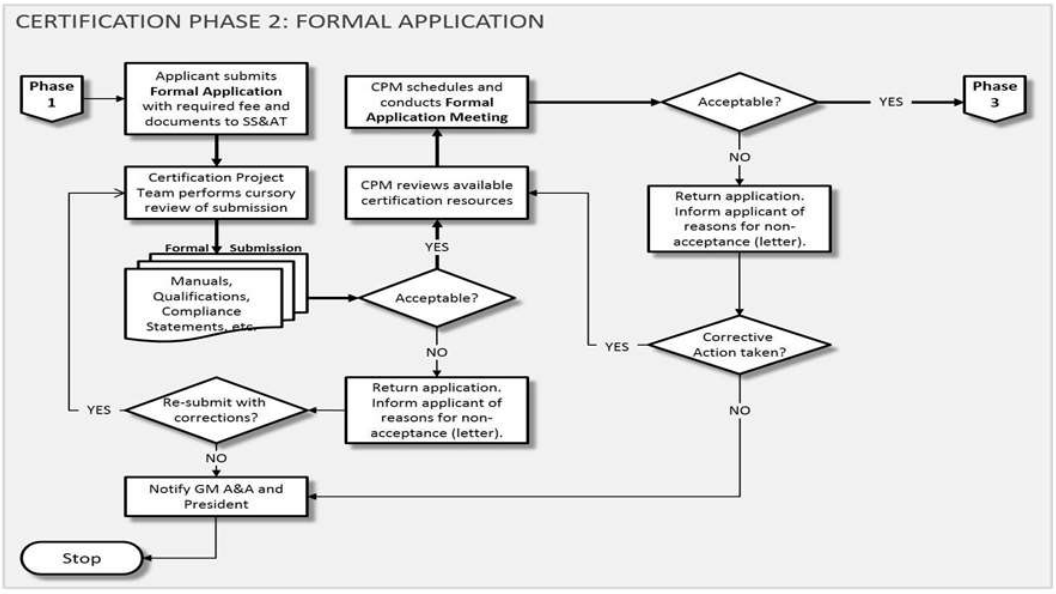
Inspector Guidance: *The general term 'conditional certification' or 'condition' is used here for descriptive purposes. In practice, if an applicant is unable to meet certain requirements for the issue of a certificate, but is able to demonstrate that they can operate safely whilst they achieve compliance with the requirements, the President may issue an 'exemption' from the regulatory requirement.*

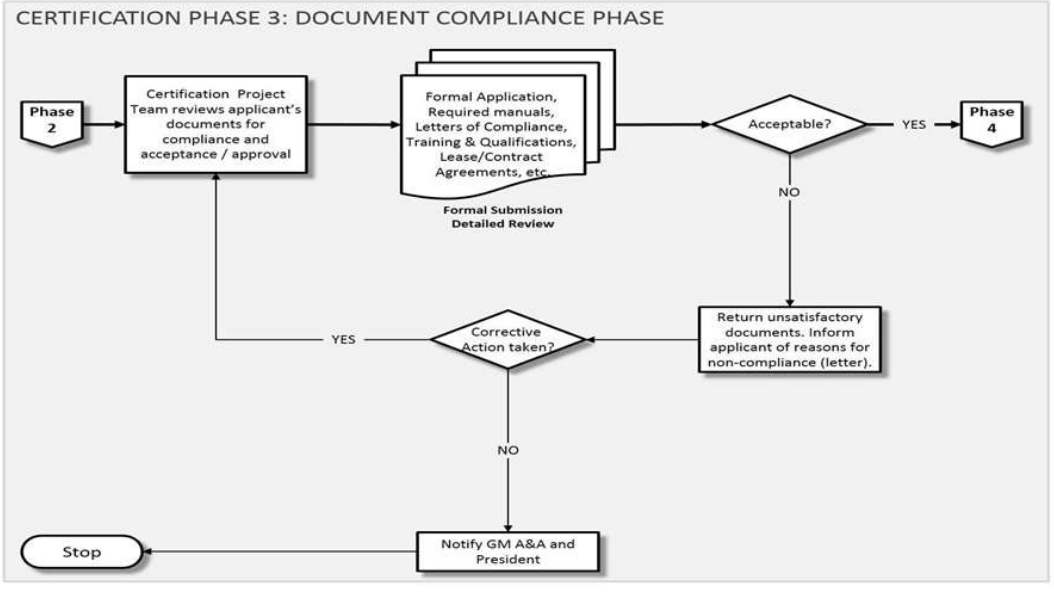
Any exemption issued will be time limited *– that is, it will not apply indefinitely, and the applicant must provide* evidence that they will achieve full compliance within a reasonable period of time.

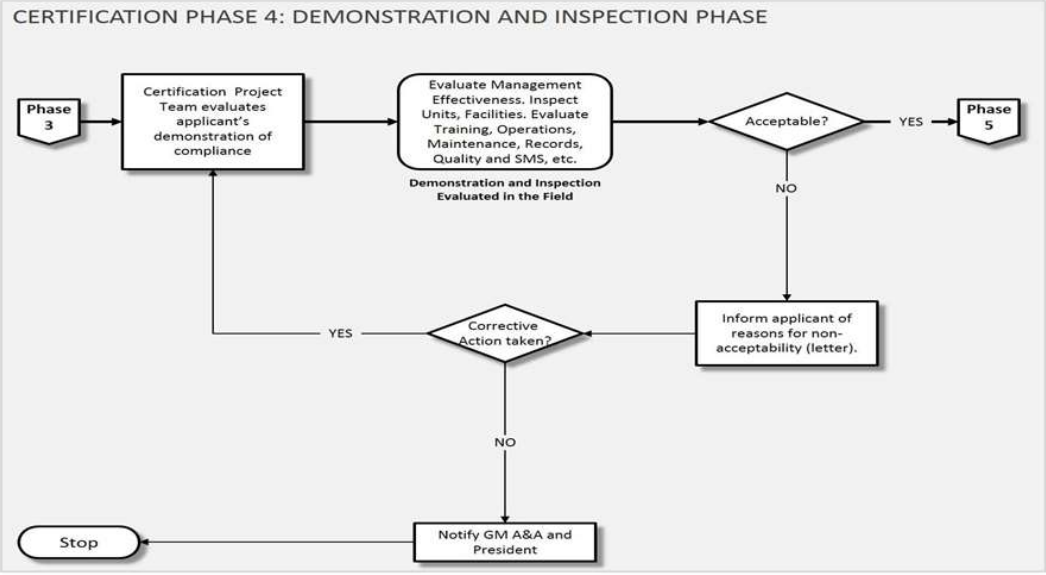
8.0.2.5.5 When the condition on a conditional approval is met, a new certificate will be issued.

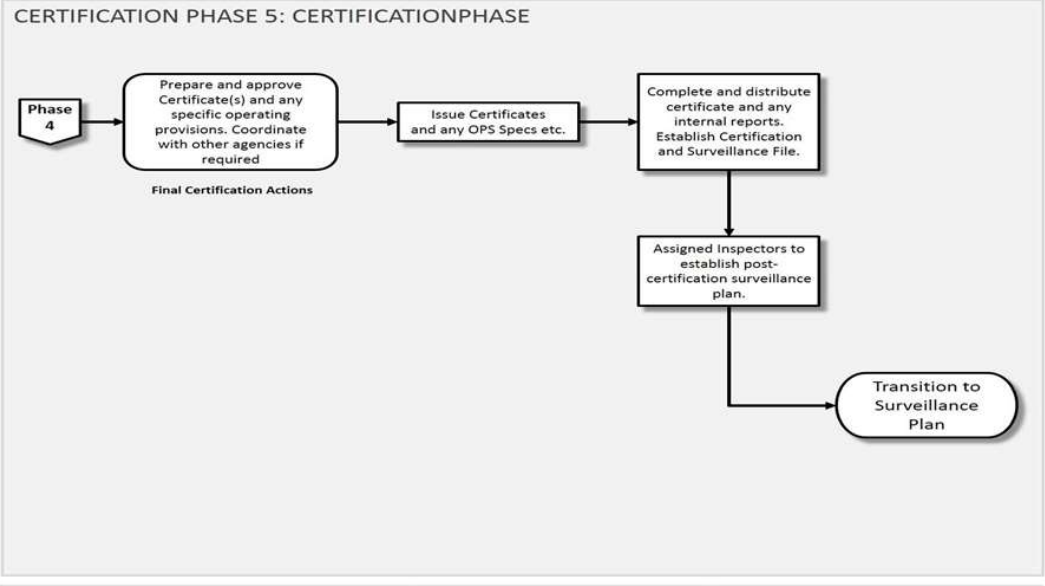
8.0.2.5.6 Original certification reports will be retained at the President's office




CERTIFICATION PHASE 2: FORMAL APPLICATION
Phase 1
Applicant submits Formal Application with required fee and documents to SS&AT
Certification Project Team performs cursory review of submission
Formal Submission
Manuals, Qualifications, Compliance Statements, etc.
Acceptable?
YES
NO
Return application. Inform applicant of reasons for non-acceptance (letter).
Re-submit with corrections?
YES
NO
Notify GM A&A and President
Stop
CPM reviews available certification resources
CPM schedules and conducts Formal Application Meeting
Acceptable?
YES
Phase 3
NO
Return application. Inform applicant of reasons for non-acceptance (letter).
Corrective Action taken?
YES
NO


CERTIFICATION PHASE 3: DOCUMENT COMPLIANCE PHASE
Phase 2
Certification Project Team reviews applicant's documents for compliance and acceptance / approval
Formal Application, Required manuals, Letters of Compliance, Training & Qualifications, Lease/Contract Agreements, etc.
Formal Submission
Detailed Review
Acceptable?
YES
Phase 4
NO
Return unsatisfactory documents. Inform applicant of reasons for non-compliance (letter).
Corrective Action taken?
YES
NO
Notify GM A&A and President
Stop


CERTIFICATION PHASE 4: DEMONSTRATION AND INSPECTION PHASE
Phase 3
Certification Project Team evaluates applicant's demonstration of compliance
Evaluate Management Effectiveness. Inspect Units, Facilities. Evaluate Training, Operations, Maintenance, Records, Quality and SMS, etc.
Demonstration and Inspection Evaluated in the Field
Acceptable?
YES
Phase 5
NO
Inform applicant of reasons for non-acceptability (letter).
Corrective Action taken?
YES
NO
Notify GM A&A and President
Stop


CERTIFICATION PHASE 5: CERTIFICATIONPHASE
Phase 4
Prepare and approve Certificate(s) and any specific operating provisions. Coordinate with other agencies if required
Final Certification Actions
Issue Certificates and any OPS Specs etc.
Complete and distribute certificate and any internal reports. Establish Certification and Surveillance File.
Assigned Inspectors to establish post-certification surveillance plan.
Transition to Surveillance Plan

VOLUME 8. AIR NAVIGATION SERVICES - CERTIFICATION & ADMINISTRATION

CHAPTER 0. AIR TRAFFIC SERVICE PROVIDERS

Section 3. ANS Safety Oversight Audits

8.0.3.1 Purpose

8.0.3.1.1 Audits and inspections of ANS-related organisations and facilities are part of a suite of safety and regulatory compliance and monitoring activities undertaken by the ANS Safety Oversight (ANSSO) section as part of a continuous monitoring approach to safety, and in response to the requirements of both the GACA Regulations and the standards and recommended practices (SARPs) of the International Civil Aviation Organization (ICAO).

8.0.3.1.2 The purpose of this chapter is to outline the requirements, and provide inspectors with guidance and information on standard procedures that should be used during audits and inspections of ANS-related entities. The intent is to ensure transparency of the audit and inspection process for both ANSSO, and those ANS-related entities subject to audit/inspection.

8.0.3.1.3 This chapter details all the activities included in the ANSSO ANS audit and inspection process, from audit or inspection planning, through the audit or inspection, and to the follow-up activities. The provisions of this chapter apply to all ANSSO staff - and seconded staff - who are involved in ANS audits or inspections.

8.0.3.1.4 The provisions of this chapter apply to audits or inspections of the ANS-related entities including:

Part 171 Air Traffic Services Providers;

Part 172 Instrument Flight Procedure Design organisations and Part 172 Flight Validation Service Providers;

Part173AeronauticalTelecommunications(ATEL)Providers(including Communications, Navigation and Surveillance (CNS) services) and Part 173 Flight Inspection Service Providers;

Part 175 Aeronautical Information Services (AIS) Providers (covering aeronautical information, charting and cartography);

Part 177 Search and Rescue (SAR) services; and

Part 179 Aviation Meteorological Services provided by the Presidency of Meteorology and

Environment (PME) (subject to the provisions of a Memorandum of Understanding).

8.0.3.1.5 The general documents used as references for ANSSO audits include, but are not limited to:

GACA (Civil Aviation) Regulations (GACARs);

Annexes to the International Convention on Civil Aviation (Chicago Convention) (ICAO Annexes);

ICAO Doc 4444 – Procedures for Air Navigation Services - Air Traffic Management;

ICAO Doc 9426 – Air Traffic Services Planning Manual;

ICAO Doc 9734 - The Establishment and Management of a Safety Oversight System;

ICAO Doc 9859 - Safety Management Manual.

8.0.3.1.6 Reference documents relating to AIS and Instrument Flight Procedure design audits include, but are not limited to:

ICAO Procedures for Air Navigation Services – Construction of Visual and Instrument Flight Procedures (PANS-OPS Volume II) (Doc 8168), as amended from time to time;

ICAO Procedures for Air Navigation Services – Abbreviations and Codes (PANS-ABC)(Doc 8400), as amended from time to time;

ICAO Aeronautical Information Services Manual (Doc 8126), as amended from time to time;

ICAO Aeronautical Chart Manual (Doc 8697), as amended from time to time;

ICAO Regional Supplementary Procedures (Doc 7030), as amended from time to time;

ICAO Template Manual for Holding, Reversal and Racetrack Procedures, (Doc 9371);

ICAO Required Navigation Performance Authorization Required Procedure Design Manual (Doc 9905)

ICAO Collision Risk Manual (CRM) (Doc 9274);

ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906):

- Volume 1 – Flight Procedure Design Quality Assurance System;
- Volume 2 – Flight Procedure Designer Training;
- Volume 3 – Flight Procedure Design Software Validation;
- Volume 4 – Flight Procedures Design Construction (when developed);
- Volume 5 – Validation of Instrument Flight Procedures; and
- Volume 6 – Flight Validation Pilot Training and Evaluation;

ICAO Instrument Flight Procedures Construction Manual (Doc 9368);

ICAO Continuous Descent Operations Manual (Doc 9931);

ICAO Performance Based Navigation Manual (Doc 9613);

ICAO Manual on All Weather Operations (Doc 9365); and

Saudi Arabia Aeronautical Information Publication (AIP).

8.0.3.1.7 Reference documents relating to CNS audits include, but are not limited to:

ICAO Doc 8071 Volume I — Testing of Radio Navigation Systems – Testing of Ground-based Systems; and

ICAO Doc 8071 Volume III - Testing of Radio Navigation Systems – Testing of Surveillance Radar Systems.

8.0.3.1.8

The specific documents against which an audit will be conducted will be advised to the organisation being audited in advance of the audit.

8.0.3.2 Audit and Inspection Principles

8.0.3.2.1 Reflecting ICAO's shift in safety management principles from a snap-shot safety monitoring process to a continuous monitoring approach, and mindful of the need to ensure appropriate use of safety management resources across GACA, the following Audit and Inspection principles will apply for ANS Safety Oversight:

1. Safety Oversight and Regulatory Compliance Audits and Inspections will form a part of an integrated continuous monitoring approach to safety management;
2. Audits and inspections will be tailored to the complexity and level of activities within each of the ANS entities.
3. Audits and inspections will be scheduled on the basis of an examination of available safety and regulatory compliance evidence including recent audit or inspection reports, responses to corrective action plans, incident and occurrence data, audits or reviews conducted internally by the ANS provider, and other relevant information;
4. Notwithstanding the provisions of 3) above, all ANS service providers will have at least one of their individual units audited annually on a scheduled basis, and all individual units of an ANS provider will be subject to at least one scheduled audit by ANSSO in a 4-yearly cycle and the period between audits of any individual unit will not exceed 4 years. ANSSO will also conduct

random or unscheduled inspections as required;

5. The safety related component of audits or inspections will be focused on an ANS entity's overall safety management capabilities and is primarily aimed at determining the presence of, commitment to, and effectiveness of each ANS entity's safety management system;
6. The compliance-related component of audits or inspections will be focused on an ANS entity's ability to demonstrate adherence to the GACAR requirements relating to that entity;
7. Corrective action plans, where required, are to be submitted by ANS entities to ANSSO following the audits or inspections in accordance with an agreed timetable; and
8. Follow-up audits or inspections will be conducted to monitor the implementation of corrective actions.

8.0.3.2.2 Audit and inspection reports and associated documentation will be produced and distributed in accordance with the procedures in the ANSSO ANS Audit and Inspection General Procedures document, subject to the confidentiality requirements of the Memorandum of Cooperation between ANSSO and ANS regarding Air Navigation Safety Oversight and Related Matters;

8.0.3.2.3 Where, in response to an audit or inspection finding and requested corrective action or a notified corrective action plan, there is continuing non-conformance or non-compliance, a report will be made to the Director requesting appropriate remedial action; and

8.0.3.2.4 ANS will collaborate with ANSSO to co-ordinate actions and establish guidance material and means of compliance for the implementation of internationally agreed safety provisions, or changes to ICAO Standards and Recommended Practices (SARPS), Procedures for Air Navigation Services (PANS) or other applicable international standards which would have an impact on regulatory compliance.

8.0.3.3 Authority for ANSSO Audits and Inspections

8.0.3.3.1 The ANSSO Section Chiefs are the authorities responsible for establishing the annual ANS audit and inspection program related to their areas of responsibility

8.0.3.3.2 The General Manager, Aerodromes and Airspace (GM A&A), is the authority responsible for approving the proposed ANS audit and inspection program, based on a proposal made by ANSSO.

8.0.3.3.3 The Assistant President, GACA is the authority responsible for reviewing and amending, where required, the sequence of the agreed ANS Audit and Inspection Program and to further detail and approve the basis under which the audit and inspection program will be managed, consistent with the requirements and procedures in this document.

8.0.3.3.4 By delegation from the President, the ANSSO Section Chiefs are responsible for the technical

management and conduct of ANS audits and inspection in accordance with this chapter and associated ANSSO Procedures.

8.0.3.3.5 The ANSSO Section Chiefs are also responsible for reporting to the GM A&A on the progress, conclusions, safety recommendations and any other relevant information pertaining to the audit and inspection program.

8.0.3.3.6 The GM A&A is responsible for reporting the conclusions, safety recommendations, proposals and any other relevant information pertaining to the audit and inspection program to the AP GACA, and the accountable manager at the organisation(s) to be audited.

8.0.3.5 Dissemination of Audit Reports and Related Documentation

8.0.3.5.1 ANSSO will produce all ANS audit reports in electronic and hard copy format. Access to this material will be fully controlled. Internal access is automatically granted to all ANSSO staff as well as the GM A&A.

8.0.3.5.2 The safety manager of each ANS entity is granted access to all relevant ANSSO reports. Once access has been granted, the authorized persons will be able to access the ANSSO audit or inspection reports, related documents and additional information relevant to their respective organisations, and any generic findings applicable across all or more than one ANS entity.

8.0.3.5.3 Authorised persons may grant access to their staff under their own responsibility and for the sole conduct of their professional duties. However, any further access they grant should be accompanied by appropriate measures, established under their responsibility. This recognizes that an ANS entity is the “owner” of its ANSSO audit or inspection report. All of the ANS entity’s staff can access the audit or inspection report at the discretion of the manager of that entity.

8.0.3.5.4 Caution should be exercised regarding the confidential nature of audits and audit reporting, and the need balance the need for transparency against the need to ensure that staff are willing to cooperate freely in future audits, inspections or investigations. Where another party is given access to an audit report of a given ANS entity they may not disseminate the audit report and/or related audit or inspection documentation further.

8.0.3.5.5 Only the GM, A&A, may decide whether or not to publicly disclose any ANS entity audit or inspection report.

8.0.3.5.6 The effectiveness of the ANSSO audit and inspection program can only be achieved when the audit process is fully transparent and audit or inspection reports provide sufficient information for an ANS entity to make an informed determination as to the safety management capability of other ANS entities.

8.0.3.5.7 ANSSO will provide an analysis of the audits or inspections conducted over the year in its Annual Safety Report to the AP GACA. The ANS entities can also provide comments and/or updates on progress made

since the conduct of the audit or inspection. This information will be inserted in the Annual Safety Report.

8.0.3.6 Annual Audit and Follow-up Schedule

Annual Audit Schedule

8.0.3.6.1 On an annual basis, ANSSO Section Chiefs will prepare an audit schedule detailing the regular scheduled audits for the coming 12 month period. This schedule will be provided to the GM A&A, and to all affected ANS entities. Any update/change to the audit schedule will be forwarded, as matter of urgency to any affected ANS entities.

Re-scheduling

8.0.3.6.2 ANS entities are urged to co-operate with ANSSO and accept the intended audit period indicated in the audit and audit follow-up schedule, unless they have a compelling reason not to do so.

8.0.3.6.3 Should an ANS entity be unable to accept the ANSSO audit or follow-up audit during the proposed period, it must address a request for deferral to the GM A&A at least two months prior to the scheduled start of the audit. This request must clearly illustrate the ANS entity's compelling reasons for not accepting the audit as planned. The GM A&A will decide whether or not, and under what conditions, to agree to this request.

8.0.3.7 Quality Assurance

8.0.3.7.1 To ensure the consistency of the information provided under the ANSSO audits or inspections, standardised document templates will be used wherever possible. In addition, all documentation associated with the ANSSO audit or inspection will undergo control measures prior to approval by the GM A&A and final release to the ANS entity.

8.0.3.7.2 All audit or inspection reports (interim, final and follow-up) will be sent to the safety manager of the concerned ANS entity. Requests for additional copies of reports (both 'hard' and 'soft' copies) should be submitted, in writing, to the GM A&A.

8.0.3.7.3 All On-the-Job-Training (OJT) will be subject to a report from the ANSSO Section Chief to the inspector concerned. It will identify any areas of improvement. Audit or inspection Team Leaders will have access to OJT reports in order to verify that improvements are taking place in areas identified.

8.0.3.7.4 A confidential feedback form will also be provided to the ANS entity during the closing meeting. This form has been established to collect ANS entity feedback on the way in which audits or inspections are planned and performed. This information is an integral part of the quality assurance of ANSSO audit and inspection program and will be used by the Aerodromes and Airspace Division as an input for the continuous improvement of the program.

8.0.3.7.5 After each audit or inspection, the Team Leader will prepare a report describing the conduct of the audit or inspection, any difficulties encountered and proposals to improve the planning and conduct of future audits or inspections. The respectiveANSSO Section Chief will maintain a record of all feedback and recommendations made and the actions taken to address the concerns raised.

8.0.3.8 Interface with ANS Entity Safety Monitoring

8.0.3.8.1 The Safety Department (or Safety and Quality Assurance departments where established) of an ANS entity is responsible for monitoring of safety performance of ANS services provided within that entity. ANS data collection processes facilitate the monitoring of the implementation of corrective actions aimed at eliminating or resolving any deficiency.

8.0.3.8.2 ANSSOwillmaintainaninterfaceandcloseworkingrelationshipwithANSSafety Departments in order to take advantage of the synergies between ANSSO audit/inspection and ANS safety monitoring activities to collect safety management related data for continuous monitoring activities, and for use in the audit and inspection processes.

8.0.3.8.3 It is intended that, to the extent possible, ANSSO should have continual access to the ANS entity's safety monitoring data to monitor safety compliance, prepare audits and inspections, and increase visibility of progress made with regard to the corrective actions identified by the affected ANS entity.

8.0.3.8.4 Notwithstanding, in relation to audits and inspections, the data and information from ANS safety monitoring activities must be provided as follows:

(a) At least twice a year each ANS safety department will provide a set of safety monitoring data to ANSSO. This data will be provided for all ANS entities involved in the provision of ANS services;

(b) The results of the bi-annual collection will be provided to ANSSO in the first and third quarter of each year allowing sufficient time to use the information in the development of the annual audit and inspection plan, and the ANSSO annual safety report;

(c) Where ANSSO has notified ANS that an audit will be undertaken of a particular unit, ANSSO will require real time access to the ANS safety monitoring data regarding that unit. Such real time access will cease once the interim audit report has been submitted to the ANS entity and GM A&A.

Inspector Guidance: *real time access is required to ensure that the audit team is provided with the most recently available data and information concerning the unit being audited. Responsibility for safety data collection and logging remains with each ANS safety department.*

8.0.3.8.5 ANS safety department staff in charge of the safety monitoring process will have access to all ANS audit or inspection reports to verify consistency between ANSSO findings and their own safety monitoring findings.

This access is subject to the agreed confidentiality rules.

8.0.3.8.6 Follow-up on the progress of the implementation of an ANS entity's corrective action plan may be made at any time (by prior agreement where real time access is not available) by ANSSO staff.

8.0.3.9Audit and inspection Program Management

ANSSO Audit and Inspection Program

8.0.3.9.1 ANSSO has been established to conduct the safety oversight of ANS entities. ANSSO is also responsible for monitoring ANS regulatory compliance, and coordinates ANS safety regulatory activities, including the coordination of the production of harmonised regulatory requirements and documents for adoption by GACA.

8.0.3.9.2 ANSSO is responsible for the management of the ANS Audit and Inspection Program.

8.0.3.9.3 The ANSSO Section Chief is the Program Manager for audits in his area of responsibility.

ANSSO Audit and Inspection Program Staff

8.0.3.9.4 The ANSSO audit and inspection program is conducted by:

inspectorate staff of the ANSSO section;

other inspectors working in the Aerodromes and Airspace Division, or other GACA Divisions, as required or available;

ANS staff seconded to ANSSO under the terms of a Memorandum of Cooperation;
expert staff contracted or seconded from other States or organisations.

8.0.3.9.5 Seconded staff are suitably qualified persons, selected by the GM A&A. During an audit or inspection, seconded staff are considered to be ANSSO staff and are bound by the same obligations and responsibilities as ANSSO staff regarding audit protocol and confidentiality.

8.0.3.9.6 The ANSSO Procedure '*Guidelines Relating to Secondment of Staff for Regulatory Oversight Duties*' (TGM Volume 8, Chapter 8.12.1) details the arrangements for staff seconded to ANSSO.

ANSSO Audit and Inspection Personnel

8.0.3.9.7 All personnel assigned to ANSSO audit or inspection duties are required to satisfy pre- determined qualification criteria and training requirements. To be eligible they must:

have demonstrated experience or training in ANS safety regulation and/or safety management;
a good understanding of the requirements related to the establishment and management of an ANS entity's safety oversight system;
except as provided in 8.0.3.9.9 or 8.0.3.9.16, have completed an appropriate ANS Safety Oversight Inspector Course(s) or equivalent;
have a good command of English and ability to write clear reports in accordance with established guidelines; and be able to use office automation equipment and contemporary computer software programs.

Training

8.0.3.9.8 To be eligible to conduct audits or inspections, all ANSSO staff or persons seconded from other departments are required to have successfully completed appropriate Auditor Training Course(s).

8.0.3.9.9 In certain circumstances the GM A&A may grant an exemption to the requirement to have completed an ANS inspector's or auditor's course based on evidence of equivalent qualifications, or on the basis that the inspector's primary role in any audit is related to the provision of technical expertise and advise.

8.0.3.9.10 Each new inspector is required to successfully complete 'on-the-job-training' (OJT) for their first audit and inspection. OJT will be carried under the supervision and direction of the relevant ANSSO Section Chief (or equivalent), who will ensure the provision of appropriate OJT instruction. For this purpose, the ANSSO Section Chief may assign the conduct of OJT instructional activities to ANSSO auditors meeting the criteria as defined in ANSSO Procedures.

Inspector Guidance: *For initial qualification OJT training, inspectors may be assigned to audits or inspections conducted by other Safety Division Sections, or attached to a program conducted in another State acceptable to the GM A&A.*

8.0.3.9.11 In order to remain fully qualified, ANSSO inspectors will be required to:
participate in a minimum of two audits and inspections over a period of twelve (12) months;
attend an annual briefing session organised by the ANSSO Section Chief, prior to commencing the annual program of audits and inspections. This session will cover, as a minimum, the following topics: oaudit and inspection objectives;
audit and inspection procedures and objectives;
associated tools such as checklists and e-Book; and
lessons learnt from previous audits and inspections.

8.0.3.9.12 The annual briefing session will include a written test to evaluate the level of familiarisation and understanding of the principles and processes contained in this chapter. This test will also be used by the ANSSO Section Chief to identify areas for improvement in the processes and practices applied.

8.0.3.9.13 Other briefings may be organised, such as refresher training sessions, depending on experience gained.

Approval of Inspectors

8.0.3.9.14 Inspectors may be approved to conduct audits and inspections if they satisfy the qualification criteria outlined above and if they have successfully completed the training sessions and their first ANSSO or other audit and inspection under OJT.

8.0.3.9.15 Inspectors will be issued an appropriate credential. Except as provided in 8.0.3.9.16, only credentialed inspectors can be assigned as audit or inspection team members or audit or inspection team leaders.

8.0.3.9.16 Where an audit or inspection team member has been seconded or contracted to provide technical expertise and advice only, the GM A&A may waive the requirement for that person to be issued a credential. In such cases, the safety manager of the target ANS entity must be so informed.

8.0.3.9.17 The ANSSO Section Chief will maintain a list of those inspectors approved to conduct audits or inspections. This will also contain records of initial and recurrent training and of the audits and inspections performed by each inspector.

ANS Safety and Regulatory Compliance Audit and Inspection Teams

8.0.3.9.18 Audit or inspection teams will, as a minimum, consist of one team leader and one team member. Additional team members may be required for ANS entities where the level of complexity and implementation of safety management so justifies.

8.0.3.9.19 Except under specific conditions determined by the ANSSO Section Chief (such as for OJT), each ANSSO team will include at least one member from ANSSO permanent staff, and no more than two externally seconded auditors/inspectors.

8.0.3.9.20 Representatives from international organisations or other ANSPs/CAAs might participate in the audits as observers wherever specific working arrangements are concluded to that end. Their role and responsibilities will be defined in those arrangements and communicated to the audited ANS entity. The agreement of the audited entity will be necessary to allow their participation.

8.0.3.9.21 Audit or inspection teams will be assigned for each audit/inspection and follow-up audit/inspection by the ANSSO Section Chief.

8.0.3.9.22 Prior to the commencement of an audit, the ANS entity will be advised of the audit team’s composition and of any subsequent changes.

Audit or Inspection Team Leader

8.0.3.9.23 The audit or inspection team leader assumes responsibility for the conduct and reporting of the audit or inspection, under the overall supervision of the ANSSO Section Chief.

8.0.3.9.24 They will be responsible for the:

overall accomplishment of the mission;
overall interface with the ANS entity manager/head, the audit/inspection team and ANS safety staff;
preparation and conduct of the ANSSO audit/inspection and finalization of the audit/inspection report;
management of any ANS safety activities related to the ANS entity's corrective action plan and follow-up actions.

Audit or Inspection Team Members

8.0.3.9.25 Audit/inspection team members will be involved in the audit/inspection preparation stage. During the on-site audit or inspection they will be responsible for note taking, fact-finding and filling the required checklists and forms with the facts collected. After the audit or inspection, they will be responsible for developing the initial draft of the report and other support activities, as indicated by the team leader.

8.0.3.10 Audit and Inspection Procedures

8.0.3.10.1 General

(a) This section describes the standard procedures and significant elements of the procedures to be applied in the ANSSO Audit and Inspection Program. The figures 1 - 3 below illustrate the process used for the scheduled ANSSO audits and the related timeline (in days). Each of the steps of this process is explained in the following sub-sections of this chapter.

8.0.3.10.2 ANSSO Annual Audit and Follow-up Schedule

(a) On an annual basis, the ANSSO Section Chief will prepare an audit and audit follow-up schedule, de-conflicted with the corresponding ANS-SQA internal audit schedule. This schedule consists of a program of audits for targeted ANS entities and audit follow-ups for a minimum period of twelve months.

Inspector Guidance: *In general, the audit program should be developed for a 3-4 year period (to ensure all ANS units are included in the 4 year cycle). The schedule for the first year (the coming year) will be firm. The schedule for year 2 should be reasonably firm, and the last 2 years (years 3 and 4) have a degree of flexibility. This way it is possible to see which audits can be moved or rescheduled easily, and which audits must be conducted to maintain the 4 year cycle. The audit schedule must also contain sufficient room to allow unscheduled audits to take place as required (e.g., if information is available of a safety deficiency at a location).*
Inspectors should also plan on each audit taking between 2 and 3 weeks in total. A minimum of one week per audit 'on-site' on average – even if it is a small location (some on-site visits might take one day, some 2 weeks). Preparation work, and post audit work, can take at least a week each on average (spread out over several weeks). This means that an individual inspection team could only reasonably do 10 -12 inspections per year (allowing for leave and other commitments) (40-50 audits over a 4 year cycle).

(b) This schedule is a firm plan and ANS entities are urged to co-operate with ANSSO to ensure its delivery. However, should the GM A&A accept a proposal by the ANS entity, to delay an audit, or a serious unforeseen event occurs, the schedule will be revised by the ANSSO Section Chief. Actual dates will be coordinated by the audit Lead Inspector with the managers of the affected ANS entities.

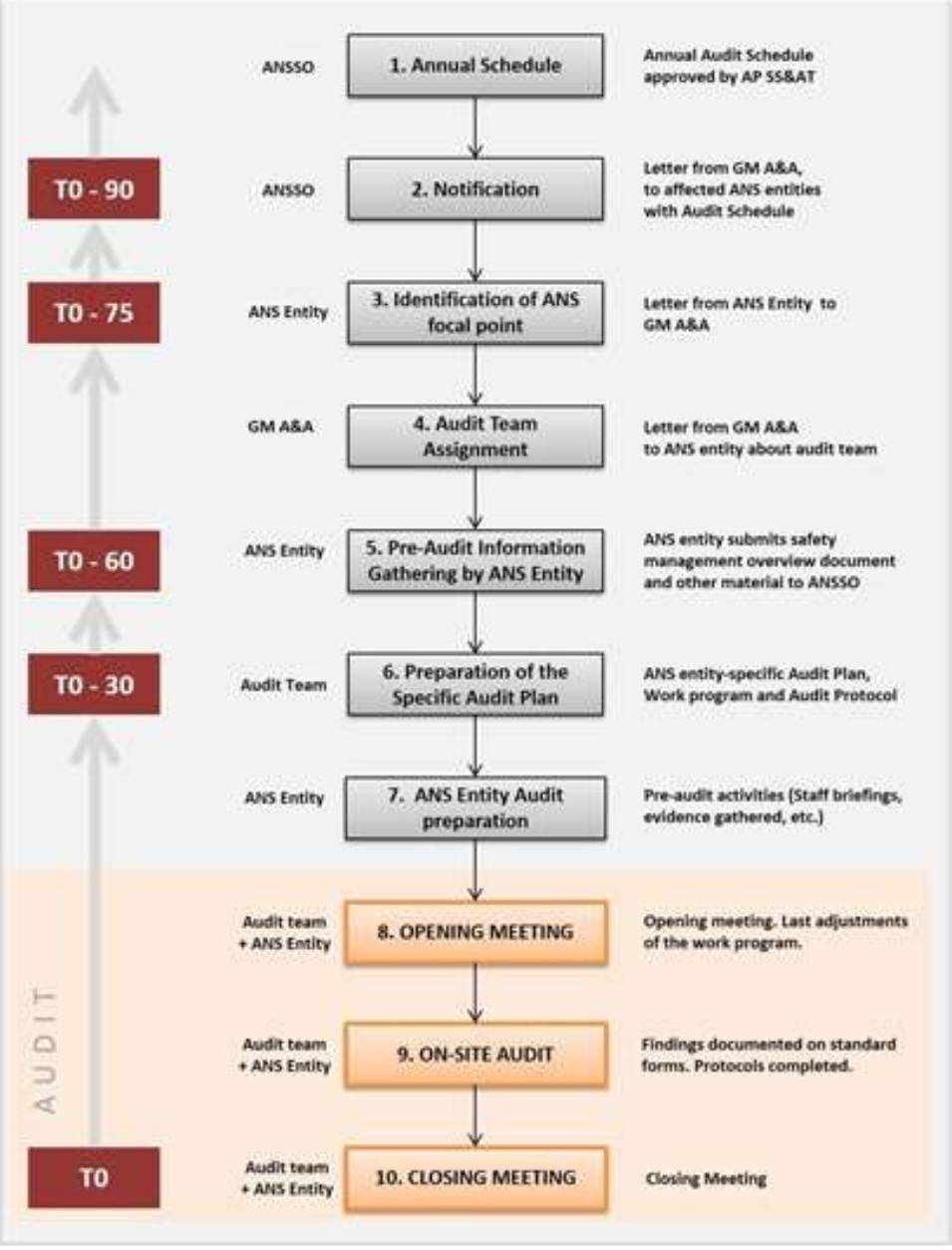


Figure 1 – Audit Process – Phase 1: From Notification to Closing Meeting

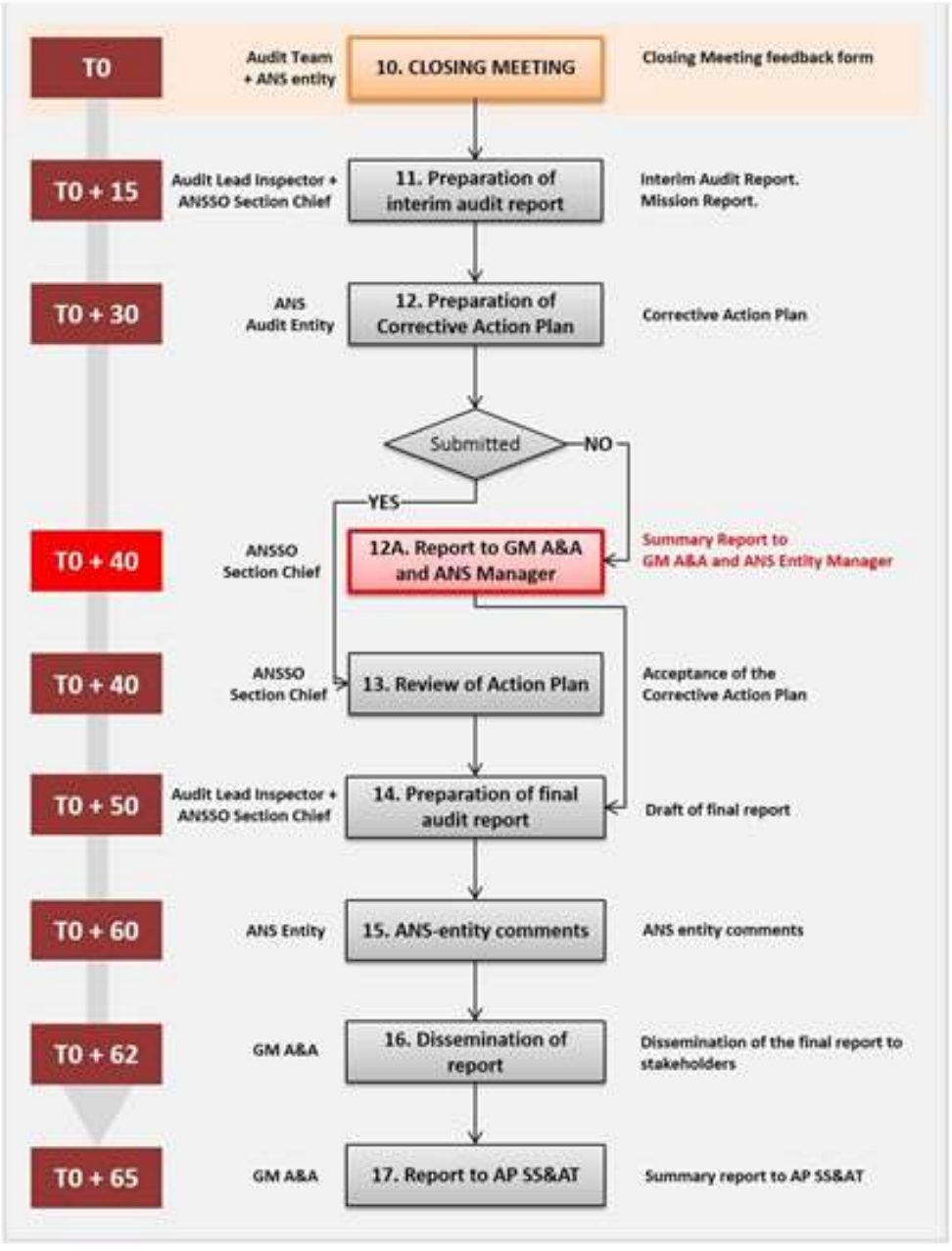


Figure 2 – Audit Process. Phase 2: From Closing Meeting to the End

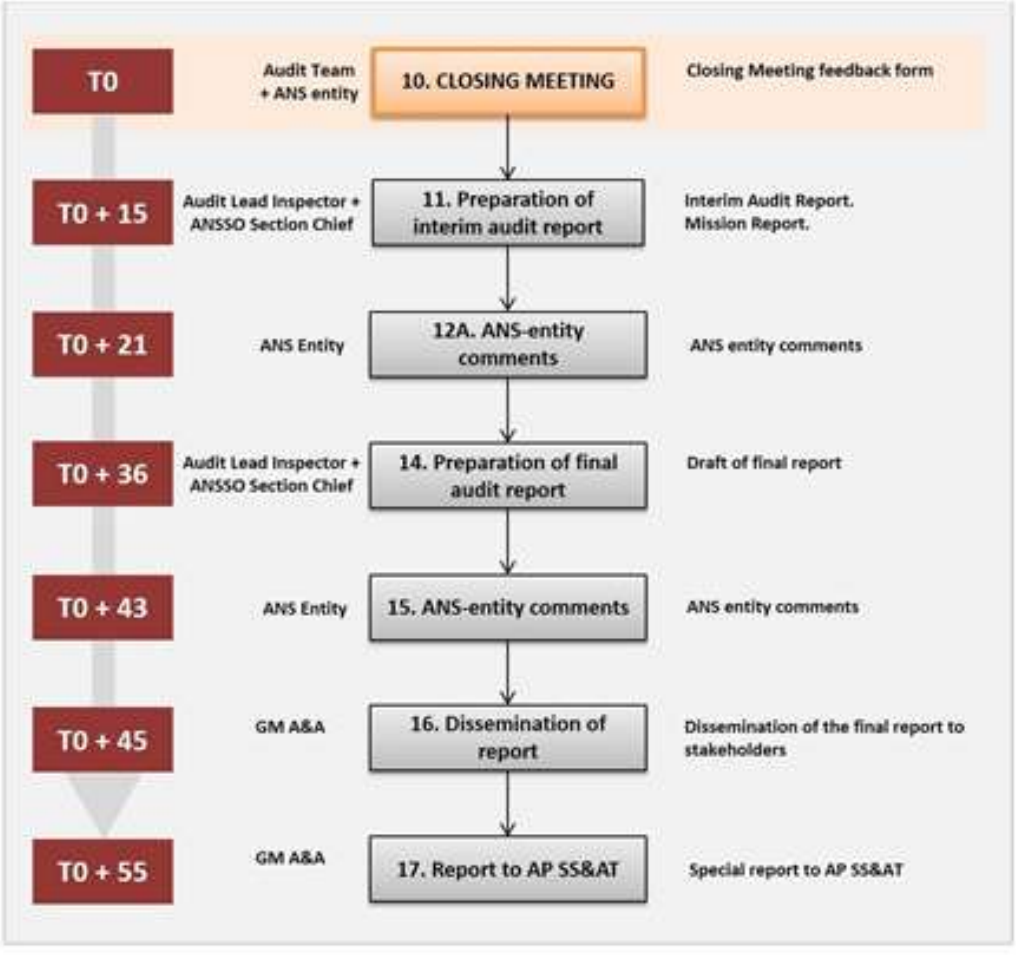


Figure 3 – Audit Process. Phase 3: From Closing Meeting to the End - Special Case: No Action Plan Required

8.0.3.10.3 Notification

(a) Prior to commencing the annual program of audits, the GM A&A, will send a letter to the safety manager of the ANS entity, notifying him of the details of the audits planned for the coming period. The letter will also request the:

designation of a focal point for each audit planned for the coming period;

completion of the Audit Checklist (refer 8.0.3.10.6 below).

(b) The audit schedule will be attached to this letter and will include a reminder that the safety management audit protocol will need to be updated whenever significant changes occur and returned at the least, one month prior to ANSSO audit.

(c) The affected ANS entities will be asked to confirm in writing that the nominated focal point is able to co-ordinate all audit-related matters, as necessary.

8.0.3.10.4 Identification of an ANS entity Focal Point

(a) In acknowledgement the safety manager of the ANS entity, should confirm his agreement with the audit schedule and appoint a focal point for each concerned entity. The focal point will be the interface with the audit Lead Inspector for the preparation, organisation and conduct of the audit. They will co-ordinate with all units involved in the audit, as well as any other relevant external services.

8.0.3.10.5 Assignment of the Audit Team

(a) For each audit, the ANSSO Section Chief will assign an audit team consisting of at least two auditors, assigned at the same time as the annual schedule is established. It will be communicated to each ANS entity through the focal point once that person has been formally identified.

8.0.3.10.6 Pre-audit Data Gathering – Audit Checklist

(a) The Audit Checklist contains a number of questions aimed at:
understanding the overall context of ANS safety management in the ANS entity to be audited;
gathering sufficient data to identify the scope of the on-site audit; and
facilitating the further collection of information in the preparation of the audit.

(b) The Audit Checklist will also collect a list of references to relevant safety operational activities, but without going into a detailed comparison with any safety regulatory provisions. The Audit Checklist is available on the GACA website; designated focal points should obtain a copy prior to formal contacts. This template must be completed before the scheduled audit and updated, if needed, prior to any follow-up audit. The template will be included in the notification of the ANS entity's audit.

(c) The audit Lead Inspector will use the Audit Checklist as the starting point for the preparation of the audit and, if necessary, will clarify its contents with the concerned ANS entity focal point during the preparation of the ANS entity-specific Audit Plan.

8.0.3.10.7 Preparation of the ANS entity-specific Audit Plan

(a) Shortly after the audit team composition has been communicated to the target ANS entity, the audit Lead Inspector will contact the focal point of the ANS entity in order to coordinate the exact date for the on-site audit. In addition, they will collect initial legislative and regulatory material and ensure the audit process is understood.

Document Review

(b) The audit Lead Inspector will consult, collect and analyze any available information which could be of relevance to the audit. This may comprise:
the completed Audit Checklist;
any available information from other areas on safety related matters (incidents reports, safety assessments of changes, Safety Management Manual, etc.,);
the KSA AIP;
previous ANSSO visit report(s) and/or audit report(s) and/or follow-up audit reports for the target ANS entity;
previous Corrective Action Plans of the target ANS entity;
information from the target ANS entity regarding the progress of any outstanding corrective actions;
any useful record of previous routine contacts between ANSSO and the target ANS entity, etc.

(c) In addition, the audit Lead Inspector will liaise with the ANS entity focal point to identify and collect any available relevant documentation and clarify and expand, where necessary, that available information in order to prepare the audit. The audit team leader will use the Audit Checklist and other relevant documents as starting points to obtain the information necessary to support the audit.

(d) Following ANSSO internal procedures, the audit Lead Inspector may arrange internal briefings for a specific ANS audit. Following the document review, the audit Lead Inspector will:
refine the scope of the audit and get agreement from ANSSO Section Chief; identify if priority areas need to be considered during the on-site audit and get agreement from ANSSO Section Chief;
pre-fill the audit protocols based on conclusions of the document review; decide on the audit on-site schedule/program, including which arrangements, elements, services, physical locations, organizational activities, documents, and units are to be audited;
assign audit tasks to the auditors team members;
determine if additional resources may be required and get agreement from the ANSSO Section Chief;
re-assess the Audit Checklist response provided by the ANS entity.

Audit Protocol

(e) The audit protocol is a comprehensive set of audit objectives covering all the elements of the ANS entity's safety management that will subject to the safety audit.

(f) A generic audit protocol has been established in the form of audit objectives. Some of these objectives will be responded to during the initial document review stage, leading to a partially pre-filled audit protocol to be used for the on-side audit. As the audit protocols may need to be adjusted over time, the latest version will be available on the GACA website.

(g) The partially completed audit protocol will be used as a high-level checklist to prepare detailed plans of action and low-level checklists to prepare questions to be asked and evidence to be requested. It will also be used in the "on-site audit" stage to record the facts collected.

Development of the ANS entity-specific Audit Plan

(h) The audit Lead Inspector will develop an ANS entity-specific audit plan and provide it to the affected ANS entity prior to the start of the audit. The purpose of this plan is to outline the sequence of the audit and to provide the ANS entity with the necessary information to respond to the audit. This plan will include the following information:

date of the audit;
objectives of the audit;
scheduled dates for opening and closing meetings, as well as any debrief meetings if required;
identification of the ANS entity key personnel including the contact person designated by the ANS
entity as focal point of the audit;
scope of the audit to be conducted and audit areas to be considered;
identification of typical documents necessary to conduct the audit (not limited);
tentative on-site audit schedules/program of audit activities, including specific locations, any audit of specific units andvisit to working places;
travel schedule of the audit team and administration plans;
audit team members' assignments and responsibilities.

Co-ordination with affected ANS entity

(i) The development of the audit plan will be done in co-operation with the ANS entity. The audit Lead Inspector is responsible for this coordination – in particular the:
overall co-ordination with the affected ANS entity's focal point (date, overall representation, agenda, location, transport arrangements, logistics); and
coordination with the ANS entity's focal point for detailed organizational issues (e.g. access to facilities, security clearance (to visit Tower /APP facilities), meetings with key staff, etc.,).

(j) Wherever necessary, the audit Lead Inspector will provide explanations with regard to the scope of the audit. Any limitation to the actual scope to the audit should be identified by the affected ANS entity as part of the audit plan preparation. Wherever that situation exists, the audit Lead Inspector will inform the ANS entity that any limitation will be documented in the audit report and taken into consideration, as appropriate, in the ANSSO Annual Safety Report.

(k) Wherever, as a result of the document review, the audit Lead Inspector concludes that the Audit Checklist provided by the ANS entity cannot be considered a sufficient means to meet its objectives, the audit team leader will advise the focal point and/or the manager of the ANS entity and inform him/her that this situation will be documented in the audit report.

Involvement of the Audit Team

(l) The audit Lead Inspector will involve the audit team as appropriate in the audit preparation, especially in refining or customising the audit protocols and the on-site schedule/program, as well as identification of audit priorities.

(m) The audit team will be responsible for the establishment of the plans of action and low-level checklists for the audit tasks they have been allocated. In addition, the audit Lead Inspector will provide at least one specific briefing to the assigned audit team prior to the audit and an on-site audit preparation briefing prior to the commencement of the audit.

Modifications to the Audit Plan

(n) The audit plan may be updated (either at the request of ANSSO or the target ANS entity) before the audit and/or during the opening meeting. Any modification will be agreed by the manager of the ANS entity.

8.0.3.10.8 ANS Entity Audit Preparation

Assistance to the Audit Team

(a) On the basis of the audit plan and prior to the start of the audit, the target ANS entity will be asked to assist the audit team by providing:

private working space, if required;
access to a photocopier (and facsimile machine, if required);
access to facilities (i.e. building/security passes);
access to electronic communication media such as the internet and e-mail, if available;
access to its files and records or those of any other relevant unit;
access to selected personnel for interviews; and
coordination for access to any external Service Provider as required (e.g., ISP(s), Telecom

provider(s), MET briefing office, etc.,).

Preparation of Interviews and Gathering of Material

(b) On the basis of the audit plan, the target ANS entity should be prepared to respond to the auditor's questions and to provide any required data or material.

8.0.3.10.9 Opening Meeting

(a) The audit Lead Inspector will conduct an opening meeting on the first day of the audit. The purpose of the meeting is to brief the target ANS entity on the audit program, process and scope and to confirm audit schedule arrangements.

(b) The attendees of the meeting should be the members of the audit team, the ANS entity focal point and representatives of the ANS entity, including senior management, as appropriate. It is highly recommended that a representative from the ANS safety (or safety and quality) management / assurance department take part in the audit as observer.

(c) The agenda will include at least the following items:

introduction of the members of the audit team and representatives of the ANS entity, including senior management, if any;

reminder of the ANSSO audit program principles;

wherever necessary, reminder of the ANSSO approach to verify implementation of ANS safety provisions;

reminder of the objectives and scope of the audit;

review of the tentative on-site schedule/program;

short presentation of the methods and procedures to be used in conducting the audit;

interaction between the audit team members and the ANS entity staff;

facilities and administrative arrangements;

visits to units and external services (if needed);

time, date and place for the closing meeting and any interim meetings of the audit team and the target

ANS entity’s senior management;

clarification of any unclear details of the audit plan;

procedures for documenting audit findings.

8.0.3.10.10 On-site Audit

General

(a) As far as practicable and possible, the arrangements planned for the audit should be respected. The audit Lead Inspector will only make modifications with the agreement of the manager of the ANS entity or representatives, preferably at the opening meeting.

(b) The audit team will gather data in a systematic and objective way. Material will be collected through interviews, examinationof documents, observation of activities andconditions in the areas of concern. Information gathered through interviews will be verified. The absence of evidence will generally be reflected as a non-compliance, where related to a mandatory regulatory requirement.

(c) The audit will be conducted following a partially pre-filled audit protocol used as a high-level audit checklist. The corresponding audit protocol form will be completed during this phase of the audit.

Findings

(d) Each finding will be categorised as follows:

Level 1 Non-Compliance: A major regulatory non-compliance with immediate or short-term implications for safety or security. The audit team leader shall consider the severity and probability of the associated risk and assign a timescale for closure between IMMEDIATE and 7 days.

NOTE: *Where a Level 1 finding is recorded, and depending on the nature of non-compliance, the Lead Inspector may impose immediate restrictions or other conditions upon the organisation. In such case he/she shall notify immediately by any means the Assistant President GACA or nominated Deputy.*

Level 2 Non-Compliance: A regulatory non-compliance not defined as Level 1. The audit team leader shall consider the severity and probability of the associated risk and assign a timescale for closure between 8 days and 90 days.

Level 3 (Observation): An observed condition which, in the judgment of the audit team leader, the organisation should modify, eliminate or improve in the interests of continuous improvement for safety or security. No timescale for closure shall be assigned but the organisation shall be expected to provide a written response to the observation within 90 days.

(e) All findings will be recorded on a standard template (see Appendix A), with reference made to the relevant
requirement/audit objective. The findings will contain a factual description of the issue revealed by the audit. They will not include recommendations or proposed corrective actions.

(f) After completing the gathering of facts, the audit team will review all audit findings to:
confirm which are non-compliances and which are observations;
confirm more specifically which findings relate to a mandatory requirement at the time of the audit;
assess the level of each finding (level 1 to 3);
ensure that the findings are documented in a clear and concise manner and are supported by evidence;
identify where ANS entities may need to update their Audit Checklist to reflect the audit findings.

Audit of delegated activities

(g) Reserved.

Visits to External Service provider

(h) Any meeting with external service providers will be undertaken to assist in the verification of the ANS entity's capability to undertake its oversight functions on the quality of the service provided. At no time is it expected to audit the external service providers, or to propose actions, which could interfere with the conduct of the external service provider's business.

(i) Should a need exist to meet with an external service provider for the purpose of the fact finding exercise, the audit team will not act as if "auditing" the service provision functions in lieu of the ANS entity's oversight functions. Therefore, such potential meetings should only be undertaken in conjunction with the ANS entity focal point and/or the ANS concerned department (representative).

(j) Questions asked will never go beyond the agreed scope of the audit, defined in the audit plan and within the audit protocol.

Note: *In the case of the Presidency of Meteorology and Environment (PME), where meteorological services for aviation required under ICAO Annex 3 are provided, safety and regulatory compliance audits will be conducted in accordance with the provisions of the MOU between GACA and PME.*

8.0.3.10.11 Closing Meeting

Meeting

(a) The audit Lead Inspector will conduct a closing meeting at the end of the audit. The purpose of the meeting is to provide the ANS entity with information on all findings that will be included in the interim audit report. A written copy of the draft findings will be provided. Any need for the ANS entity to update the Audit Checklist will also be identified.

(b) Attendees should be the members of the audit team, the ANS entity focal point and the representatives of the ANS entity at senior management level, as appropriate. It is recommended that the ANS safety or safety and quality department also be represented in the closing meeting.

(c) The meeting will emphasize the most significant issues and concisely present the team's findings (i.e. any non-compliances and/or observations). It should ensure that the ANS entity clearly understands the situation and is able to start work on a corrective action plan, if necessary.

(d) The audit Lead Inspector will also inform the ANS entity of the follow-up activities, including any requirement for a corrective action plan. They will also make clear the associated critical dates: i.e., interim and final reports, submission of the corrective action plan as well as information to be forwarded to AP GACA and the ANS entity's accountable manager.

(e) The audit Lead Inspector may propose safety recommendations based on the identified findings. This may indicate the availability of ICAO guidance material, or training courses, which may assist ANS entity

in managing the identified findings.

Agenda

(f) The agenda for the closing meeting will include at least the following items:
reminder of the objective and scope of the audit;
presentation of drafts findings; and
actions by ANSSO and the audited ANS entity following the audit.

8.0.3.10.12 Preparation of the Interim Audit Report

Interim Audit Report

(a) This report is a formal report containing full details of the findings. The ANS entity's corrective action plan will be based on this report. This report also forms the basis for the preparation of the final audit report which will supersede it when completed.

(b) The audit team will prepare a draft of the interim audit report on the basis of the draft findings presented at the closing meeting. No new findings will be raised beyond those reported at the closing meeting. The audit Lead Inspector will then finalize the interim audit report with the support of the ANSSO Section Chief.

(c) The ANSSO Section Chief will then submit the interim audit report to the accountable manager and the safety manager of the ANS entity.

Audit Lead Inspector's Mission Report

(d) The audit Lead Inspector will prepare a report describing the conduct of the audit, any difficulties encountered and proposals to improve the planning and conduct of the audits and/or ANS-related regulations, technical standards or guidance material.

(e) This feedback information is an integral part of the quality assurance program and will be used by ANSSO as an input to the continuous improvement of the audit program.

(f) ANSSO will maintain a record of all feedback and recommendations made in the Lead Inspector's mission report and of actions taken to address the concerns raised.

8.0.3.10.13 Preparation of the Corrective Action Plan

(a) If the audit does not require any corrective actions, the audited ANS entity need only submit its comments on the interim audit report to ANSSO.

(b) If corrective actions are required, the ANS entity will develop a Corrective Action Plan (CAP). This

CAP will define the actions the ANS entity plan to take to resolve identified findings within the period determined and agreed upon for this purpose. These actions shall be recorded on a specific form.

(c) It will specify the corrective actions established for each non-compliance and, as far as practicable, for all observations. It will provide detailed information on the action to be taken, including a timeframe for the commencement and completion of each action.

(d) The development of this CAP should be started immediately following the audit on the basis of the information provided at the closing meeting. It should be consolidated after the receipt of the interim audit report.

(e) All CAPs must be submitted to the ANSSO audit Lead Inspector for acceptance.

8.0.3.10.14 Review of the Corrective Action Plan

(a) The ANSSO audit Lead Inspector will review the CAP and advise the ANS entity of its suitability. Should the audited ANS entity fail to submit its CAP, the ANSSO Lead Inspector will contact the ANS entity to determine why it failed to do so. If necessary, ANSSO will request the GM A&A to take the appropriate action to obtain the CAP.

(b) If deemed necessary, to review progress made in delivering the CAP, ANSSO may visit the ANS entity, or make written or oral contact with the ANS entity.

(c) he findings of this review will be detailed in a review brief. This will include progress reported or observed and information on the completion date of corrective actions in progress, if available, and included in the final report.

8.0.3.10.15 Preparation of the Final Audit Report

(a) The audit Lead Inspector will prepare the final audit report. This report represents the official report of the audit. It contains the detailed information contained in the interim audit report, as well as the ANS entity’s corrective action plan and any analysis of progress made on the implementation of that plan.

(b) Where ANS entity has not submitted a corrective action plan in the prescribed period, the final audit report will indicate this fact.

(c) The structure and content of the audit final report will be similar to the interim audit report, with the exception that the final report will include an analysis of the corrective action plan and the analysis of any progress made on the implementation of that plan.

(d) The ANSSO Section Chief will submit the draft of the final audit report to the concerned ANS entity. A copy of this report will be submitted to ANS entity’s safety department.

8.0.3.10.16 Comments of the Audited ANS entity

(a) The audited ANS entity will submit its comments on the final audit report to ANSSO. At the same time, it will update the Audit Checklist if necessary and provide it to the ANSSO.

8.0.3.10.17 Dissemination of the Final Audit Report

(a) As far as is practicable, ANSSO will take into account the audited ANS entity's comments in the final version of the report. The final report will also indicate those ANS entity comments which could not be taken into account.

(b) ANSSO will make the final report available to the accountable manager and the safety manager of the audited ANS entity.

8.0.3.10.18 Reports to the President

(a) In the exceptional case of persistent non-compliance by an ANS entity, the ANSSO Section Chief will report the details of the audit(s) findings of the ANS entity, through the GM A&A, and AP GACA to the President. The need for a detailed report will be discussed by ANSSO on a case-by-case basis, giving consideration to the reasons why there is a lack of compliance and whether or not a technical assistance is considered appropriate to facilitate resolution of non-compliance.

(b) ANSSO and the safety department of the ANS entity may also adopt coordinated activities with regard to ANS entities not developing or implementing corrective actions. These activities will mainly focus on any assistance required to address audit findings.

8.0.3.11 Follow-Up Procedures

8.0.3.11.1 ANSSO

(a) Follow up on the progress of a crrective action plan may be made at any time by ANSSO staff.

(b) ANSSO will also use reports (when available) from the ANS entity's safety department, or other available surveillance information in order to increase and maintain visibility over the progress on corrective actions identified by ANS entities after audits or inspections.

(c) The main tools, however, used by ANSSO for formally overseeing the implementation of corrective actions by ANS entities are follow-up audits or inspections.

8.0.3.11.2 Interface with ANS Safety Departments

(a) To assist internal ANS safety monitoring activities, ANS Safety Departments should use the ANSSO audit or inspection report and corrective action plan as a means of monitoring progress made. This will ensure consistency between ANSSO surveillance and safety monitoring findings.

8.0.3.11.3 Follow-up Audit Process

(a) A follow-up audit or inspection may be conducted to validate the satisfactory implementation of the ANS entity's corrective action plan.

(b) This may be conducted between three and six months after the initial audit (or inspection), or as decided, based on the information available to ANSSO on the implementation of corrective actions.

(c) The primary purpose of a follow-up audit (or inspection) is to validate the effective implementation of the corrective action plan submitted by the ANS entity following the initial audit (or inspection) or, in the absence of a corrective action plan, the status of correction of findings noted during the follow-up audit (or inspection).

(d) he audit (or inspection) follow-up procedures to be followed are similar to those applied during a regular safety audit (or inspection):
The first stages of the process, from the annual plan to the closing meeting are the same as those of the standard process; The next stages and the corresponding timeline, from the closing meeting to the end are defined in Figure 4. These stages are the same as for the corresponding stages in the standard audit procedure (although some stages of the standard audit procedure are not required);

(e) The following subsections of this chapter define the differences between the regular safety audit procedure and the follow-up audit procedure.

8.0.3.11.4 Annual Audit and Follow-up Schedule

(a) The follow-up audits are planned at the same time as the initial audits. The team members assigned to a follow-up audit may or may not have been members of the original audit team.

8.0.3.11.5 Preparation of the ANS entity-Specific Audit Plan

(a) Follow-up audits are generally limited to ascertaining whether safety issues identified during the initial audit have been satisfactorily resolved, hence the preparation for the follow-up audit will be different. The audit team will develop an audit follow-up checklist based upon the actions defined in the corrective action plan or from findings noted during the initial audit.

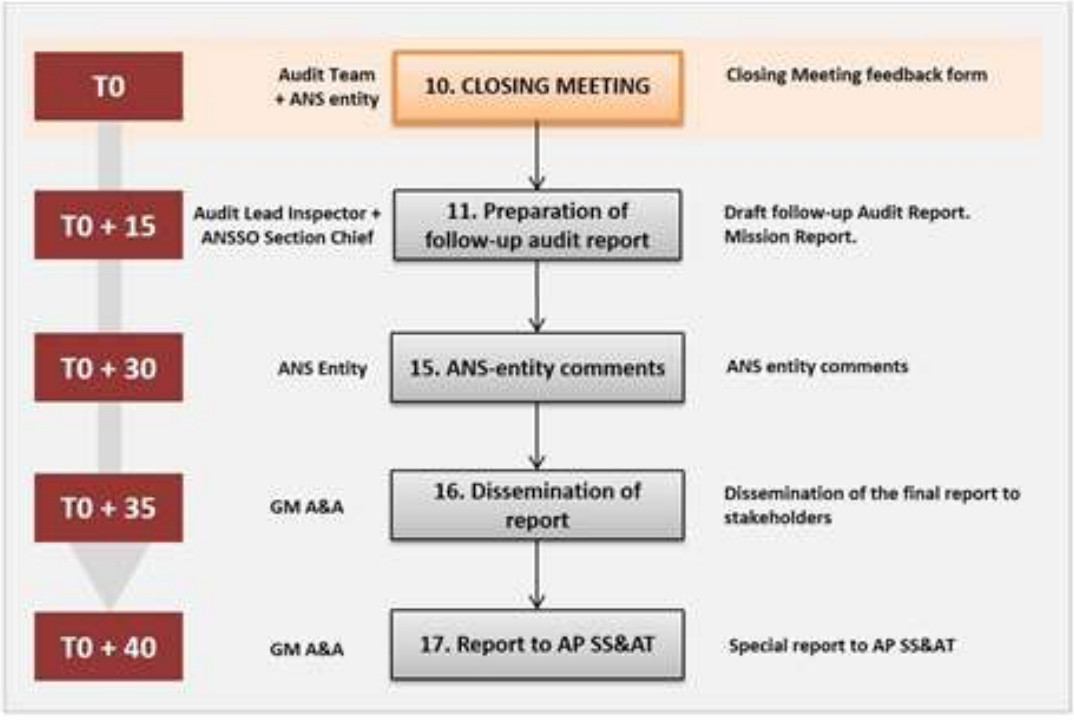


Figure4 – Audit Follow-up Process - from Closing Meeting to the End

8.0.3.11.6 On-site Audit

(a) The on-site audit will be conducted in the same way as a regular audit. The standard finding forms produced during the initial audit will be completed to record the status of the corrective actions.

(b) If the follow-up audit identifies significant safety concerns in relation to the ANS entity's compliance with the applicable ANS safety regulations which are outside of the scope of the follow-up audit, it will record those concerns as "observations" requiring corrective action by the audited ANS entity. These observations will be recorded on a specific form (see Appendix A).

(c) The observations will be included in a separate section of the follow-up report, and the audited ANS entity will be encouraged to submit an additional corrective action plan for these findings.

8.0.3.11.7 Follow-up Report and Summary Report to the AP GACA

(a) The ANSSO Section Chief will submit the follow-up report to the ANS entity. The ANS entity should then submit any feedback and comments.

(b) ANSSO will disseminate the follow-up report in the same way as for the initial audit.

(c) In the exceptional case of persistent non-compliance, the ANSSO Section Chief will report this through the GM A&A, to the AP GACA in the same way as for the initial audit.

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 1. AIR TRAFFIC SERVICE PROVIDERS

Section 1. Certification of Air Traffic Service Providers

8.1.1.1 General Information

8.1.1.1.1 The purpose of this chapter is to provide guidance material for ANS Safety Oversight Inspectors in the management of applications for certification as an Air Traffic Service (ATS) provider in KSA under the provisions of GACAR Part 170 and GACAR Part 171.

8.1.1.1.2 Specifically this chapter identifies the regulatory requirements that must be considered, and also provides a set of questions (checklist) regarding those regulatory requirements and additional questions (as required) which will enable an inspector to determine if an applicant can satisfy the regulatory requirements.

Inspector Guidance: *There are two purposes of the checklist questions. The first is to provide evidence that all regulatory requirements have been addressed when considering an application. The second is to allow the inspector to ensure that they have the required competency to provide air traffic services in KSA – air traffic services is a safety critical activity and it is essential that the approved/certified organisation understands its safety obligations and has the right management structures, operational personnel, equipment and procedures to fulfil those obligations.*

8.1.1.2 Regulatory Requirements – Part 170

8.1.1.2.1 The general regulatory requirement for an Air Traffic Services (ATS) Provider to obtain certification from GACA, and the requirements relating to that service, are contained in GACAR Part 170. The following extracts are relevant to the initial certification of an ATS provider:

a. Applicability

§ 170.1 Applicability.

(c) …

(d) This part does not apply to:

1. Air navigation services provided exclusively for military flight operations;
2. A person who is providing air navigation services to military aircraft in the course of his duties for theArmed Forces of the Kingdom of Saudi Arabia; or

3. Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia

Inspector Guidance: *The provisions at 170.1.(d) seem to indicate that an ATS provider involved only in services for military use at military aerodromes may not need to obtain a Part 170/171 certification.Inspectors should exercise caution, as often military aerodromes are used by civil operations.*

a. Certifications, Authorisations, Prohibitions

§ 170.3 Certifications, Authorizations, and Prohibitions.

(d) …

(e) No person may provide an air navigation service under this part without holding appropriate security authorization from the President.

(f) …

Inspector Guidance: *requirements relating to security authorisation are management by the aviation security (AvSec) division of GACA. Inspectors should consult with AvSec to determine the requirements and what advice to provide an applicant.*

b. Safety Management Systems

§ 170.7 Safety Management Systems.

(a) Certificate holders authorized to conduct operations under GACAR Part 171, 172, 173 or 175 must have a Safety Management System (SMS) that meets the requirements of GACAR Part 5 and is acceptable to the President.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171, 172, 173 or 175 must demonstrate, as part of the application process under GACAR § 170.25, that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President.

Inspector Guidance: *<u>GENERAL</u> Requirements relating to Safety Management Systems are at GACAR Part 5. GACAR Part 199 (Transition) allows existing ATS providers a period of 21 months from 1 March 2016 to become fully compliantwith SMS requirements of GACAR Part 5. GACA ANS ATS is considered an existing organization.*
New applicants will need to demonstrate compliance with Part 5 prior to certification – however, inspectors

may consider an application for exemption (i.e., conditional approval) if the applicant is able to meet all other requirements – AND is able to demonstrate that they will be fully compliant with SMS in a reasonable time – e-Book Volume 2 provides guidance.
Guidance material for evaluating SMS is at e-Book Volume 2 – Safety Management Systems. In particular, Inspectors should review Chapters 3, 4 and 5 of Volume 2.
Specific checklists for assessing an applicant's compliance with GACA Part 5 requirements are at Chapter 11 Section 1 (ANS Safety Management System Evaluation Guidelines) of this document.

c. Security Program

§ 170.9 Security Program.

(a) Certificate holders authorized to conduct operations under GACAR Part 171 or 173 must have, and put into effect, a security program that is acceptable to the President and that sets out the procedures designed to protect its personnel, and any facility and equipment that it uses, in providing any of its services.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171 or 173 must demonstrate, as part of the application process under GACAR § 170.25, that it has a security program that is acceptable to the President.

Inspector Guidance: *Guidance on assessment of a security program, with checklists, can be found at Chapter 12, Section 4, of this document. This regulation should NOT be confused with 170.3(e) - this is not related to security authorisation.*

d. Qualification to Provide Service

§ 170.23 General Requirements.

A person may not provide an air navigation service unless that person—

(a) Is the Government of the Kingdom of Saudi Arabia; or

(b) Is a person who is to provide an air navigation service:

1. In cooperation with the Government of the Kingdom of Saudi Arabia; or
2. By arrangement with the Government of the Kingdom of Saudi Arabia; or

(c) is a person acceptable to the President; and

(d) Maintains a principal base of operations in the Kingdom of Saudi Arabia; and

(e) Obtains an ANSC.

Inspector Guidance: *for the purposes of interpreting this sub-regulation, GACA is considered to be a government agency, and therefore is in effect operating under the provisions of (a). A sub-contracted agency would qualify under (b). In assessing GACA ANS, inspectors would need to look at the arrangements for separating the provision of ANS by Saudi Air Navigation Services (SANS) and the regulatory function of GACA. It is likely that SANS would not qualify as (a) or (b). Inspectors should therefore consider GACA SANS under provision (c) – i.e., a person acceptable to thePresident. This provision would also apply to other organisations applying for certification, including organisations proposed by GACA SANS as consultants, contractors or sub-contractors. The assessment of what/who constitutes a 'person acceptable to the President' should be based on an assessment of the organisation's competence and ability to comply with GACARs.*

e. Exemptions Based on Other Approvals

§ 170.26 Exemptions Based on Approval Issued by another State

(a) Where an applicant for approval holds an approval as an ANS provider issued by the regulatory authority of another State acceptable to the President, the applicant may be exempted from certain requirements of this Part. (b) In making a decision regarding exemptions, the President may:

1. require the applicant to provide evidence of equivalent compliance with the requirements of this Part or any other relevant Part;
2. contact the regulatory authority of the State that issued the approval to validate equivalent compliance.

Inspector Guidance: *In general, it is unlikely that an ATS provider certified by another State would seek or be granted exemptions – it is more likely that an applicant to provide ATS in Saudi Arabia would be required to demonstrate full compliance. However, it is possible that they may seek exemptions relating to certain documents or systems – e.g., if they have ISO9000 accreditation for their quality management system, or if they have a particular safety management system in place that is configured differently to the GACAR requirements. In each case, an inspector must balance the safety intent of the GACAR against the cost (time, financial etc.) of absolute*
compliance with GACAR if they already hold an equivalent approval.

f. Reasons for Denial

§ 170.29 Issuing or Denying a Certificate.

(a) …

(b) An application for an ANSC may be denied if the President finds that—

1. …
2. The applicant previously held an ANSC that was revoked;
3. The applicant intends to fill or currently fills a key management position listed in GACAR Part 171, 172, 173, 175 or 179, as applicable, with an individual who exercised control over or who held the same or a similar position with a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or
4. An individual who will have control over or have a substantial ownership interest in the applicant, had the same or similar control or interest in a certificate holder whose certificate was revoked or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process.

Inspector Guidance: *This sub-regulation is self-evident. The intent is to stop an applicant from nominating an unsuitable manager. It is important to note the use of the term 'materially contributed' – an inspector must not arbitrarily deny an application if a nominated manager was employed in another organisation whose certificate was revoked. There needs to be evidence that the nominated person was, in fact (not rumour or speculation) a person that was key to the reason for revocation.*

g. Base of Operations

§ 170.61 Maintaining a Principal Base of Operations; Change of Address

(a) Each certificate holder must maintain a principal base of operations.

(b) …

Inspector Guidance: *The intent of this sub-regulation is to ensure that the organisation is able to be contacted if and as required by the President – e.g., for regular oversight inspections, service of notices, etc.*

8.1.1.3 Regulatory Requirements – Part 5 – Safety Management System

8.1.1.3.1 The general regulatory requirement for an Air Traffic Service Provider to have in place a Safety Management System (SMS) are in GACAR Part 5, and GACAR Part 170. The requirements relating to that SMS, are contained in GACAR Part 5.

8.1.1.3.2 As a matter of policy, an ATS Provider may implement a stand-alone SMS for its organization – or, if it is

part of a larger ANS entity, it may be covered under the broad SMS of the whole ANS entity.

Inspector Guidance: *A Safety Management System does not need to be complex – the simpler its design, the more straightforward it will be for a provider to comply with the SMS requirements. Inspectors should be mindful of the scope of operations of the organisation, and the regulatory requirement and quality management system requirements for certification, which should significantly mitigate safety matters which would be addressed under SMS. That is – if the organisation has a good quality management system in place, it should simplify compliance with safety management system requirements, and vice versa. The two systems are complimentary – one with a safety outcome, the other with a performance (including safety performance) outcome.*
Inspectors should use as a reference the SMS for a large air carrier like Saudia Airlines, or FlyNAS and should discuss SMS requirements with flight operations inspectors or airworthiness inspectors because SMS requirements have been in place for longer and are more established for flight operations and airworthiness operations.
If the ATS provider is being covered under the provisions of a 'parent organisation' – e.g., if the provider is covered under an ANS-wide SMS, inspectors should ensure that particular attention is paid in the parent SMS to the specific safety issues within the specific provider, and should ensure that the provider is specifically represented on any SMS management structures, etc. Each provider (ATS, ATEL, AIS etc.) must be specifically represented.

8.1.1.4 Regulatory Requirements – Part 171

8.1.1.4.1 The following regulatory requirements of Part 171 must be evaluated as part of the certification audits. As there are a number of technical requirements specifically related to standards for provision of air traffic control and air traffic services, the full regulatory requirement is not copied into this document but reference is made to specific locations in Part 171. This is the same in the audit checklists.

a. General Provisions

§ 171.1 Applicability.

(a) ….

(b) This part does not apply to:

1. A person who is providing air traffic services to military aircraft in the course of his duties for the Saudi Arabian military; or
2. Any air traffic services provided to military aircraft by the Saudi Arabian militar y.

(c) …..

(d) ……

Inspector Guidance: *reserved*

§ 171.7 Objectives of Air Traffic Services.

(a) The objectives of ATS must be to……

(b) The objectives of the Air Traffic Control (ATC) services ……

Inspector Guidance: *reserved*

§ 171.9 Division of Air Traffic Services.

The ATS must comprise of the following services…….

Inspector Guidance: *reserved*

§ 171.11 Determination of the Need for Air Traffic Services.

(a) The need for the provision of ATS must be determined by consideration of the following…

(b) The carriage of airborne collision avoidance systems (ACAS) by aircraft …….

Inspector Guidance: *reserved*

§ 171.13 Designation of the Portions of the Airspace and Controlled Aerodromes Where Air Traffic Services Will be Provided.

(a) When it has been determined that ATS will be provided in particular portions of the airspace…..

(b) The designation of the particular portions of the airspace or the particular aerodromes must…….

Inspector Guidance: *reserved*

§ 171.15 Establishment and Designation of the Units Providing Air Traffic Services.

The air traffic services must be provided by units established and designated as follows……

Inspector Guidance: *reserved*

§ 171.17 Specifications for Flight Information Regions, Control Areas and Control Zones.

(a) General. The delineation of airspace, wherein ATS are to be provided, …..

Inspector Guidance: *reserved*

§ 171.19 Identification of Air Traffic Services Units and Airspaces.

(a) An ACC or FIC must be identified by the name of a nearby town or city or geographic feature.

(b) A TWR or APP must be identified by the name of the aerodrome at which it is located.

(c) A control zone, control area or FIR must be identified by the name of the unit having jurisdiction over such airspace.

Inspector Guidance: *reserved*

§ 171.21 Aeronautical Data Integrity.

(a) Determination and reporting of ATS related aeronautical data sets must be in accordance with the accuracy and integrity requirements prescribed in …….

Inspector Guidance: *reserved*

§ 171.22 Common Reference Systems.

(a) Horizontal reference system. …

(b) Vertical reference system. …

(c) Temporal reference system. …

Inspector Guidance: *reserved*

§ 171.23 Regional Air Navigation Agreements.

Each ATS provider must coordinate with the GACA Safety, Security and Air Transport (GACA) Sector when interacting with foreign States or foreign ATS providers when there are implications for Regional Air Navigation Agreements for which the KSA is a party.

Inspector Guidance: *reserved*

§ 171.25 Applicability of the Standards of the International Civil Aviation Organization.

Except as otherwise prescribed in this part, each ATS provider must provide services in full compliance with the applicable standards and procedures of the International Civil Aviation Organization (ICAO). …..

Inspector Guidance: *reserved*

b. Management Personnel

§ 171.41 Management Personnel Required.

(a) Each ATS provider must have sufficient qualified management and technical personnel to ensure...

Inspector Guidance: *reserved*

§ 171.43 Management Personnel: Responsibilities.

(a) The GM-ATM is responsible for …..

(b) The ATSU Managers/Chiefs are responsible for …..

Inspector Guidance: *reserved*

§ 171.51 Operations Manual.

(a) Each ATS provider must establish and maintain an operations manual that shows how and where the ATS provider provides, or proposes to provide, air traffic services in compliance with the applicable GACARs.

(b) The operations manual must contain:……

(c) The operations manual must be approved by the President.

Inspector Guidance: *reserved*

c. Manuals

§ 171.53 Air Traffic Services Procedures Manual.

(a) As part of the operations manual, each ATS provider must publish an air traffic services procedures manual (ATSPM).

(b) Where an ATS provider provides services across a number of facilities, the ATSPM must be published in two parts:

1. ATSPM Part 1, which is applicable across all air traffic service units at which the ATS provider provides services and is nationally standardized; and
2. ATSPM Part 2 (Unit Specific Procedures), which is applicable to individual ATS units and which contains procedures applicable only at that unit.

(c) Where an ATS provider provides services at a single location the Part 1 and Part 2 components of the ATSPM may be combined in a single document.

(d) Where an ATS provider produces an ATSPM Part 2, a separate ATSPM Part 2 must be published for each ATS unit. This also applies where there is more than on unit at a particular location.

(e) The ATSPMs must be approved by the President.

(f) An ATS provider may propose, and the President may accept, an alternative means of compliance with this section.

Inspector Guidance: *reserved*

§ 171.55 Air Traffic Service Procedures Manual Formatting & Administration.

(a) The pages of the ATSPM must indicate ….

(b) The ATSPM must be amended at regular intervals…..

(c) Replacement pages must be annotated with …..

(d) Urgent changes or temporary instructions must …..

(e) No changes may be made to the procedures contained in the AT S P M … …

(f) Each ATS provider must:…..

(g) An ATS provider may propose, and the President may accept, an alternative means of compliance with this section

Inspector Guidance: *reserved*

§ 171.57 Distribution of Air Traffic Service Procedures Manual

(a) Each ATS unit must be issued with a sufficient number of copies of the ATSPM to provide ….

(b) The ATS unit manager must have the overall responsibility for all the documents assigned to his unit and is required to account for his holding to the senior operational manager of the ATS provider.

(c) The ATS unit manager must also be responsible for internal unit distribution of copies, and any amendments or supplementary procedures thereto which may be issued from time to time.

(d) Individual holders are responsible to the ATS unit manager for ensuring that their copies are amended as necessary. Controllers assigned to a new location must take their copy with them to the new unit.

Inspector Guidance: *reserved*

d. Air Traffic Controller Qualification Requirements

§ 171.61 Requirement to Hold an Air Traffic Controller Certificate.

(a) Except as provided for in (d), each ATS provider must ensure that a person ……

(b) The rating must be one of the followings types:….

(c) The unit endorsements must be associated with the rating mentioned in (b)……

(d) A person must not be permitted to provide ATC services ……

Inspector Guidance: *reserved*

§ 171.63 Oversight Duties of Each ATS Provider.

(a) Each ATS provider must have processes, procedures and competent personnel to ensure that ……

(b) Each ATS provider must have processes, procedures and competent personnel to ensure that:…….

(c) Each ATS provider must have processes, procedures and competent personnel to ensure …..

(d) Each ATS provider must permit an ATCI to provide an ATC service …….

Inspector Guidance: *reserved*

§ 171.65 Privileges of the Holders of ATCO Certificates While Acting as a Trainee.

(a) An ATCO certificate entitles the holder to provide an ATC service, for which he does not hold a valid rating, under the supervision of an OJTI, who holds a valid rating appropriate to the ATC service being provided.

(b) A controller who has not exercised the privileges of a particular rating and/or unit endorsement within the previous 6 months must not commence on-the- job training until he has been assessed by the concerned ATC training unit for previous competence and successfully completed the required training and assessments.

Inspector Guidance: *reserved*

§ 171.67 Use of ATCO Examiners.

Each ATS provider must have processes, procedures and competent personnel to ensure that:

(a) The unit has an appropriate number of suitably qualified examiners;

(b) Examiners must not conduct examinations for which they do not hold the appropriate examiner authority issued under GACAR Part 183;

(c) Examiners hold valid ratings appropriate to the examinations they are conducting.

e. Training and Checking Programs

§ 171.71 General.

(a) This subpart sets out the requirements for a training and checking program.

(b) Each ATS provider must implement a training and checking program to ensure …..

(c) Processes which address the integrity of staff training must be defined, documented and maintained.

Inspector Guidance: *reserved*

§ 171.72 Unit Training Programs.

(a) Each ATS provider must have a unit training plan (UTP) for each ATCU, approved by the President, which details the processes by which ATCOs are trained.

(b) The UTP must be divided into three phases:…..

(c) Each ATS provider must maintain training records as prescribed in Subpart Z.

(d) The UTP must be fully documented, indicating:…..

(e) Student and/or trainee ATCO must be kept aware of their progress, …..

(f) A report of the student and/or trainee ATCO’s performance must be completed ……

Inspector Guidance: *reserved*

§ 171.73 Roles and Responsibilities.

Each ATS provider must-

(a) Assign the over-all responsibility of managing a specific UTP to the ATSU Manager/Chief who is ….

(b) Direct the ATSU Manager/Chief to assign a training officer. ……

(c) Ensure each ATSU training officer maintains, in a manner acceptable to the President, a training record … …

(d) At the request of any person who is undergoing or has undergone training at an ATCU, provide …..

(e) At the request of the President, provide the President with …..

Inspector Guidance: *reserved*

§ 171.75 Use of Simulators.

(a) All UTP are required to indicate the amount of training, if any, that will be conducted on a simulator.

(b) Each simulator must be approved by the President as part of the course approval process for any particular UTP.

(c) Each ATS provider is required to demonstrate to the President how the simulator and the associated exercises will provide adequate support for the particular training plan.

Inspector Guidance: *reserved*

§ 171.77 On-The-Job-Instructors (OJTI).

(a) Each ATS provider may only use On-The-Job-Instructors (OJTI) who holds a valid air traffic controller instructor (ACTI) certificate issued under GACAR Part 64.

(b) Each OJTI must work under the direction of the ATSU training officer.

(c) Each ATS provider must detail the duties of the OJTI in Parts 1 and 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.79 Annual Proficiency Checks.

Each ATS provider must ensure that each ATCO receives an annual competence assessment as part of the renewal of unit license endorsements.

Inspector Guidance: *reserved*

§ 171.81 Remedial Training.

(a) Each ATS provider must publish instructions for remedial training to ensure that proficiency standards are maintained in Part 1 of the ATSPM.

(b) Each ATS provider must maintain remedial training records as prescribed in Subpart Z.

Inspector Guidance: *reserved*

f.Fatigue Management

§ 171.91 Applicability.

(a) This subpart prescribes requirements for the management of fatigue for all ATCOs. (b) A certificate holder has the option to—

1. Comply with all of the duty period limitations and rest requirements prescribed in this subpart, or
2. Implement a comprehensive fatigue risk management system (FRMS) that provides an equivalent level of safety to the duty period, fitness for duty and rest requirements. Each FRMS must comply with all of the applicable requirements for an FRMS as prescribed in Section II of Appendix F to GACAR Part 5 and must be approved by the President.

Inspector Guidance: *reserved*

171.92 Fitness for Duty.

(a) Each ATCO must report for any duty period rested and prepared to perform his assigned duties.

(b) No ATS provider may assign and no ATCO may accept assignment to a duty period if the ATCO has reported for a duty period too fatigued to safely perform his assigned duties.

(c) No ATS Provider may permit an ATCO to continue a duty period if the ATCO has reported himself too fatigued to continue the assigned duty period.

(d) As part of the handover/takeover procedure each ATCO must affirmatively state he is fit for duty prior to commencing duty.

Inspector Guidance: *reserved*

§ 171.93 Duty Time Limitations.

Except in cases where circumstances or emergency conditions beyond the control of the ATS provider require otherwise—

(a) No ATS provider may schedule an ATCO for more than 10 consecutive hours of duty;

(b) If an ATCO is scheduled for more than 10 hours of duty in 24 consecutive hours, the ATS provider must provide him a rest period of at least 8 hours at or before the end of 10 hours of duty.

(c) Each ATCO must be relieved of all duty with the ATS provider for at least 24 consecutive hours during any 7 consecutive days or the equivalent thereof within any month.

Inspector Guidance: *reserved*

g.Designation, Classification and Registration Of Airspace

§ 171.101 Purpose.

(a) This subpart prescribes procedures that must be used by each ATS provider who that has been authorized by the President for the designation and classification of—

1. Airspace within the territorial limits of Saudi Arabia; and
2. Airspace for which Saudi Arabia has accepted responsibility under international civil aviation agreements.

(b) This subpart prescribes procedures associated with registering airspace in the air navigation register.

(c) This subpart also prescribes rules for persons requesting the designation and classification of airspace.

Inspector Guidance: *reserved*

§ 171.103 General.

(a) Under this subpart the authorized ATS provider may designate—…..

(b) The authorized ATS provider must classify airspace that is designated as controlled airspace ….

(c) The authorized ATS provider may classify a portion of airspace that is not designated …..

(d) Any portion of airspace within a FIR that is not designated as controlled airspace …..

(e) Based on factors such as the number and type of aircraft movements, …..

Inspector Guidance: *reserved*

§ 171.105 Boundaries of Designated Airspace.

(a) The lateral limits of airspace designated under this subpart must be defined by—….

(b) The vertical limits of airspace designated under this subpart must be defined by heights, altitudes, or flight levels.

(c) Unless otherwise specified, the expression to a height includes that height.

Inspector Guidance: *reserved*

§ 171.107 Application for Designation and Classification of Airspace.

(a) Any person with a bona fide interest in airspace may apply to the authorized ATS provider for a designation or classification of airspace under this subpart.

(b) An applicant for an airspace designation or classification must provide the following details:…..

(c) Except for urgent requests that are associated with …….

Inspector Guidance: *reserved*

§ 171.109 Procedure for Designation, Classification and Registration of Airspace.

(a) Before making a designation or classification under this subpart, the authorized ATS provider must … …

(b) For each designation or classification of airspace made under this subpart, the authorized ATS provider must…

(c) Designations and classifications of airspace, and designations of reporting points and mountainous zones…..

(d) The authorized ATS provider must ensure that ……..

Inspector Guidance: *reserved*

§ 171.111 Withdrawal of Designations and Change of Airspace Classification.

(a) If the authorized ATS provider is satisfied that a designation, or a classification, that has been made under this subpart is no longer needed or is no longer appropriate, the authorized ATS provider may withdraw the designation or alter the classification.

(b) The withdrawal of an airspace designation or the change of an airspace classification made under paragraph.

(a) does not come into force until—….

Inspector Guidance: *reserved*

§ 171.113 Air Navigation Register.

(a) The authorized ATS provider must establish and maintain an air navigation register.

(b) The authorized ATS provider must ensure that the air navigation register contains the following information:…

(c) The authorized ATS provider must notify the GACA GACA and each AIS provider …..

(d) The authorized ATS provider must ensure that any transfer of aeronautical data associated from or to the air navigation register complies with the standards specified in the Aeronautical Information Transfer Model (AIXM-5) document or other standards accepted by the President as an equivalent.

Inspector Guidance: *reserved*

§ 171.115 Airspace Designations and Classifications Mandated by the President.

When directed by the President, the authorized ATS provider must designate, classify and register airspace in accordance with instructions prescribed by the President.

Inspector Guidance: *reserved*

h.Establishment and Registration of Routes, Points and Minimum Altitudes

§ 171.121 Purpose.

(a) This subpart prescribes procedures that must be used by each ATS provider who has been authorized by the President for the establishment of routes, points and minimum altitude.

(b) This subpart prescribes procedures associated with registering routes and points in the air navigation register.

(c) This subpart prescribes procedures associated with establishing routes for which strategic lateral offset procedures (SLOP) are authorized.

(d) The development and registration of instrument flight procedures is addressed under GACAR Part 172.

Inspector Guidance: *reserved*

§ 171.123 Establishment and Identification of ATS Routes.

(a) When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes must be provided.

(b) When warranted by density, complexity or nature of the traffic, special routes must be established for use by low-level traffic, including rotorcraft operating to and from helidecks on the high seas. When determining the lateral spacing between such routes, account must be taken of the navigational means available and the navigation equipment carried on board rotorcraft.

(c) ATS routes must be identified by designators.

(d) Designators for ATS routes other than standard departure and arrival routes must be established in accordance with the applicable standards of the International Civil Aviation Organization, and in particular ICAO Annex 11 including Appendix 1 of Annex 11.

(e) Standard departure and arrival routes and associated procedures must be identified in accordance with the applicable standards of the International Civil Aviation Organization, and in particular ICAO Annex 11 including Appendix 3 of Annex 11.

(f) Routes that are established and designated under this subpart do not come into force until those designations are notified and published in accordance with paragraph(g).

(g) The authorized ATS provider must ensure that the details of each route are—

1. Entered in the air navigation register prescribed under GACAR§ 171.113; and
2. Provided to the AIS providers authorized under GACAR Part 175 for publishing in the KSA AIP or by NOTAM.

Inspector Guidance: *reserved*

§ 171.125 Establishment of Routes Where SLOP is Authorized.

(a) Strategic Lateral Offset Procedures (SLOP) are procedures authorized by the President for application …..

(b) The following must be taken into account by the authorized ATS provider when …..

(c) Strategic lateral offset procedures may only be implemented on a regional basis after coordination between all States involved;

(d) The routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, must be promulgated in the KSA AIP; and

(e) Air traffic controllers must be made aware:…

(f) Each authorized ATS provider must publish procedures for SLOP in Part 1 of their ATSPM.

Inspector Guidance: *reserved*

§ 171.127 Establishment of Changeover Points.

(a) Changeover points must be established on ATS route segments defined by reference to …..

(b) Unless otherwise established in relation to the performance of the navigation aids of frequency protection criteria, the changeover point on a route segment must be the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.

(c) Changeover points that are established and designated under this subpart do not come into force until … .

(d) The authorized ATS provider must ensure that the details of each changeover point are—…..

Inspector Guidance: *reserved*

§ 171.129 Establishment and Identification of Significant Points.

(a) Significant points must be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.

(b) Significant points must be established and identified in accordance with the applicable standards …..

(c) Significant points that are established and designated under this subpart do not come into force until those points are notified and published in accordance with paragraph (d).

(d) The authorized ATS provider must ensure that the details of each significant and reporting point are….

Inspector Guidance: *reserved*

§ 171.131 Establishment and Identification of Standard Routes for Taxiing Aircraft.

(a) Where necessary, authorized ATS providers must establish standard routes for taxiing aircraft on an aerodrome between runways, aprons and maintenance areas. Such routes must be direct, simple and where practicable, designed to avoid traffic conflicts.

(b) Standard routes for taxiing aircraft must be identified by designators distinctively different from those of the runways and ATS routes.

(c) Routes that are established and designated under this subpart do not come into force until ….

(d) The authorized ATS provider must ensure that the details of each route are—…..

Inspector Guidance: *reserved*

§ 171.133 Establishment of Minimum Flight Altitudes.

(a) Each authorized ATS provider must determine and promulgate minimum flight altitudes for each ATS route and control area. The minimum flight altitudes determined must provide a minimum clearance above the controlling obstacle located within the areas concerned.

(b) Minimum flight altitudes must be established in accordance with the applicable standards of the International Civil Aviation Organization, and published in accordance with the requirements of ICAO Annex 15 including Appendix 1 of Annex 15.

(c) Minimum altitudes that are established and designated under this subpart do not come into force until those minimum altitudes are notified and published in accordance with paragraph (d).

(d) The authorized ATS provider must ensure that the details of each minimum altitude are—

1. Entered in the air navigation register under GACAR § 171.113; and
2. Provided to the Aeronautical Information Services providers authorized under GACAR Part 175 for publishing in the KSA AIP or by NOTAM.

Inspector Guidance: *reserved*

§ 171.135 Routes and Points Register.

(a) The authorized ATS provider must establish and maintain a routes and points register.

(b) The authorized ATS provider must ensure that the routes and points register contains the current description of each route, significant point, changeover point, reporting point and minimum altitude that is established under this subpart.

(c) The authorized ATS provider must ensure that the routes register contains the current description of each route authorized for SLOP that is established under this subpart.

(d) The authorized ATS provider must notify the GACA S&AT and each AIS provider authorized under GACAR Part 175 of each amendment to the routes and points register.

(e) The authorized ATS provider must ensure that any transfer of aeronautical data associated from or to the routes and points register complies with the standards specified as in the Aeronautical Information Transfer Model (AIXM-5) document or other standards accepted by the President as an equivalent.

Inspector Guidance: *reserved*

§ 171.137 Routes, Points and Minimum Altitudes Mandated by the President.

When directed by the President, the authorized ATS provider must establish and register routes, points and minimum altitudes in accordance with instructions prescribed by the President.

Inspector Guidance: *reserved*

I. Coordination

§ 171.151 Coordination Requirements: General.

(a) Each ATS provider must establish systems and procedures for ensuring effective coordination between its headquarters and each ATSU and the following agencies (as applicable)—……

(b) Each ATS provider must publish coordination procedures required by this subpart in the ATSPM.

Inspector Guidance: *reserved*

§ 171.153 Coordination between the ATS Provider and Operators.

(a) ATSUs, in carrying out their objectives, must have due regard for the requirements of the operators consequent on their obligations as specified in the GACAR, and, if so required by the operators, must make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.

(b) When so requested by an operator, messages (including position reports) received by ATSUs and relating to the operation of the aircraft for which operational control service is provided by that operator must, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

(c) When it becomes evident that delays will be encountered by arriving aircraft, operators or designated representatives must, to the extent practicable, be notified and kept currently informed of any changes in such expected delays.

Inspector Guidance: *reserved*

§ 171.155 Coordination between the ATS Provider and Military Authorities.

(a) Each ATS provider must establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft.

(b) The ATS provider must be responsible for initiating the promulgation of information regarding activities …

(c) Arrangements must be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between ATSUs and appropriate military units.

(d) ATSUs must, either routinely or on request, in accordance with locally agreed procedures, provide … …

(e) Special procedures must be established in order to ensure that:…..

Inspector Guidance: *reserved*

§ 171.157 Coordination between ATS Providers and MET Providers.

(a) To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, …

(b) Close coordination must be maintained between ACCs, FICs and associated meteorological watch offices … .

Inspector Guidance: *reserved*

§ 171.159 Coordination between ATS Providers and AIS Providers.

(a) To ensure that AIS providers obtain information to enable them to provide up-to-date pre-flight information…

(b) Before introducing changes to the air navigation system, due account must ….

(c) Each ATS provider responsible for the provision of raw aeronautical information/data to ….

Inspector Guidance: *reserved*

§ 171.161 Coordination in Respect of the Provision of ATC Service: General.

(a) The coordination and transfer of control of a flight between successive ATCUs and control sectors must … .

(b) Coordination in cases of aircraft experiencing degradation of RNAV …..

(c) Coordination in cases of State aircraft without RNAV capability…..

Inspector Guidance: *reserved*

§ 171.163 Coordination in Respect of the Provision of Flight Information Service and Alerting Service.

(a) Where this is deemed necessary by the President or the ATS provider, coordination …..

(b) Where coordination of flights is effected in accordance with (a), this must …..

(c) This information must be forwarded to the ATSU in charge of the next FIR in which the aircraft will ….

(d) When so required by agreement between the appropriate ATS providers to assist in …..

(e) In circumstances where an aircraft is experiencing an emergency or has declared minimum fuel,…...

Inspector Guidance: *reserved*

§ 171.165 Coordination in Respect of the Provision of Air Traffic Advisory Service.

ATSUs providing air traffic advisory service must apply the coordination procedures specified in GACAR §171.161 with respect to such aircraft having elected to use this type of service.

Inspector Guidance: *reserved*

§ 171.167 Coordination between ATSU and Aeronautical Telecommunication Stations.

When so prescribed by the ATS provider in Part 1 of the ATSPM, ATSUs must ensure that the aeronautical telecommunications stations serving the centers concerned are informed regarding transfers of communications contact by aircraft. Unless otherwise provided, information to be made available must comprise the identification of the aircraft (including SELCAL code, when necessary), the route or destination (where necessary), and the expected or actual time of communications transfer.

Inspector Guidance: *reserved*

j. Facilities and Equipment

§ 171.171 General.

(a) Radiotelephony and/or data link must be used in air-ground communications for ATS purposes.

(b) Where RCP types have been prescribed under Subpart G, ATSUs must, ….

(c) Except as provided for in (d), each ATS provider must provide communications facilities in support of … .

(d) Reserved.

(e) Each ATS provider must ensure that …..

Inspector Guidance: *reserved*

§ 171.173 Facility Requirements.

(a) Each ATS provider must establish the following facilities that are appropriate to the air traffic services listed in the ATSPM:.....

(b) Except as provided in paragraph (i), each ATS provider that provides an aerodrome control service, or an aerodrome flight information service, must ensure that any TWR, including any temporary TWR is …..

(c) Each ATS provider must ensure that each ACC, each FIC and each APP is: ….

(d) Each ATS provider must establish procedures to ensure that the aeronautical telecommunications equipment …

(e) The applicant must establish procedures to ensure that any visual display unit used by an air traffic service is …

(f) The equipment required by paragraphs (b)(4) and (5), and (c)(1) and (2), must have a level of reliability…..

(g) Each ATS provider must ensure that the display of operational information meets the criteria as specified in ICAO Doc. 9426 – Air Traffic Services Planning Manual.

(h) The applicant must establish procedures to ensure that ….

(i) A temporary TWR is not required to be provided with the equipment required under ….

Inspector Guidance: *reserved*

§ 171.175 Recording of Voice and Surveillance Circuits.

(a) Each ATS provider must ensure that all operational voice and surveillance circuits are recorded and …

(b) Where it is not practical for maintenance to assume full responsibility for recorders, each ATS provider must…

(c) Each ATCU must be equipped with devices that record background communication and …

(d) These procedures must be published in Part 1 of the ATSPM and any local variations published ….

(e) ATSU Managers/Chiefs must forward a report to GACA GACA if a failure occurs ….

Inspector Guidance: *reserved*

§ 171.177 Clocks/Time Used in ATS.

(a) Each ATSU must use Coordinated Universal Time (UTC) expressed in hours and minutes and …

(b) Each ATS providers must ensure ATSUs are equipped with clocks indicating the time in hours, minutes and…

(c) ATSU clocks and other time recording devices must be checked as necessary to ensure correct time to …

(d) The correct time must be obtained from a standard time station or, if not possible, from another unit which has…

(e) All other procedures for time checks and time adjustments must be published in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.179 Altimeter Setting Indicator.

(a) Atmospheric pressure must be measured in Hectopascals and be transmitted to the aircraft when appropriate as published in Part 1 of the ATSPM.

(b) The reading from the altimeter setting indicator must be compared to the weather report from the meteorological office and any discrepancy must be resolved in coordination with the MET provider.

(c) Two independent sources of the current altimeter setting must be provided, at least one of which must be an aneroid barometer or barometric altimeter situated in the visual control room.

Inspector Guidance: *reserved*

§ 171.181 ATS Surveillance System Capabilities.

(a) ATS surveillance systems must have the capability to receive, process and display, …

(b) ATS surveillance systems must provide for the display of safety-related alerts and warnings, including …

(c) ATS surveillance systems, such as primary surveillance radar (PSR), secondary surveillance radar (SSR) and …

(d) ADS-B may be used alone, including in the provision of separation between aircraft, provided:…

(e) The provision of ATS surveillance services must be limited to specified areas of coverage and must …

(f) The provision of ATS surveillance services must be limited when …

Inspector Guidance: *reserved*

§ 171.183 Situation Display.

(a) A situation display providing surveillance information to the controller must, …

(b) The ATS surveillance system must provide for a continuously updated presentation of …

(c) Position indications may be displayed as:…

(d) Where surveillance data quality degrades such that services need to be limited, symbology or other means must…

(e) Reserved SSR codes, including 7500, 7600 and 7700, operation of IDENT, ADS-B emergency and/or …

(f) Labels must, as a minimum, include information relating to the identity of the aircraft, e.g. …

(g) Labels must be associated with their position indications in a manner precluding erroneous identification by …

Inspector Guidance: *reserved*

§ 171.185 Performance of Radar Equipment.

Each ATS provider and ATCO must ensure that:

(a) The performance of the radar equipment is checked in accordance with operating instructions provided by the aeronautical telecommunication service provider under GACAR Part 173; and

(b) The technical instruction issued in respect to each piece of radar equipment is complied with.

Inspector Guidance: *reserved*

§ 171.187 Radar and Automated Systems.

Each ATS provider must-

(a) Ensure that information concerning equipment performance, obtained from flight checks and ….

(b) Develop procedures that ensure the integrity of flight data exchanged between units. ….

Inspector Guidance: *reserved*

§ 171.189 Hand-Offs.

(a) If radar hand-offs are to be used, the ATS provider must publish applicable procedures in Parts 1 and 2 of the ATSPM and, through coordination with other units if necessary, ensure that:…

(b) The ATS provider may develop arrangements which omit the requirement for verbal hand-offs between IFR units subject to detailed procedures established between the units.

Inspector Guidance: *reserved*

§ 171.191 Automated System Failures.

Each ATS provider must ensure that automated systems inform operational personnel immediately of any failure of an automated system component that may limit their use of the equipment.

Inspector Guidance: *reserved*

§ 171.193 Performance of Backup Communications.

Each ATS provider must establish and publish in Part 2 of the ATSPM procedures to ensure that operational personnel check all backup radios, stand-alone transceivers and speed dial phones for functionality at regular intervals.

Inspector Guidance: *reserved*

§ 171.195 Interruptions to NAVAIDS or Frequencies.

Each ATS provider must ensure that procedures for unit personnel to determine the circumstances under which navigational aids or frequencies must be permitted to be shutdown are published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.197 Opening and Closing Control Positions.

Each ATS provider must establish instructions in Parts 1 and 2 of the ATSPM for opening and closing of control positions. Such instructions must take into account the difference between the individual ATSU.

Inspector Guidance: *reserved*

§ 171.199 Fire Prevention and Facility Evacuation.

Each ATS provider must-

(a) Prepare and publish in Part 2 of the ATSP a fire prevention and protection plan and must ensure that all unit personnel receive direction with regard to design and operational characteristics of fire detection, alarm and suppression system.

(b) Develop and publish in Part 2 of the ATSPM procedures and processes that in the event of forced evacuation
of an ATSU ensure that:…..

(c) Periodically conduct emergency evacuation test drills. Such test drills must be conducted in such a way so as not to interfere with normal operation.

Inspector Guidance: *reserved*

k. Capacity and Air Traffic Flow Management

§ 171.201 Capacity Management.

(a) Each ATS provider must ensure that every effort is made to provide sufficient capacity to ….

(b) Each ATS provider must ensure that the number of aircraft provided with an ATC service must not…..

(c) ATC capacity must be expressed as the maximum number of aircraft which can be accepted over …

(d) When it becomes apparent to an ATCU that traffic additional to that already accepted cannot ….

Inspector Guidance: *reserved*

§ 171.203 Capacity Assessment.

In assessing capacity values each ATS provider must take into account, as a minimum, the following factors:

(a) The level and type of ATM provided;

(b) The structural complexity of the control area, the control sector or the aerodrome concerned, runway acceptance rates;

(c) Controller workload, including control and coordination tasks to be performed;

(d) The types of communications, navigation and surveillance systems in use, their degree of technical reliability and availability as well as the availability of back-up systems and/or procedures;

(e) Availability of ATC systems providing controller support and alert functions; and

(f) Any other factor or element deemed relevant to controller workload.

Inspector Guidance: *reserved*

§ 171.205 Regulation of ATC Capacity and Traffic Volumes.

(a) Each ATS provider must implement procedures to vary the number of operational sectors or working positions to meet the prevailing and anticipated demand. Applicable procedures must be contained in Part 2 of the ATSPM for the unit.

(b) In case of particular events, which have a negative impact on the declared capacity of an airspace or aerodrome, the capacity of the airspace or aerodrome concerned must be reduced accordingly for the required time period.

(c) To ensure that safety is not compromised whenever the traffic demand in the airspace or at an aerodrome is forecast to exceed the available ATC capacity, measures must be implemented by each ATS provider to regulate traffic volumes accordingly.

Inspector Guidance: *reserved*

§ 171.207 Enhancements of ATC Capacity.

(a) Each ATS provider must:

1. Periodically review ATS capacities in relation to traffic demand; and
2. Provide for flexible use of airspace in order to improve the efficiency of operations and increase capacity.

(b) In the event that traffic demand regularly exceeds ATC capacity, resulting in continuing and frequent traffic delays or it becomes apparent that forecast traffic demand will exceed capacity values, each ATS provider must, as far as practicable:

1. Implement steps aimed at maximizing the use of the existing system capacity; and
2. Develop plans to increase capacity to meet the actual or forecast demand.

Inspector Guidance: *reserved*

§ 171.209 Flexible Use of Airspace.

Each ATS provider must, through the establishment of agreements and procedures, make provision for the flexible use of all airspace in order to increase airspace capacity and to improve the efficiency and flexibility of aircraft operations. When applicable, such agreements and procedures must be established based on Regional Air Navigation Agreements which must be coordinated with GACA GACA as prescribed in GACAR § 171.23.

Inspector Guidance: *reserved*

§ 171.211 Air Traffic Flow Management (ATFM).

(a) Where required by the President, or where established by an ATS provider, ATFM must be implemented based on the terms and conditions of Regional Air Navigation Agreements.

(b) Where practicable, the ATFM service within a region or other defined area, must be developed and implemented as a centralized ATFM organization, supported by flow management positions established at each ACC within the region or area of applicability.

Inspector Guidance: *reserved*

l. Air Traffic Control Services - General

§ 171.231 Introduction.

(a) ATSU Managers/Chiefs must include in the ATSPM those policies, standards, criteria and information required for the administration and management of all ATSUs.

(b) ATSU Managers/Chiefs and supervisory personnel must be familiar with all parts of the ATSPM and to have an in-depth knowledge of those provisions that pertain to their management and supervisory responsibilities.

(c) ATSU Managers/Chiefs and supervisory personnel must use their best judgment for the resolution of a situation for which direction is not provided. ATSU Managers/Chiefs must consult with the GM-ATM when dealing with situations which may set precedents or have ramifications on other units.

Inspector Guidance: *reserved*

§ 171.233 Application of ATC.

(a) Air traffic control service must be provided to all….

(b) Each ATS provider must ensure that clearances issued by ATCUs provide separation:….

(c) Separation provide must be in accordance with the separation minima and standards prescribed in Subpart R.

(d) No clearance may be given to execute any maneuver that would reduce the spacing between two aircraft to less than the separation minimum applicable in the circumstances.

(e) Larger separations than the specified minima must be applied whenever …..

(f) Where the type of separation minimum used to separate two aircraft cannot be maintained, …..

Inspector Guidance: *reserved*

§ 171.235 Provision of ATC Service.

The parts of ATC service described in GACAR § 171.9 must be provided by the various units as follows:

(a) Area control service….

(b) Approach control service….

(c) Aerodrome control service…..

Inspector Guidance: *reserved*

§ 171.237 Operation of ATC Service.

(a) Each ATS provider must ensure that in order to provide ATC service, an ATCU must:…

(b) Information on aircraft movements, together with a record of ATC clearances issued to such aircraft, must be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

Inspector Guidance: *reserved*

§ 171.239 Division of Control Responsibility.

(a) Each ATS provider must designate the area of responsibility of each ATCU, and when applicable, for individual sectors within an ATCU.

(b) Controlled flights must be under the jurisdiction of only one ATCU or one sector at any given time.

(c) Responsibility for the control of all aircraft operating within a specified block of airspace must be vested in only one ATCU but control of specified aircraft may be delegated to other units provided that the required coordination, as published in unit procedures, has been effected.

Inspector Guidance: *reserved*

§ 171.241 Transfer of Control.

(a) Except as provided for in (b), each ATS provider must ensure that ….

(b) Reserved.

(c) Each ATS provider must-…

Inspector Guidance: *reserved*

§ 171.243 Responsibility in Respect of Military Traffic.

(a) Certain military flights require a degree of operational freedom, …..

(b) Reduced separation minima necessary to accomplish operational freedom for military flights may be authorized when so requested. …..

(c) When necessary, temporary airspace reservations may be established for certain military operations. The military authority is responsible for coordinating notifications of airspace reservations.

Inspector Guidance: *reserved*

§ 171.245 Acceptance of Flight Plans.

The first ATSU receiving a flight plan, or change thereto, must:

(a) Check it for compliance with the format and data conventions;

(b) Check it for completeness and, to the extent possible, for accuracy;

(c) Take action, if necessary, to make it acceptable to the air traffic services; and

(d) Indicate acceptance of the flight plan or change thereto, to the originator.

Inspector Guidance: *reserved*

§ 171.247 Position Reporting.

If a position report is not received at the expected time, subsequent control must not be based on the assumption that the estimated time is accurate. Immediate action must be taken to obtain the report if it is likely to have any bearing on the control of other aircraft.

Inspector Guidance: *reserved*

§ 171.249 Reporting of Operational and Meteorological Information.

(a) When receiving special air-reports by data link communications, ATSUs must forward them without delay to their associated meteorological watch office and the WAFCs.

(b) When receiving special air-reports by voice communications, ATSUs must forward them without delay to their associated meteorological watch offices.

Inspector Guidance: *reserved*

§ 171.251 Altimeter Setting Procedures.

(a) Expression of vertical position of aircraft……

(b) Determination of the transition level……

(c) Minimum cruising level for IFR flights……

(d) Provision of altimeter setting information……

Inspector Guidance: *reserved*

§ 171.253 Presentation and Uploading of Flight Plan and Control Data.

(a) General. Each ATS provider must …….

(b) Information and data to be presented…..

(c) Presentation of information and data…….

Inspector Guidance: *reserved*

§ 171.261 Procedures for Airborne Collision Avoidance System (ACAS).

(a) The procedures to be applied for the provision of ATC to aircraft equipped with ACAS …..

(b) When a pilot reports a maneuver induced by an ACAS resolution advisory (RA), the controller must … …

(c) Each ATS provider must publish phraseologies for controllers …….

(d) Following an RA event or other significant ACAS event, ATCOs must …….

Inspector Guidance: *reserved*

§ 171.263 Visual Flight Rules (VFR).

Rules pertaining to the operation of civil VFR flights within the KSA as prescribed in GACAR Part 91 must be published in Part 1of the ATSPM.

Inspector Guidance: *reserved*

§ 171.265 Instrument Flight Rules (IFR).

Rules pertaining to the operation of civil IFR flights within the KSA as prescribed in GACAR Part 91 must be published in Part 1of the ATSPM.

Inspector Guidance: *reserved*

§ 171.267 Change from IFR to VFR Flight.

(a) Change from IFR flight to VFR flight is prohibited unless …

(b) When an ATSU is in possession of information that instrument meteorological conditions are likely … .

(c) An ATCU receiving notification of an aircraft's intention to change from IFR to VFR flight must, …

(d) Details of such procedures must be published in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.268 Loss of Vertical Navigation Performance Required for RVSM.

(a) Degradation of aircraft equipment – pilot reported. ….

(b) Severe turbulence – not forecast…..

(c) Severe turbulence – forecast…..

Inspector Guidance: *reserved*

§ 171.269 Language Use between Air Traffic Control Units.

Except when communications between ATCUs are conducted in a mutually agreed language, the English language must be used for such communications.

Inspector Guidance: *reserved*

§ 171.270 Communication Congestion.

If communication congestion is such that the controller cannot transmit quickly to the aircraft he needs to, then he must ensure separation instructions are transmitted first.

Inspector Guidance: *reserved*

§ 171.271 Contingency Arrangements.

(a) Each ATS provider must-develop and promulgate in Part 1 of the ATSPM contingency plans …..

(b) Except as provided for in (c), each ATS provider must ensure that the contingency procedures comply …..

(c) Reserved.

Inspector Guidance: *reserved*

§ 171.272 ATC Contingency Procedures

(a) Complete radio-communications failure….

(b) Blocked frequency…

(c) Unauthorized use of ATC frequency…

(d) Emergency separation…

(e) Short-term conflict alert (STCA) procedures…

(g) Minimum safe altitude warning (MSAW) procedures…

(h) Change of radiotelephony call sign for aircraft…

(i) Each ATS provider must publish ATC contingency procedures in Part 1 of the ATSPM, and where applicable, Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.273 Failure or Irregularity of Systems and Equipment.

ATCUs must immediately report in accordance with procedures published in Part 1 of the ATSPM any failure or irregularity of communication, navigation and surveillance systems or any other safety-significant systems or equipment which could adversely affect the safety or efficiency of flight operations and/or the provision of ATC service.

Inspector Guidance: *reserved*

§ 171.275 Operating Irregularity.

(a) If an operating irregularity has taken place that implicates an ATC service, each ATS provider must immediately arrange for the removal from operational duties of any ATCO directly involved in the occurrence until the circumstances have been fully examined.

(b) As soon as practicable after an operating irregularity has taken place, each ATS provider must ensure that a preliminary investigation is conducted to examine the basic facts and to determine if a reportable occurrence under GACAR § 171.853 or GACAR Part 5 has occurred. The ATS provider must ensure that:

1. All relevant documentation is secured; and
2. Appropriate reporting is initiated.

Inspector Guidance: *reserved*

§ 171.277 Release of Information.

(a) The GM-ATM must consult with GACA regarding the release of unit operational records or…

(b) Following an accident or incident, the affected ATSU supervisor must quarantine all ….

Inspector Guidance: *reserved*

m. Aerodrome Control Service

§ 171.301 General.

Each ATS provider must-

(a) Define the objectives of aerodrome control and publish these in Part 1of the ATSPM.

(b) Publish instructions for the aerodrome controller to carry out his responsibility of alerting service in Part 1 of the ATSPM.

(c) Ensure that instructions for visual surveillance from the control tower are published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.303 Functions of Aerodrome Control Towers.

(a) General. …

(b) Alerting service provided by aerodrome control towers……

(c) Failure or irregularity of aids and equipment. …..

Inspector Guidance: *reserved*

§ 171.305 Aerodrome Traffic Pattern.

(a) All aerodrome traffic patterns must be a left-hand traffic pattern unless right-hand traffic pattern has been established by the President under GACAR Part 93.

(b) Each ATS provider must publish circuit procedures for each aerodrome in the Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.307 Selection of Runway-in-Use.

(a) Each ATS provider must ensure that the TWR selects the runway-in-use that …

(b) The term “runway-in-use” must …

(c) Runways must not be selected for noise abatement purposes for landing operations unless …

(d) Noise abatement must not be a determining factor in runway nomination under the following circumstances:…

(e) Instructions for the selection of runway-in-use must be published in Parts 1 and 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.309 Recording of Persons on Board (POB).

TWRs must request the POB for all flights departing within KSA airspace at initial contact with ATC. This information must be recorded and maintained and released to the ACC if requested as detailed in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.311 Information Related to the Operation of Aircraft.

(a) Start-up time….

(b) Essential Local Traffic Information. …

(c) Runway Incursion or Obstructed Runway….

(d) Uncertainty of position on the maneuvering area. …

(e) Wake turbulence and jet blast hazards….

(f) Abnormal aircraft configuration and condition. …

(g) Specific procedures concerning the provision of information prescribed in paragraphs (c) to (f) must be detailed in Parts 1 and 2 (as appropriate) of the ATSPM.

Inspector Guidance: *reserved*

§ 171.313 Essential Information on Aerodrome Conditions.

(a) Essential information on aerodrome conditions must be given to …..

(b) Essential information on aerodrome conditions must include information relating to the following:…

(c) When a condition, not previously notified, …….

(d) Specific procedures concerning the provision of essential information on aerodrome conditions must be detailed in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.315 Control of Taxiing Aircraft.

(a) Specific procedures for rotorcraft air-taxiing must be detailed in Parts 1 and 2 of the ATSPM.

(b) An aircraft known or believed to be the subject of unlawful interference…

(c) Taxi clearance….

(d) Taxiing on a runway in use….

(e) Use of runway holding positions….

(f) Rotorcraft taxiing operations….

Inspector Guidance: *reserved*

§ 171.317 Control of Persons and Vehicles.

(a) The movement of persons or vehicles …

(b) In conditions where low visibility procedures are in operation:…

(c) Emergency vehicles …

(d) Subject to the provisions in (c), vehicles …

(e) When communications by a system of visual signals …

(f) Each ATS provider must-publish procedures in Part 1 of the ATSPM for the movement of persons or vehicles…

Inspector Guidance: *reserved*

§ 171.319 Control of Aircraft in the Traffic Circuit.

(a) Aircraft in traffic circuit must be controlled ….

(b) Entry of traffic circuit….

(c) Priority for landing.....

(d) Local procedures affecting an aircraft that has been compelled to land without authorization must be detailed in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.321 Order of Priority for Arriving and Departing Aircraft.

(a) An aircraft landing or in the final stages of an approach to land must normally be given priority over aircraft intending to depart.

(b) Departing aircraft must normally be cleared in the order in which they are ready for takeoff, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay.

Inspector Guidance: *reserved*

§ 171.323 Control of Departing Aircraft.

(a) Departure sequence. …

(b) Separation of departing aircraft. …

(c) Take-off clearance….

(d) Each ATS provider must stipulate in Part 1 of the ATSPM minimum general separation minima which must be applied between arriving and departing aircraft.

(e) As provided in Subpart R, lower minima may be applied at individual aerodromes. Such lower minima must be published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.325 Control of Arriving Aircraft.

(a) Separation of landing aircraft and preceding landing and departing aircraft using the same runway. …

(b) Clearance to land. …

(c) Landing and roll-out maneuvers….

(d) Each ATS provider must- stipulate in Part 1 of the ATSPM minimum general separation minima which must be applied between arriving and departing aircraft.

(e) As provided in Subpart R, lower minima may be applied at individual aerodromes. Such lower minima must be published in Part 2 of the ATSPM and will depend on a number of factors.

Inspector Guidance: *reserved*

§ 171.329 Low Visibility Operations.

(a) When there is a requirement for traffic to operate on the maneuvering area in conditions of visibility …

(b) The ATS provider must establish provisions applicable to the start and continuation of precision …

(c) Low visibility operations must be initiated by or through the TWR.

(d) The TWR must inform the APP concerned when procedures for precision approach category II/III and …

(e) The TWR must, prior to a period of application of low visibility procedures, establish a record …

(f) Each ATS provider must-publish general procedures for low visibility operations in Part 1 of the ATSPM. Local procedures for CAT II and III operations must be published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.341 Obstructed Runway or Runway Incursion.

Instructions with regard to actions to be taken in the event of an obstructed runway or a runway incursion must be contained in both Part 1 and 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.343 Suspension of VFR Operations.

(a) As detailed in Part 1 of the ATSPM, all suspension of VFR operations must be accomplished through or notified to the TWR.

(b) Whenever VFR operations are suspended, the TWR must:…..

Inspector Guidance: *reserved*

§ 171.345 Authorization of Special VFR (SVFR) Flights.

(a) When traffic conditions permit, and subject to the weather minima prescribed in (b), SVFR flights may be authorized by the TWR to enter a control zone for the purpose of landing, take off and departure from a control zone, to cross a control zone or operate locally within a control zone on pilot request.

(b) SVFR may only be authorized when the ground visibility is not less than 1500 m.

(c) Separation must be effected between all SVFR flights in accordance with the minima prescribed by the ATS provider and as detailed in Part 1 of the ATSPM and between SVFR flights and IFR flights in accordance with the applicable separation minima prescribed in Subpart R.

Inspector Guidance: *reserved*

§ 171.347 Operation of Aeronautical Ground Lighting.

(a) Aeronautical Ground Lights: General. …

(b) Each ATS provider must publish procedures …

(c) Approach Lighting….

(d) Runway Lighting. …

(e) Stopway Lighting. …

(f) Taxiway Lighting. …

(g) Stop Bars. …

(h) Obstacle lighting. …

Inspector Guidance: *reserved*

§ 171.348 Aircraft Navigation Lights.

When aircraft navigation lights are observed to be off or unserviceable, in whole or in part, the pilot must be advised about the problem.

Inspector Guidance: *reserved*

§ 171.349 Monitoring of Visual Aids.

(a) Aerodrome controllers must make use of automatic monitoring facilities, when provided, to ascertain …

(b) In the absence of an automatic monitoring system or to supplement such a system, the aerodrome controller …

(c) On receipt of information indicating a lighting fault, the aerodrome controller must …

Inspector Guidance: *reserved*

§ 171.351 Aerodrome Traffic Signals.

Signals used by light-gun in the TWR together with appropriate response must be published in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.353 Provision of Correct Time.

(a) Aerodrome control towers must, prior to an aircraft taxiing for takeoff, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources.

(b) ATS services units must provide aircraft with the correct time on request. Time checks must be given to the nearest half minute.

Inspector Guidance: *reserved*

§ 171.355 TWR and APP Coordination.

(a) Provision must be made to ensure that the APP at all times is kept informed of the sequence in which aircraft will depart as well as the runway to be used.

(b) Provision must be made to display the designators of assigned SIDs to the TWR, APP and/or the ACC as applicable.

(c) Each ATS provider must publish procedures for coordination requirements between APP and TWR in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.357 Procedures and Regulations for VIP Flights.

(a) Aerodromes provided with ATC service must establish procedures in Part 2 of the ATSPM and include detailed instructions for managing VIP flights at the unit.

(b) At aerodromes normally not handling ATC service, a temporary ATC service may be provided either from the TWR if one is installed or from a mobile unit specifically brought in.

(c) Standard separation must be provided between VIP flights and other controlled flights.

(d) VIP flights must be given priority for landing and takeoff except in the case of another aircraft being subject to an emergency.

Inspector Guidance: *reserved*

§ 171.359 Use of ATS Surveillance Systems in the Aerodrome Control Service.

(a) Each ATS provider must publish procedures for the use of ATS surveillance systems ….

(b) SVFR flights must not be vectored unless special circumstances, such as emergencies, dictate otherwise.

(c) Caution must be exercised when vectoring VFR flights so as to ensure ….

(d) As control of aerodrome traffic is in the main based on visual observation …..

Inspector Guidance: *reserved*

§ 171.361 Use of ATS Surveillance Systems for Surface Movement Control.

(a) In the absence of visual observation of all or part of the maneuvering area or to augment visual observation, surface movement guidance and control systems (SMGCS) …

(b) If such systems are utilized by the ATS provider procedures must be published in Part 1 and 2 of the ATSPM that describe how those systems are to be used to supplement visual observations and how aircraft are to be identified when using those systems.

Inspector Guidance: *reserved*

n. Approach Control Service

§ 171.371 Approach Control: General

The APP must issue clearances and information to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic in the APP area of responsibility as detailed in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.372 Minimum Levels.

An aircraft must not be cleared for an initial approach unless:

(a) The pilot has reported passing a designated point associated with an instrument approach procedure or defined by a radio aid;

(b) The aircraft has been observed by radar to have passed a designated point associated with an instrument approach procedure (IAP); or

(c) The crew reports that they have and can maintain the aerodrome in sight and requests a visual approach as specified in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.373 Information for Departing Aircraft.

(a) Information regarding significant changes in the meteorological conditions in the takeoff or climb-out area, obtained by the unit providing approach control service after a departing aircraft has established communication with such unit, must be transmitted to the aircraft without delay, except when it is known that the aircraft
already has received the information.

(b) Information regarding changes in the operational status of visual or non-visual aids essential for takeoff and climb must be transmitted without delay to a departing aircraft, except when it is known that the aircraft already has received the information.

Inspector Guidance: *reserved*

§ 171.374 Information for Arriving Aircraft.

(a) As early as practicable after an aircraft has established communication with the APP, the following elements …

(b) If it becomes necessary or operationally desirable that an arriving aircraft follow an IAP …

(c) At the commencement of final approach, the following information must be transmitted to aircraft…

(d) During final approach, the following information must be transmitted without delay:…

Inspector Guidance: *reserved*

§ 171.375 Expected Approach Time.

(a) An expected approach time (EAT) must be determined for an arriving aircraft that will …

(b) An EAT must be transmitted to the aircraft by the most expeditious means ….

(c) The holding fix to which an EAT relates must be identified together with …

(d) Each ATS provider must detail instructions in Part 1 of the ATSPM for the requirement of issuing EATs to arriving aircraft at individual aerodromes.

Inspector Guidance: *reserved*

§ 171.377 Holding.

(a) Each ATS provider must ensure that controllers are familiar with the relevant holding procedures for all IAPs published for the aerodrome in the KSA AIP.

(b) In the event an aircraft is held en route or at a location or aid other than the initial approach fix, the aircraft concerned must, as soon as practicable, be given an expected onward clearance time from the holding fix. The aircraft must also be advised if further holding at a subsequent holding fix is expected.

Inspector Guidance: *reserved*

§ 171.379 Approach Sequence and Clearance.

(a) Approach clearance must be issued in an order which will facilitate arriving of the …

(b) Succeeding aircraft must be cleared for approach:…

(c) In establishing the approach sequence, the need for increased longitudinal spacing between arriving aircraft …

(d) If the pilot of an aircraft in an approach sequence has indicated an intention to hold …

(e) Timed approach procedures….

(f) In determining the time interval or longitudinal distance to be applied between successive approaching aircraft,…

Inspector Guidance: *reserved*

§ 171.381 Visual Approaches.

(a) Subject to the conditions in (c), clearance for an IFR flight to execute a visual approach may …

(b) Controllers must exercise caution in initiating a visual approach when there is reason to believe …

(c) An IFR flight may only be cleared to execute a visual approach provided the pilot can …

(d) Separation must be provided between an aircraft cleared to execute a visual approach and other arriving and departing aircraft.

(e) For successive visual approaches, separation must be maintained by the controller until …

(f) Conditions for visual approaches must be published in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.382 Instrument Approaches.

(a) The APP must specify the IAP to be used by arriving aircraft. A flight crew may …

(b) If a pilot reports or it is clearly apparent to the ATCU that the pilot is not familiar with the IAP, …

(c) If visual reference to terrain is established before completion of the approach procedure, …

Inspector Guidance: *reserved*

§ 171.383 Coordination.

(a) The APP must keep ACC informed of relevant data affecting the approach sequence such as:…

(b) The APP must keep the TWR advised of the following data:…

(c) After coordination with the APP, the ACC may clear the first arriving aircraft for approach …

(d) General coordination procedures must be published in Part 1 of the ATSPM. Location specific coordination procedures must be published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.385 Use of ATS Surveillance Systems in the Approach Control Service.

(a) The information presented on a radar display may be used to perform the following functions in the provision of approach control services:…

(b) ATS surveillance systems used in the provision of approach control service must be appropriate to the functions and level of service to be provided.

(c) ATS surveillance systems used to monitor parallel ILS approaches must meet the requirements for such operations specified in GACAR § 171.393.

(d) Procedures for the use of ATS Surveillance Systems in the Approach Control Service must be published in Part 1 of the ATSPM

Inspector Guidance: *reserved*

§ 171.387 General Approach Control Procedures Using ATS Surveillance Systems.

(a) Procedures and requirements for using ATS surveillance system in the approach control service must comply, except as provided in (b), with the applicable standard procedures of the International Civil Aviation Organization (Ref. Chapter 8, paragraphs 8.9.3 to 8.9.7 of ICAO Doc. 4444 (PANS-ATM)).

(b) Reserved.

(c) Each ATS provider must –

1. Publish general procedures for the use of radar in approach control function in Part 1 of the ATSPM; and
2. Determine and publish radar separation minima within the TMA including reduced minima together with any conditions affecting the use in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.393 Operations on Parallel or Near-Parallel Runways.

(a) Procedures and requirements for operating on parallel or near-parallel runways must be published by each ATS provider in Parts 1 and 2 of the ATSPM. Except as provided in (b), these procedures must comply with the applicable standard procedures of the International Civil Aviation Organization (Ref. Chapter 6 of ICAO Doc.
4444 (PANS-ATM)).

(b) Reserved.

Inspector Guidance: *reserved*

o. Area Control Service

§ 171.421 General.

Each ATS provider must define the objectives of the area control service in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.423 Transfer of Control.

The ACC must retain control of aircraft until the transfer of control point prescribed in unit procedures in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.425 Transfer of Communication.

Communication transfer must occur at the same time as the transfer of control unless a different procedure is coordinated.

Inspector Guidance: *reserved*

§ 171.427 Control Procedures.

Each ATS provider must detail in Part 1 of the ATSPM the use of the following control procedures:

(a) Release not before;

(b) Clearance expiry;

(c) Criteria for release of inbound traffic.

Inspector Guidance: *reserved*

§ 171.429 Coordination between ACCs.

(a) Each ATS provider must detail in Part 1 of the ATSPM the procedures for information interchange between adjacent ACCs. The procedures must include transfer of control and communication, which must be detailed in LOA established under § 171.811 and published in Part 2 of the ATSPM.

(b) If a flight will enter an adjacent area, information concerning any revision of the estimate of three minutes or more must be forwarded to the adjacent ACC. Such information must normally be provided by telephone.

Inspector Guidance: *reserved*

§ 171.431 Coordination between ACC and APP.

(a) General coordination procedures between ACC and APP must be detailed in Part 1 of the ATSPM.

(b) Local procedures for coordination must be published in Part 2 of the ATSPM.

(c) Provision must be made to ensure that the APP is at all times kept informed of the sequence of aircraft following the same STAR.

(d) Provision must be made to display the designators of assigned STARs to the ACC, the APP and/or the TWR, as applicable.

Inspector Guidance: *reserved*

§ 171.433 Coordination between ACC positions.

Data exchange between individual positions and/or sectors must be detailed in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

p.ATS Surveillance Services

§ 171.471 General.

(a) The information provided by ATS surveillance systems and presented on a situation display may …

(b) The number of aircraft simultaneously provided with ATS surveillance services must not ….

(c) Direct pilot-controller communications must be established prior to the provision of ATS surveillance services…

(d) Each ATS provider must publish the relevant functions and associated procedures that surveillance systems can be used for in ATC in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.473 Operational Procedures.

Each ATS provider must publish the type of surveillance system to be used and the functionality of same in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.475 Performance Checks.

(a) Each ATS provider must stipulate requirements for performance checks on radar displays including reporting procedures for any deficiencies or faults in Part 2 of the ATSPM.

(b) The provision of ATS surveillance services must be limited when position data quality degrades below the minimum level established by the ATS provider.

(c) Prior to each use, the controller must adjust the situation display(s) and carry out adequate checks on the accuracy thereof, in accordance with the technical instructions prescribed in the ATSPM for the equipment concerned.

(d) The controller must be satisfied that the available functional capabilities of the ATS surveillance system as well as the information presented on the situation display(s) is adequate for the functions to be performed.

(e) The controller must report, in accordance with procedures prescribed in Part 1 of the ATSPM , any fault in the equipment, or any incident requiring investigation, or any circumstances which make it difficult or impractical to provide ATS surveillance services.

Inspector Guidance: *reserved*

§ 171.477 Minimum Levels.

(a) Each ATS provider must publish established minimum vectoring altitudes for all Approach Radar Units in Part 2 of the ATSPM. Such altitudes must be depicted on a map displayed prominently for the Approach Radar Controller.

(b) Tactical radar vectoring altitudes must be established in accordance with the Procedures prescribed in ICAO Doc. 8168, Volume II (PANS-OPS), Section 2, Chapter 6.

(c) The lowest useable flight level must be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

(d) Based on current and anticipated atmospheric pressure distribution, ACCs must coordinate, when required, the lowest flight level to be used.

Inspector Guidance: *reserved*

§ 171.479 Coordination of Traffic under Radar and Procedural Control.

Each ATS provider must stipulate procedures in Part 1 of the ATSPM for aircraft being transferred from a procedural environment to a radar controlled environment and vice versa.

Inspector Guidance: *reserved*

§ 171.481 Use of SSR.

(a) Each ATS provider must –

1. In accordance with the MID Regional SSR Code Employment Plan distribute codes for

domestic and local flights to the individual radar units.

2. Have in place instructions that ensure that other relevant authorities are able to recognize such allocated codes.

(b) Allocated SSR codes must be used for the duration of the flight within the MID Region.

(c) In the event of international armed conflict ICAO will reserve codes for medical aircraft and each ATS provider must have a system in place to notify adjacent FIRs and internal radar units of such allocations.

(d) International emergency codes together with relevant procedures for the affected aircraft must be accessible to all radar controllers.

Inspector Guidance: *reserved*

§ 171.482 Operation of SSR Transponders and ADS-B.

(a) Each ATS provider must establish procedures, and publish them in Part 1 of the ATSPM, relating to the operation of SSR transponders and ADS-B, as follows…

Inspector Guidance: *reserved*

§ 171.483 Information Based on Mode C.

(a) Verification of level information. …

(b) Determination of level occupancy….

(c) Each ATS provider must – …

Inspector Guidance: *reserved*

§ 171.485 Radar Identification Procedures.

(a) Before providing an ATS surveillance service to an aircraft, identification must …

(b) If identification is subsequently lost, the pilot must …

(c) Identification must be established by at least one of the methods prescribed by…

(d) Each ATS provider must publish procedures to be used for identification of aircraft using both primary and secondary radars in Part 1 of the ATSPM.

(e) Before implementing any new surveillance technology each ATS provider must publish identification procedures to be used by the controllers in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.487 Transfer of Radar Identification.

(a) Transfer of identification from one controller to another must only be attempted …

(b) Transfer of identification must be effected by one of the following methods:…

(c) Each ATS provider must publish procedures for transfer of radar identification both by electronic and other means in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.489 Transfer of Radar Control.

(a) Each ATS provider must publish procedures in Part 1 of the ATSPM governing the transferring of radar control both internally and externally and using secondary as well as primary radar control.

(b) When using secondary radar the SSR Code must be known to the accepting unit.

Inspector Guidance: *reserved*

§ 171.491 Provision of Position Information.

(a) An identified aircraft observed to deviate significantly from its intended route …

(b) Position information must be passed to aircraft in one of the following forms:…

(c) Whenever practicable, position information must …

(d) Each ATS provider must determine and issue instructions in Part 1 of the ATSPM as to when position information must be passed to an aircraft and direct controllers on how to pass such position information to an aircraft.

Inspector Guidance: *reserved*

§ 171.492 Collision Hazard Information.

Each ATS provider must publish procedures in Part 1 of the ATSPM situations where an aircraft is observed to be on a conflicting path with another aircraft. Such collision hazard procedures must ensure that as many relevant details as practical, such as Mode C information, is passed to the aircraft in communication with the ATSU even if such information has not been verified.

Inspector Guidance: *reserved*

§ 171.493 ATS Surveillance System Equipment Failure.

(a) Each ATS provider must detail in Parts 1 and 2 of the ATSPM the list of actions to be taken by the radar controller, in the event of complete failure of the radar equipment. This list must include …

(b) In the event of complete failure of the ATS surveillance system where air-ground communications remain,
the ATCO must …

(c) As an emergency measure, use of flight levels spaced by half the applicable vertical separation minimum may be resorted to temporarily if standard procedural separation cannot be provided immediately.

Inspector Guidance: *reserved*

§ 171.494 Ground Radio Failure.

Each ATS provider must detail in Parts 1 and 2 of the ATSPM the actions to be taken by the controller in the event of complete failure of the ground radio equipment used for ATS surveillance service. Such procedures must include:

(a) Without delay, inform all adjacent control positions or ATSUs, as applicable, of the failure;

(b) Implement contingency measures which may include the provision of using hand held radios, or to

deploy vehicles with radios, plus coordination procedures;

(c) Appraise such positions or units of the current traffic situation;

(d) Request their assistance, in respect of aircraft which may establish communications with those positions or units, in establishing radar or non- radar separation between and maintaining control of such aircraft; and

(e) Instruct adjacent control positions or ATSUs to hold or reroute all controlled flights outside the area of responsibility of the position or ATSU that has experienced the failure until such time that the provision of normal services can be resumed.

Inspector Guidance: *reserved*

§ 171.495 Adverse Weather Information.

Each ATS provider must –

(a) Instruct controllers through Part 1 of the ATSPM to advise aircraft and MET providers of observed or reported adverse weather information.

(b) Ensure that radar controllers are aware of radar limitations in respect of indicating weather information.

Inspector Guidance: *reserved*

§ 171.497 Radar Vectoring.

(a) Vectoring must be achieved by issuing to the pilot specific headings which …

(b) When vectoring an IFR flight and …

(c) In terminating vectoring of an aircraft, the controller must …

(d) Each ATS provider must publish procedures in Part 1 of the ATSPM pertaining to radar vectoring of aircraft …

Inspector Guidance: *reserved*

§ 171.499 Interruption or Termination of ATS Surveillance Service.

(a) An aircraft which has been informed that it is provided with ATS surveillance service must be informed immediately when, for any reason, the service is interrupted or terminated.

(b) When the control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, the transferring controller must ensure that appropriate procedural separation is established between that aircraft and any other controlled aircraft before the transfer is affected.

Inspector Guidance: *reserved*

§ 171.501 Application of Radar Separation.

(a) Except as provided for in (h), (i) and GACAR §171.492 the separation minima specified …

(b) When control of an identified aircraft is to be transferred to a control sector that will provide ….

(c) When authorized by the President, and published by the ATS provider in Part 1 of the ATSPM, ….

(d) Separation based on the use of PSR blips and SSR responses must be applied so that …

(e) Separation based on the use of ADS-B position symbols and SSR responses must be applied so that …

(f) Separation based on the use of SSR responses must be applied so that the distance between…

(g) In no circumstances must the edges of the position indications touch or overlap unless….

(h) In the event that the controller has been notified of a controlled flight entering or …

(i) The separation minima specified in GACAR §171.564 may be applied between …

(j) The separation minima specified in GACAR §171.564 must not be applied …

Inspector Guidance: *reserved*

§ 171.503 Speed Control.

Subject to authorization by the President, each ATS provider must provide and publish instructions for the application of speed control in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

q. Clearances

§ 171.521 Clearances - General.

(a) Each ATS provider must publish instructions in Part 1 of the ATSPM relating to the issuance of clearances and detailing the procedures for providing ATC service to known traffic.

(b)ATC clearances must be based solely on the requirements for providing ATC service. Such instructions must …

(c) ATSU must issues ATC clearances as are necessary to prevent collisions and to expedite and maintain …

(d) ATC clearances must be issued early enough to ensure ….

(e) The controller must listen to the read-back to ascertain that the clearance or instruction ….

(f)Theco ntr o llermuste ns ur ethati nstr uctio n sandi nfo r mati o nwhic h …. .

Inspector Guidance: *reserved*

§ 171.523 Contents of Clearances.

(a) Except as provided in (c) and (d), an ATC clearance must indicate:…

(b) Instructions included in clearances relating to levels must consist of:…

(c) Standard clearances for departing aircraft must contain the following items:…

(d) Standard clearances for arriving aircraft must contain the following items:…

(e) Clearances must contain ….

Inspector Guidance: *reserved*

§ 171.525 Aircraft Subject to ATC for Part of Flight.

(a) When a flight plan specifies that the initial portion of a flight will be uncontrolled, and that the subsequent portion of the flight will be subject to ATC, the aircraft must be advised to obtain its clearance from the ATCU in whose area controlled flight will be commenced.

(b) When a flight plan specifies that the first portion of a flight will be subject to ATC, and that the subsequent portion will be uncontrolled, the aircraft must normally be cleared to the point at which the controlled flight terminates.

Inspector Guidance: *reserved*

§ 171.526 Flights through Intermediate Stops.

(a) When an aircraft files, at the departure aerodrome, flight plans for the various stages of flight through …

(b) The flight plan for the second stage, and each subsequent stage, of a flight through intermediate stops must …

(c) By prior arrangement between ATCUs and the operators, aircraft operating on an established schedule may, …

Inspector Guidance: *reserved*

§ 171.527 Departing Aircraft.

ACCs must, except where procedures providing for the use of standard departure clearances have been implemented, forward a clearance to APPs or TWRs with the least possible delay after receipt of request made by these units, or prior to such request if practicable.

Inspector Guidance: *reserved*

§ 171.529 Enroute Aircraft.

(a) An ATCU may request an adjacent ATCU to clear aircraft to a specified point during a specified period.

(b) After the initial clearance has been issued to an aircraft at the point of departure, it will be …

(c) When so requested by the flight crew, an aircraft must be cleared for cruise climb …..

Inspector Guidance: *reserved*

§ 171.531 Description of ATC Clearances.

(a) Clearance limit….

(b) Route of flight….

(c) Levels. …

(d) Clearances of a requested change in flight plan. …

Inspector Guidance: *reserved*

§ 171.533 Horizontal Speed Control Instructions.

(a) Horizontal speed control must not be applied to aircraft entering or established in a holding pattern.

(b) In cases where the flight crew informs the ATCU they are unable to comply with a horizontal speed instruction, the controller must apply an alternative method to achieve the desired spacing between the aircraft concerned.

(c) Aircraft must be advised when a horizontal speed control restriction is no longer required.

Inspector Guidance: *reserved*

§ 171.535 Vertical Speed Control Instructions.

(a) In cases when the flight crew informs the ATCU that they are unable to comply with a specified rate of climb or descent, the controller must apply an alternative method to achieve an appropriate separation minimum between aircraft, without delay.

(b) Aircraft must be advised when a rate of climb/descent restriction is no longer required.

Inspector Guidance: *reserved*

§ 171.537 Coordination of Clearances.

Each ATC clearance must be coordinated between ATCUs to cover the entire route of an aircraft or a specified portion thereof as follows-

(a) An aircraft must be cleared for the entire route to the aerodrome of first intended landing:….

(b) When coordination as in (a) has not been achieved or is not anticipated, the aircraft must ….

(c) When prescribed by the appropriate ATS authority, aircraft must ….

(d) When an aircraft intends to depart from an aerodrome …..

(e) When an aircraft intends to leave a control area for flight outside controlled airspace, ….

(f) Except as otherwise prescribed in (g) or in this section, coordination methods and standards, …..

(g) Reserved.

Inspector Guidance: *reserved*

r. Separation Methods and Minima

§ 171.561 General.

(a) Except as otherwise prescribed in (b) and (c), the separation methods and minima applied within KSA as well as in the airspace over the high seas encompassed by the Jeddah FIR must ….

(b) Reserved.

(c) Except as provided in GACAR §§ 171.565 to 171.567, lower or different separation minima may only …..

(d) The selection of separation minima must be made in consultation between the appropriate ATS

providers ….

(e) Each ATS provider must publish in Part 1 of the ATSPM all applicable separation methods and minima.

Inspector Guidance: *reserved*

§ 171.563 Types of Separation.

(a) Separation by an air traffic control unit must be obtained by at least one of the following:….

(b) For all airspace where a reduced vertical separation minimum of 1000 ft is applied …..

(c) Each ATS provider must describe, in detail, in Part 1 of the ATSPM the following types of separation minima…

(d) Each ATS provider must publish the specific procedures applicable to wake turbulence ….

(e) Wake turbulence separation minima must be based on a grouping of aircraft types into three categories … .

Inspector Guidance: *reserved*

§ 171.564 Separation Minima Based on ATS Surveillance Systems.

(a) Unless otherwise prescribed in accordance with …

(b) The radar separation minimum in (a) may, if so authorized by the President, be reduced…..

(c) The separation minimum or minima based on radar and/or ADS-B to be applied must …..

(d) The following distance-based wake turbulence separation minima must …..

(e) The minima set out in (d) must be applied when:…..

Inspector Guidance: *reserved*

§ 171.565 Reduction in Separation Minima in the Vicinity of Aerodromes.

The separation minima prescribed in GACAR § 171.561(a) may be reduced in the vicinity of aerodromes if:

(a) Adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller;

(b) Each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation; or

(c) In the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and separation can be maintained.

Inspector Guidance: *reserved*

§ 171.566 Reduction in Separation Minima between Aircraft Using the Same Runway.

(a) Provided that an appropriate, documented safety assessment that is acceptable to the President has shown ….

(b) All applicable procedures related to the application of reduced runway separation minima must ….

(c) Reduced runway separation minima must only be applied …..

(d) For the purpose of reduced runway separation, aircraft must be classified as follows:…..

(e) Reduced runway separation minima must not apply between a departing aircraft and a preceding landing aircraft.

(f) Reduced runway separation minima must be subject to the following conditions:…..

(g) Reduced runway separation minima which may be applied at an aerodrome must be determined for each separate runway. The separation to be applied must in no case be less than the following minima:……

Inspector Guidance: *reserved*

§ 171.567 Reduction in Separation Minima for Military Traffic.

A reduction of separation minima required by military necessity or other extraordinary circumstances may only be accepted by an ATCU when a specific request in some recorded form has been obtained from the authority having

jurisdiction over the aircraft concerned and the lower minima then to be observed may apply only between those aircraft. Some recorded form of instruction fully covering this reduction of separation minima must be issued by the ATCU concerned.

Inspector Guidance: *reserved*

s. Special Procedures

§ 171.581 General.

(a) Each ATS provider must publish any non-standard procedures in Parts 1 and 2 of the ATSPM in order to provide instructions for the controllers. By nature such procedures can never be comprehensive, but the published procedures must include all relatively frequent occurring situations.

(b) Except as provided for in (c), each ATS provider must ensure that the special procedures in this subpart comply with the applicable standard procedures prescribed by the International Civil Aviation Organization in ICAO Doc. 4444 (PANS-ATM).

(c) Reserved.

Inspector Guidance: *reserved*

§ 171.583 Fuel Dumping.

Each ATS provider must –

(a) Publish general instructions in Part 1 of the ATSPM relating to fuel dumping. ….

(b) Publish the separation requirements of ICAO PANS-ATM Doc 4444 Section 15.5.3.2 relating to ….

(c) Publish the communication and coordination requirements of ICAO PANS-ATM Doc 4444 …..

(d) Publish instructions in Part 2 of the ATSPM for locations suitable for fuel dumping.

Inspector Guidance: *reserved*

§ 171.585 Photographic Survey Flights.

Each ATS provider must publish comprehensive instructions concerning aircraft carrying out aerial surveys in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.587 Uncoordinated Flights within the Red Sea.

Each ATS provider must publish procedures in the KSA AIP and Part 2 of the ATSPM for uncoordinated flights over the Red Sea for both RVSM and non-RVSM aircraft.

Inspector Guidance: *reserved*

§ 171.588 Strayed VFR flights and VFR flights encountering adverse meteorological conditions.

(a) A VFR flight reporting that it is uncertain of its position or lost, or encountering adverse meteorological conditions, must be considered to be in a state of emergency and handled as such. The controller must, under such circumstances, communicate in a clear, concise and calm manner and care must be taken, at this stage, not to question any fault or negligence that the pilot may have committed in the preparation or conduct of the flight.

(b) Each ATS provider must publish instructions concerning the handling of strayed VFR aircraft and VFR flights encountering adverse meteorological conditions in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.589 Strayed or Unidentified Aircraft.

(a) As soon as an ATSU becomes aware of a strayed aircraft it must ….

(b) If the aircraft’s position is not known, the ATSU must:…..

(c) When the aircraft’s position is established, the ATSU must:…..

(d) As soon as an ATSU becomes aware of an unidentified aircraft in its area, it must …..

(e) The ATSU must, as necessary, inform the appropriate military unit …..

(f) The ATSU must consider that a strayed or unidentified aircraft may be the subject of unlawful

interference and the GM-ATM must immediately be informed, in accordance with Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.591 Interception of Civil Aircraft.

(a) As soon as an ATSU learns that an aircraft is being intercepted in its area of responsibility, it must …..

(b) As soon as an ATSU learns that an aircraft is being intercepted outside its area of responsibility, it must …

(c) Each ATS provider must-…

Inspector Guidance: *reserved*

§ 171.593 Potential Hazards to Civil Aircraft.

Each ATS provider must -

(a) Provide instructions to controllers to avoid potential hazards to aircraft under their control. It is not possible to list all potential hazards, but each ATS provider must provide a comprehensive list covering the most likely scenarios within Jeddah FIR and publish the procedures in Part 1 of the ATSPM; and

(b) Ensure that all relevant authorities and users are informed of any potential hazards.

Inspector Guidance: *reserved*

§ 171.595 Unmanned Free Balloons.

(a) Each ATS provider must incorporate with Part 1 of the ATSPM ….

(b) On receipt of notification of the intended flight of a medium or heavy unmanned free balloon, the ATSU must …

(c) On receipt of notification that a medium or heavy unmanned free balloon has been launched, the ATSU must …

(d) When there is reasonable expectation that a heavy or medium unmanned free balloon will cross ….

(e) ATSU must maintain radar and/or ADS-B surveillance of medium and heavy unmanned free balloons …

Inspector Guidance: *reserved*

§ 171.596 Air Traffic Incident Reports

(a) Each ATS provider must establish procedures, and publish them in Part 1 of the ATSPM, for the reporting of ATS related air traffic incidents and occurrences.

(b) An air traffic incident report must be submitted, normally to the manager of the air traffic services unit concerned, for incidents specifically related to the provision of air traffic services involving such occurrences as aircraft proximity (AIRPROX), or other serious difficulty resulting in a hazard to aircraft, caused by, among others, faulty procedures, non-compliance with procedures, or failure of ground facilities.

(c) Procedures should be established for the reporting of aircraft proximity incidents and their investigation to promote the safety of aircraft. The degree of risk involved in an aircraft proximity should be determined in the incident investigation and classified as “risk of collision”, “safety not assured”, “no risk of collision” or “risk not determined”.

Inspector Guidance: *reserved*

§ 171.597 Repetitive Flight Plans (RPL).

(a) RPLs must not be used for flights other than IFR flights operated regularly on the same day(s) of…

(b) RPLs must cover the entire flight from the departure aerodrome to the destination aerodrome. …

(c) The use of RPLs for international flight may only be used when ….

(d) Each ATS provider using RPLs must designate ….

(e) RPLs must be stored by each ATSU concerned in a manner that will ensure …..

(f) Each ATS provider using RFP when obliged, due to exceptional circumstances, ….

(g) ATS messages relating to individual flights operating on an RPL must …..

Inspector Guidance: *reserved*

§ 171.599 Notification of Suspected Communicable Disease or other Public Health Risk Aboard an Aircraft.

(a) Each ATSU, upon receipt of information from a pilot regarding suspected case(s) of communicable disease, or other public health risk, on board the aircraft, must …..

(b) The receiving ATSU must ensure that the information received from a pilot includes:…..

(c) When a report of a suspected case(s) of communicable disease, or other public health risk, on board an aircraft…

Inspector Guidance: *reserved*

t. Alerting Service

§ 171.621 General.

(a) Each ATS provider must provide alerting service -….

(b) FICs or ACCs must serve as the central point for collecting all information relevant ….

(c) In the event of a state of emergency arising to an aircraft while it is under the control of a TWR or APP, … .

(d) When alerting service is required in respect of a flight operated through more than one FIR or control area, … .

(e) Each ATS provider must stipulate who has the overall responsibility for the provision of alerting service and whom to notify and publish details in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.623 Notification of RCCs.

(a) Without prejudice to any other circumstances that may render such notification advisable, ATSUs must, ….

(b) The notification must contain such of the following information as is available in the order listed:….

(c) Further to the notification in (a), the RCC must, without delay, be furnished with:….

Inspector Guidance: *reserved*

§ 171.625 Use of Communication Facilities.

ATSUs must, as necessary, use all available communication facilities to endeavor to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

Inspector Guidance: *reserved*

§ 171.629 Information to the Operator.

(a) When an ACC or a FIC decides that an aircraft is in the uncertainty or the alert phase, it must, when practicable, advise the operator prior to notifying the RCC.

(b) All information notified to the RCC by an ACC or FIC must, whenever practicable, also be communicated, without delay, to the operator.

Inspector Guidance: *reserved*

§ 171.631 Information to Aircraft Operating in the Vicinity of an Aircraft in a State of Emergency.

(a) When it has been established by an ATSU that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved must, except as provided in (b), be informed of the nature of the emergency as soon as practicable.

(b) When an ATSU knows or believes that an aircraft is being subjected to unlawful interference, no reference must be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

Inspector Guidance: *reserved*

§ 171.633 Handling and Reporting Accidents and Incidents.

(a) Consistent with §171.596 each ATS provider must publish procedures in Parts 1 and 2 of the ATSPM to be followed by all ATSU(s) concerning-

1. Reporting of any incident or accident.
2. Coordination procedures for adjacent ATSUs that might be affected by the incident/accident.

(b) Each ATS provider must provide all ATSUs with incident/accident report forms that have to be completed as early as practical and forwarded according to reporting procedures.

Inspector Guidance: *reserved*

u. Emergencies

§ 171.641 General.

(a) In the event of an aircraft in, or appearing to be in, any form of emergency, every assistance must …

(b) Each ATS provider must provide instructions for controllers relating to an aircraft declaring or appearing to be in an emergency situation, and those instructions must be published in Part 1 of the ATSPM.

(c) The progress of an aircraft in emergency must be monitored and …

(d) If the pilot of an aircraft encountering a state of emergency has previously been directed by ATC ….

(e) Whenever a general ADS-B emergency alert is observed on the situation display and …..

Inspector Guidance: *reserved*

§ 171.643 Signals.

(a) Each ATS provider must publish guidance that will assist controllers in identifying either a distress or an urgency situation. This guidance must be published in Part 1 of the ATSPM.

(b) In particular, each ATS provider must publish guidance relating to distress and urgency signals as described in Annex 2, Appendix 1.

(c) In communications between ATS units and aircraft in the event of an emergency, Human Factors principles must be observed.

Inspector Guidance: *reserved*

§ 171.645 Unlawful Interference and Aircraft Bomb Threat.

Each ATS provider must-

(a) Each ATS provider must ensure ATS personnel are prepared to recognize ….

(b) Whenever unlawful interference with an aircraft is suspected, and …..

(c) Whenever unlawful interference with an aircraft is known or suspected or a bomb threat warning ….

(d) ATSUs must also:…..

(e) The following additional procedures must apply …..

(f) The ATSU in communication with the aircraft must ascertain …..

(g) The aircraft must be handled in the most expeditious manner while ensuring….

(h) Aircraft in flight must be given re-clearance to a requested new destination without delay…..

(i) ATS units must not provide any advice or suggestions concerning action to be taken….

(j) An aircraft known or believed to be the subject of unlawful interference or which …..

(k) Recommended phraseologies to be used if the aircraft is in two-way radio contact must be published in Parts 1 and 2 of the ATSPM. In communications between ATSUs and aircraft in the event of an emergency, Human Factors principles must be observed.

Inspector Guidance: *reserved*

§ 171.647 Radio Communication Failure.

(a) Each ATS provider must publish procedures to be followed …..

(b) Air-ground communication failure. Action by ATCUs when unable to maintain two-way communication with an aircraft operating in a control area or control zone must be as outlined in this paragraph……

Inspector Guidance: *reserved*

§ 171.648 Degradation of Aircraft Position Source Data.

In order to reduce the impact of a degradation of aircraft position source data, for example, a space-based augmentation system (SBAS) outage for a Global Navigation Satellite System (GNSS), each ATS provider must establish, and publish in Part 1 of the ATSPM, contingency procedures to be followed by control positions and ATCUs in the event of data degradation.

Inspector Guidance: *reserved*

§ 171.649 Emergency Descent.

(a) Upon receipt of advice that an aircraft is making an emergency descent through other traffic, all possible action must be taken immediately to safeguard all aircraft concerned. When deemed necessary, ATCUs must immediately broadcast by means of the appropriate radio aids, or if not possible, request the appropriate communications stations immediately to broadcast an emergency message.

(b) Immediately after such an emergency broadcast has been made the ACC, the APP, or the TWR concerned must forward further clearances to all aircraft involved as to additional procedures to be followed during and subsequent to the emergency descent. The ATSU concerned must additionally inform any other ATSUs and control sectors which may be affected.

Inspector Guidance: *reserved*

§ 171.651 Emergency Separation.

(a) Each ATS provider must provide instructions for application of emergency separation if horizontal or vertical separation cannot be maintained due to an aircraft emergency or following ATC surveillance system alerts or warnings, and publish these instructions in Part 1 of the ATSPM.

(b) In an emergency situation, half the applicable vertical separation minimum may be used, i.e. 500 ft between aircraft in airspace where a vertical separation minimum of 1,000 ft is applied, and 1,000 ft

between aircraft in airspace where a 2,000 ft vertical separation minimum is applied.

(c) When emergency separation is applied the flight crews concerned must be advised that emergency separation is being applied and informed of the actual minimum used. Additionally, all flight crews concerned must be provided with essential traffic information.

Inspector Guidance: *reserved*

§ 171.653 Plotting Aircraft in a State of Emergency.

(a) When a state of emergency is considered to exist, the flight of the aircraft involved must be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position. The flights of other aircraft known to be operating in the vicinity of the aircraft involved must also be plotted in order to determine their probable future positions and maximum endurance.

(b) The progress of an aircraft in emergency that is under ATS surveillance must be monitored and (whenever possible) plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system, and position information must be provided to all ATSUs which may be able to give assistance to the aircraft. Transfer to adjacent sectors must also be effected when appropriate.

Inspector Guidance: *reserved*

§ 171.655 Information to Aircraft Operating in the Vicinity of an Aircraft in a State of Emergency.

(a) When it has been established by an ATSU that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved must, except as provided in (b), be informed of the nature of the emergency as soon as practicable.

(b) When an ATSU knows or believes that an aircraft is being subjected to unlawful interference, no reference must be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

Inspector Guidance: *reserved*

§ 171.657 Use of Communication Facilities.

Each ATSU must, as necessary, use all available communication facilities to endeavor to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

Inspector Guidance: *reserved*

v.Flight Information Services

§ 171.671 General

(a) Flight information service (FIS) must be provided to all aircraft …

(b) Where ATSUs provide both FIS and ATC service, the provision of ATC service must …

(c) The responsibility for the provision of FIS to a flight normally passes ….

(d) Each ATS provider must-…

(e) Except as provided for in (f), each ATS provider must …

(f) Reserved.

Inspector Guidance: *reserved*

§ 171.672 Scope of Flight Information Service.

(a) FIS must include the provision of pertinent:…

(b) FIS provided to flights must include, in addition to that outlined in (a), the provision of information concerning…

(c) ATSUs must transmit, as soon as practicable, special air-reports to other aircraft concerned, ….

(d) FIS provided to VFR flights must include, in addition to that outlined in (a), the provision of available…

(e) SIGMET information passed to aircraft must cover a portion of the route up …

(f) Amended aerodrome forecasts must be passed to aircraft …

Inspector Guidance: *reserved*

§ 171.673 Automatic Terminal Information Service (ATIS).

(a) Voice-automatic terminal information service (Voice-ATIS) broadcasts must be provided at aerodromes …

(b)Each ATS provider must-….

(c) A discrete VHF frequency must, whenever practicable, be used for Voice-ATIS broadcasts….

(d) Voice-ATIS broadcasts must not be transmitted on the voice channel of an ILS.

(e) Whenever Voice-ATIS is provided, the broadcast must be continuous and repetitive.

(f) The information contained in the current broadcast must immediately be made known…..

(g) Voice-ATIS broadcasts provided at designated aerodromes for use by international air services must …

(h) Where Voice-ATIS broadcasts are available in more than one language, a discrete channel must …

(i) The Voice-ATIS broadcast message must, whenever practicable, not exceed 30 seconds, ….

(j) The ATIS broadcast message must take into consideration human performance.

(k) Where a data link ATIS (D-ATIS) supplements the existing availability of Voice-ATIS, the following apply…

(l) Whenever Voice-ATIS and/or D-ATIS is provided:…

(m) When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS…

(n) Information contained in a current ATIS, the receipt of which has been acknowledged ….

(o) If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information ….

(p) Contents of ATIS should be kept as brief as possible. Information already available …

(q) ATIS messages containing both arrival and departure information must contain the following elements…..

(r) ATIS messages containing arrival information only must contain the following elements ….

Inspector Guidance: *reserved*

§ 171.675 Traffic Information.

(a) Each ATS provider must publish procedures for issuing both general traffic information and essential traffic information in Part 1 of the ATSPM.

(b) Essential traffic information must be given to controlled flights concerned whenever ….

(c) Essential traffic information must include:….

Inspector Guidance: *reserved*

§ 171.677 Traffic Information Broadcasts by Aircraft (TIBA).

Each ATS provider must publish procedures for identifying and managing situations outside of controlled airspace when there is a need to prescribe airspace limits and pilot procedures for TIBA in order to supplement collision hazard information or to cater for temporary disruption of FIS. TIBA airspace designations must be made in accordance with Subpart G and the publication of pilot procedures must be made by way of NOTAM or AIP amendment. Coordination with the AIS provider authorized under GACAR Part 175 must be carried out in compliance with § 171.159. The pilot procedures must be established in accordance with the requirements prescribed for TIBA in ICAO Annex 11 and published in the AIP.

Inspector Guidance: *reserved*

§ 171.679 Meteorological Information.

(a) Each ATS provider must detail in Part 1 of the ATSPM the requirement for the reporting of:….

(b) Information on the position, intensity, extent and movement of significant meteorological conditions … .

Inspector Guidance: *reserved*

§ 171.681 Air Traffic Advisory Service.

(a) Each ATSU unit providing an air traffic advisory service must establish procedures …..

(b) Controllers must be made aware that air traffic advisory service does not afford the degree of safety …..

(c) Where an aircraft elects to, or is required to use the air traffic advisory service, each ATSU unit …..

(d) The criteria used as a basis for action under (c)(2) and (c)(3) must be at least those laid down for aircraft …

(e) Each ATS provider must provide instructions with regard to air traffic advisory service in respect of format and when to use in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.683 Recording and Transmission of Information on the Progress of Flights.

(a) Each ATS provider must establish procedures for the recording and transmission of information on the progress of flights, and publish those procedures in Part 1 of the ATSPM.

(b) Information on the actual progress of flights, including those of heavy or medium unmanned free balloons, under neither ATC service nor air traffic advisory service must be:

1. Recorded by the ATSU serving the FIR within which the aircraft is flying in such a manner that it is available for reference and in case it is requested for search and rescue action;
2. Transmitted by the ATSU receiving the information to other ATSUs concerned, when so required in accordance with GACAR § 171.163.

Inspector Guidance: *reserved*

w. Communication Procedures

§ 171.751 General.

(a) Except as provided for in (b), each ATS provider must adopt communication procedures (including messaging procedures) that comply with Annex 11 to the Convention of International Civil Aviation, ICAO Doc. 4444 (PANS-ATM),Regional Supplemental Procedures as specified in ICAO Doc. 7030 and the following communications Standards prescribed by the International Civil Aviation Organization in Annex 10, Volume II:

1. Chapter 4 of Annex 10, Volume II for the Aeronautical Fixed Service (AFS);
2. Chapter 5 of Annex 10, Volume II for the Aeronautical Mobile Service — Voice Communications;
3. Chapter 6 of Annex 10, Volume II for the Aeronautical Radio Navigation Service;
4. Chapter 7 of Annex 10, Volume II for the Aeronautical Broadcasting Service; and
5. Chapter 8 of Annex 10, Volume II for the Aeronautical Mobile Service — Data Link Communications.

(b) Reserved

(c) Each ATS provider must incorporate all relevant communications procedures, protocols and phraseologies in Part 1 of their ATSPM.

Inspector Guidance: *reserved*

§ 171.753 Categories of ATS Messages.

Each ATS provider must detail the categories of messages that is handled by aeronautical mobile service together with a description of the individual categories. This information must be documented in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.755 Message Composition.

Each ATS provider must detail the composition of messages to be handled by the aeronautical mobile and fixed services in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.757 Phonetics and Numbers.

Each ATS provider must list the phonetic alphabet and the pronunciation of numbers from 0 to 10 in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.759 Transmitting Technique.

Each ATS provider must publish procedures for radio transmitting technique in Part 1of the ATSPM.

Inspector Guidance: *reserved*

§ 171.761 Ground Station Call Signs.

Each ATS provider must publish a table listing the approved ground station call signs in Part 1of the ATSPM.

Inspector Guidance: *reserved*

§ 171.763 Aircraft Call Signs.

(a) Each ATS provider must issue instructions for the use of both full, abbreviated and changed call signs in Part 1of the ATSPM.

(b) Change of radiotelephony (RTF) call sign for aircraft…..

Inspector Guidance: *reserved*

§ 171.765 Exchange of Communications.

Each ATS provider must publish, in Part 1 of the ATSPM, procedures for exchange of communication between ground stations and aircraft including requirements for sections that must be read back or include corrections and repetitions.

Inspector Guidance: *reserved*

§ 171.767 Distress and Urgency Radiotelephony Communication Procedures.

Each ATS provider must-

(a) Publish detailed procedures in association with aircraft in distress in Part 1 of the ATSPM. These procedures must include the following:…

(b) Publish procedures in Part 1 of the ATSPM for action when an aircraft is reporting an urgency condition. This must include:…

(c) Appropriate procedures for direct speech communications must permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

Inspector Guidance: *reserved*

§ 171.769 Medical Transport Aircraft Radiotelephony Communication.

Each ATS provider must publish detail procedures for communication with air ambulance aircraft in Part 1 of the ATSPM. This must include all relevant information to ensure the most expeditious flight profile available.

Inspector Guidance: *reserved*

§ 171.771 Coordination with an Aeronautical Communication Station.

Each ATS provider must in Part 2 of the ATSPM detail coordination procedures between the ATSU and an aeronautical communication station. These procedures must also be included in Part 1 of the ATSPM in general terms.

Inspector Guidance: *reserved*

§ 171.773 Unauthorized Use of ATC Frequency.

(a) Each ATS provider must detail procedures to be followed in the event of false and deceptive transmissions on ATC frequencies in Part 1 of the ATSPM.

(b) When the transmission of false or deceptive instructions and clearances is detected, the ATS provider must take all necessary action to have the transmitter located and the transmission terminated.

Inspector Guidance: *reserved*

§ 171.775 Phraseologies.

(a) Each ATS provider must publish in Part 1 of the ATSPM the approved phraseologies for use by ATS personnel in the provision of ATS.

(b) Except as provided for in (c) and (d), these phraseologies must comply with the phraseologies prescribed by the International Civil Aviation Organization in Annex 10, Volume II, Chapters 5 and 12 of ICAO Doc. 4444 (PANS-ATM) and as supplemented by Regional Supplemental Procedures as specified in ICAO Doc. 7030.

(c) Reserved.

(d) Non-standard phraseologies may be utilized in circumstances not covered by (b) above. Procedures detailing the use of non-standard phraseologies must be published in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

x. Meteorological Requirements

§ 171.781 General.

(a) Each ATS provider must enter into an agreement with a MET service provider certified under….

(b) Each ATS provider must establish procedures to ensure that ATSUs are supplied with ….

(c) Each ATS provider must establish procedures to ensure that ATSUs are supplied with ….

(d) When computer-processed upper air data are made available to ATSUs in digital form for use by ATS …

(e) Each ATS provider must stipulate in Part 1 of the ATSPM the necessary meteorological details to be provided to FICs and ATSUs.

Inspector Guidance: *reserved*

§ 171.783 FICs and ACCs.

Each ATS provider must ensure that-

(a) FICs and ACCs are supplied with meteorological information as described in GACAR Part 179 ….

(b) FICs and ACCs must be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the FIC or ACC concerned.

Inspector Guidance: *reserved*

§ 171.785 APPs.

Each ATS provider must ensure that-

(a) APPs are supplied with meteorological information as described in GACAR Part 179 ….

(b) APPs are provided with current pressure data for setting altimeters, for locations specified ….

(c) APPs providing approach control service for final approach, landing and takeoff are supplied with …..

Inspector Guidance: *reserved*

§ 171.787 TWRs.

Each ATS provider must ensure that-

(a) TWRs are supplied with meteorological information as described in GACAR Part 179 ….

(b) TWRs are provided with current pressure data for setting altimeters for the aerodrome concerned.

(c) TWRs are supplied with information on wind shear which could adversely affect aircraft ….

(d) TWRs and/or other appropriate units are supplied with aerodrome warnings…..

Inspector Guidance: *reserved*

§ 171.789 Communication Stations.

Each ATS provider must establish procedures to ensure that, where necessary for flight information purposes,

current meteorological reports and forecasts are supplied to communication stations. A copy of such information must be forwarded to the FIC or the ACC.

Inspector Guidance: *reserved*

§ 171.791 Aircraft Observations.

(a)Each ATS provider must establish procedures to ensure that routine meteorological observations are made- …

(b) …

(c) In the case of air routes with high-density air traffic (e.g. organized tracks), an aircraft from …

(d) In the case of the requirement to report during the climb-out phase, an aircraft must be designated,…

(e) Aircraft not equipped with air-ground data link may be exempted from making routine aircraft observations.

(f) When air-ground data link is used and ADS is being applied, from the aircraft intending to ….

(g) Each ATS provider must publish procedures in Part 1 of the ATSPM outlining the methods for requesting and processing routine aircraft observations.

Inspector Guidance: *reserved*

y. Miscellaneous

§ 171.801 Job Descriptions.

Each ATS provider must include job descriptions of all operations personnel involved in ATS operations in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.803 Forms.

Each ATS provider must ensure that copies of all administrative and operational forms, checklists and other relevant proforma relating to the administrative and operational provision of services are included in Part 1 of the ATSPM. Any forms or checklists unique to a specific operational unit or location may be included in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.805 Unit Logs.

Each ATS provider must make appropriate logs available at all units and issue instructions in the ATSPM on completion and retention of the unit logs.

Inspector Guidance: *reserved*

§ 171.807 Unit Libraries.

(a) Each ATS provider must ensure that unit libraries are maintained at all operating ATSUs. ……

(b) Each ATS provider must instruct each ATSU to:….

(c) Each ATS provider must instruct units to periodically review data contained in all publications relative to their respective unit and initiate action as required to ensure accuracy and completeness of published data. The instructions for the periodic review must be published in Part 2 of the ATSPM.

Inspector Guidance: *reserved*

§ 171.809 Unit Directives.

(a) Each ATS provider must publish information to operational personnel in the form of unit directives or …

(b) All unit directives must be issued as:….

(c) Unit directives must be cancelled when the information they contain is no longer valid or has expired. A list of current unit directives must be maintained separately for OLs, OBs and SMs.

Inspector Guidance: *reserved*

§ 171.811 Letters of Agreement.

(a) Each ATS provider must ensure that letters of agreement (LOA) between adjacent ATSUs are established to … .

(b) LOAs involving ATSUs in adjacent States must be ….

(c) A copy of all LOAs of the unit must be kept in the ATSPM, Part 2.

(d) LOAs must cover the following as applicable:…

Inspector Guidance: *reserved*

z. Records and Reports

§ 171.851 Applicability.

This subpart prescribes requirements for the preparation, maintenance, and retention of reports and records for each ATS provider.

Inspector Guidance: *reserved*

§ 171.853 Mandatory Reporting of Occurrences.

In addition to all accidents and serious incidents that must be reported to the AIB as prescribed under the AIB regulations, each ATS provider must ensure that occurrences covered by Appendix A of this part are reported to the President within 24 hours of their occurrence.

Inspector Guidance: *reserved*

§ 171.854 Record of Communications.

(a) A telecommunication log, written or automatic, must be maintained in each station of the aeronautical telecommunication service.

(b) Aeronautical stations must record messages at the time of their receipt, ……

(c) In written logs, entries must be made only by operators on duty …..

(d) All entries must be complete, clear, correct and intelligible. Superfluous marks or notations must not be made in the log.

(e) In written logs, any necessary correction in the log must be made only by the person making the initial entry…..

(f) Telecommunication logs, written or automatic, must be retained for a period prescribed in GACAR §171.855….

(g) The following information must be entered in written logs:……

Inspector Guidance: *reserved*

§ 171.855 Document Retention.

(a) Each ATS provider must ensure the following documentation/data is stored in a form and manner acceptable…

(b) Each ATS provider must ensure that -….

Inspector Guidance: *reserved*

§ 171.857 Access to ATS Records.

Each ATS provider must advise all ATSU of restrictions concerning access to ATS audio and video recordings.

Inspector Guidance: *reserved*

§ 171.859 Flight Strip Filing Procedures.

Each ATS provider must detail procedures for filling of flight strips both for paper and electronic format in Part 1 of the ATSPM.

Inspector Guidance: *reserved*

aa. Appendix A to GACAR Part 171 - List of Reportable Occurrences

Inspector Guidance: *reserved*

bb. Appendix B to GACAR Part 171 - Material Relating to Contingency Planning

Inspector Guidance: *reserved*

cc. Appendix C to GACAR Part 171 – Designation and Classification of Airspace

Inspector Guidance: *reserved*

8.1.1.5 Regulatory Requirements – Part 173

8.1.1.5.1 The following regulatory requirements from GACAR Part 173,relating to aeronautical telecommunications, apply to ATS providers:

a. reserved

Inspector Guidance: *reserved*

8.1.1.6 Regulatory Requirements – Part 4

8.1.1.6.1 The following regulatory requirements from GACAR Part 4, relating to reporting of accidents, incidents and statistics, apply to ATS providers:

a. Air Traffic Statistics

4.53 Air Traffic Statistics.

(a) Each air traffic service provider providing services under GACAR Part 171 must provide the statistical data and information listed in paragraphs (b) through (e) of this section in accordance with the reporting regime prescribed in paragraph (f) of this section.

(b) Movement data enroute. Data must be broken down into IFR, VFR, and Military and identify domestic flights, international arrival or departure flights, and international overflights.

(c) Flight hour data enroute. Data must be broken down into IFR, VFR and Military.

(d) Movement data at each controlled aerodrome in KSA. Data must be broken into IFR, VFR and Military and identify arrivals, departures and circuits.

(e) Peak Hour data at each controlled aerodrome in the KSA. In the context of this paragraph, peak hour data means the average number of movements per hour derived from an average of the 10 busiest hours over the month.

(f) Each data set must be reported to the President on a monthly basis. Each monthly report must be received by the President no later than 60 calendar days following the month end of the period being reported.

Inspector Guidance: *reserved*

Appendix A

ATS Certification Checklist

AIR TRAFFIC SERVICE PROVIDER (PART 171) ASSESSMENT

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 171.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1.	**General Requirements – Part 170**				
	General Requirements				
1.1	Is the application related specifically and only to: (1) Air navigation services provided exclusively for military flight operations; (2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or (3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia	☐	☐	☐	8.1.1.2.1.a § 170.1
1.2	Does the applicant hold an appropriate security authorisation from the President?	☐	☐	☐	8.1.1.2.1.b § 170.3
	Comments				
1.3	Can the applicant demonstrate that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President? *(see TGM Volume 8 Chapter 11 Section 1 for SMS checklist questions)*	☐	☐	☐	8.1.1.2.1.c 8.11.1 § 170.7
1.4	Has the applicant satisfied the SMS checklist requirements at TGM Volume 8 Chapter 11 Section 1? *(Attach completed Checklist)*	☐	☐	☐	8.11.1 § 170.7
	Comments				
1.5	Can the applicant demonstrate that it has a Security Program that is acceptable to the President? *(see TGM Volume 8 Chapter 12 Section 4 for SMS checklist questions)*	☐	☐	☐	8.1.1.2.1.d § 170.9
1.6	Has the applicant satisfied the Security Program checklist requirements at TGM Volume 8 Chapter 12 Section 4? *(Attach completed Checklist)*	☐	☐	☐	8.1.1.2.1.d 8.12.4 § 170.9
	Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.7	Does the applicant qualify as a person able to provide an air navigation service under the provisions of GACAR Part 170.23?	☐	☐	☐	8.1.1.2.1.d § 170.23
1.8	Is the applicant seeking exemptions based on an approval issued by another State?	☐	☐	☐	8.1.1.2.1.e § 170.26
	Comments				
1.9	Is there any evidence that the applicant has nominated or is planning to nominate a person to fill a key management position that has previously have materially contributed to the revocation of a certificate?	☐	☐	☐	8.1.1.2.1.f § 170.23
1.10	Does the applicant maintain a principal base of operations?	☐	☐	☐	8.1.1.2.1.g § 170.61
	Comments				
	2. ATS Specific Requirements – Part 171				
	a. Applicability				
2.1	Is the applicant intending **only** to provide air traffic services to military aircraft in the course of his duties for the Saudi Arabian military?	☐	☐	☐	8.1.1.4.1.a § 171.1(b)(1)
	Comments *(If yes to Q2.1, then Part 171 certification is not required)*				
2.2	Has the applicant clearly defined the objectives of Air Traffic Services in their Manual(s)?	☐	☐	☐	8.1.1.4.1.a § 171.7(a)
2.3	Has the applicant clearly defined the objectives of Air Traffic Control (ATC) Services in their Manual(s)?	☐	☐	☐	8.1.1.4.1.a § 171.7(b)
2.4	Has the applicant clearly defined in their Manual(s) the division of Air Traffic Services that they provide?	☐	☐	☐	8.1.1.4.1.a § 171.9
2.5	Has the applicant established procedures for the determination of the need for a particular Air Traffic service?	☐	☐	☐	8.1.1.4.1.a § 171.11(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.6	Has the applicant clearly defined that the carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area must not be a factor in determining the need for ATS in that area?	☐	☐	☐	8.1.1.4.1.a § 171.11(b)
	Comments / Evidence				
2.7	If the applicant has been delegated airspace management authority by the President, has the applicant developed and published procedures for the designation of the portions of the airspace and controlled aerodromes where Air Traffic Services will be provided?	☐	☐	☐	8.1.1.4.1.a § 171.13
	Comments / Evidence				
2.8	Has the applicant developed and published procedures for the establishment and designation of the units providing Air Traffic Services?	☐	☐	☐	8.1.1.4.1.a § 171.15
2.9	If the applicant has been delegated airspace management authority by the President, has the applicant developed and published procedures for the delineation of airspace (FIR, CTA, CTR), wherein ATS are to be provided in accordance with the provisions of GACAR 171.17 and associated provisions of GACAR Part 91?	☐	☐	☐	8.1.1.4.1.a § 171.17
2.10	(a) Where the applicant has designated airspace of greater or different dimensions than those specified in GACAR 171.17, has the applicant provided justification for the differences? (b) Are the differences sufficiently justified that they are acceptable to the President?	(a) ☐ (b) ☐	(a) ☐ (b) ☐	(a) ☐ (b) ☐	8.1.1.4.1.a § 171.17
	Comments / Evidence				
2.11	Has the applicant correctly identified ATS Units and airspaces as specified in GACAR 171.19?	☐	☐	☐	8.1.1.4.1.a § 171.19

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.12	Has the applicant established procedures to ensure aeronautical data integrity in accordance with the provisions of GACAR 171.21, ICAO Annex 11 and associated documents and references?	☐	☐	☐	8.1.1.4.1.a § 171.21
2.13	Has the applicant established procedures to ensure that the y use the common reference systems specified in GACAR 171.22, specifically: (a) Horizontal Reference System? (b) Vertical Reference System? (c) Temporal Reference System?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.1.1.4.1.a § 171.22(a-c)
2.14	Has the applicant established procedures for coordinating with the GACA SS&AT when interacting with foreign States or foreign ATS providers when there are implications for Regional Air Navigation Agreements for which the KSA is a party?	☐	☐	☐	8.1.1.4.1.a § 171.23
	Comments / Evidence				
2.15	Has the applicant developed procedures to ensure ICAO Standards, Recommended Practices (where required) and Procedures are incorporated into their Manuals, and are in routine use in the provision of ATS in KSA – and in particular the provisions of: (a) ICAO Annex 10? (b) ICAO Annex 11? (c) ICAO Doc 7030? (d) ICAO Doc 4444?	(a) ☐ (b) ☐ (c) ☐ (d) ☐	(a) ☐ (b) ☐ (c) ☐ (d) ☐	(a) ☐ (b) ☐ (c) ☐ (d) ☐	8.1.1.4.1.a § 171.25
	Comments / Evidence				
	b. Management Personnel				
2.16	Has the applicant provided evidence that they have in place sufficient qualified management and technical personnel to ensure the highest degree of safety in its operations?	☐	☐	☐	8.1.1.4.1.b § 171.41(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments / Evidence				
2.17	Has the applicant nominated a senior person, acceptable to the President, identified for the purposes of this Part as the General Manager of Air Traffic Management (GM-ATM)?	☐	☐	☐	8.1.1.4.1.b § 171.41(a)(1)
	Comments / Evidence *Attach copy of the GM-ATM Assessment Questionnaire*				
2.18	Has the applicant identified Air Traffic Services Unit (ATSU) Managers/Chiefs for all locations/facilities at which ATS is provided?				8.1.1.4.1.b § 171.41(a)(2)
2.19	(a) Has the applicant identified or proposed positions or numbers of positions other than those listed in paragraph (a) of GACAR 171.41(a)? (b) If so, has the applicant been able to shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel?	(a) ☐ (b) ☐	(a) ☐ (b) ☐	(a) ☐ (b) ☐	8.1.1.4.1.b § 171.41(b)
2.20	Are the titles of all of the actual or proposed management positions in the applicant's organisation set forth in their Manual?	☐	☐	☐	8.1.1.4.1.b § 171.41(c)
2.21	Has the applicant provided evidence that the individuals who serve or will serve in the positions required or approved under paragraph (a) or (b) of this GACAR 171.41 and anyone in a position to exercise control over operations conducted under the operating certificate are— (1) Qualified through training, experience, and expertise; (2) To the extent of their responsibilities, have a full understanding of the following material with respect to the certificate holder's operation: (i) Aviation safety standards and safe operating practices; (ii) The GACARs; (iii) The ATSPM required by GACAR § 171.5153. (3) Discharging their duties to meet applicable legal requirements and to maintain safe operations.	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	8.1.1.4.1.b § 171.41(d)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.22	Has the applicant— (1) Stated in the general policy provisions of the ATSPM Operations Manual required by GACAR § 171.51, or in the ATSPM required by GACAR § 171.53, the duties, responsibilities, and authority of personnel required under paragraph (a) or (b) of GACAR 171.41? (2) Listed in the Operations Manual the names and business addresses of the individuals assigned to those positions? (3) Developed procedures for notifying the President within 10 days of any change in personnel or any vacancy in any position listed?	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	8.1.1.4.1.b § 171.41(a)
	Comments / Evidence				
2.23	Has the applicant clearly identified the responsibilities of the GM-ATM in its Manual, including those listed in GACAR 171-43(a)?	☐	☐	☐	8.1.1.4.1.b § 171.43(a)
2.24	Has the applicant clearly identified the responsibilities of the ATSU Managers or Chiefs in its Manual, including those listed in GACAR 171-43(b)?	☐	☐	☐	8.1.1.4.1.b § 171.43(b)
	Comments / Evidence				
2.25	Each ATS provider must establish and maintain an operations manual that shows how and where the ATS provider provides, or proposes to provide, air traffic services in compliance with the applicable GACARs.	☐	☐	☐	8.1.1.4.1.b § 171.51(a)
2.26	Does the applicant's operations manual contain, as a minimum: (1) A table of contents (2) A description of the provider's organisational structure and a statement setting out the functions that the certificate holder performs under GACAR Part 171; (3) A description of the chain of command established and a statement of the duties and responsibilities of any supervisory positions within the organisational structure; (4) A statement showing how the number of operational staff required including the number of operational supervisory staff, is determined; (5) A list of the air traffic services that the certificate holder provides;	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	8.1.1.4.1.b § 171.51(b)

Audit Questionnaire		Yes	No	N/A	Reference TGM/GACAR
	(6) A statement for each air traffic service, showing the hours of operation of the service; (7) A statement, for each air traffic service, that identifies the particular airspace within which the service is provided; (8) A statement, for each air traffic service, that identifies the location from where the service is provided; (9) If the certificate holder provides an air traffic service for a controlled aerodrome: (i) A description of the maneuvering area of the aerodrome; (ii) A copy of the parts of the aerodrome emergency plan, set out in the aerodrome operator's aerodrome manual that are relevant to the provision of the service; and (iii) A copy of the procedures set out in the aerodrome operator's aerodrome manual for preventing the unauthorised entry of persons or things onto the maneuvering area of the aerodrome; and (iv) A copy of the procedures set out in the aerodrome operator's aerodrome manual for the control of surface vehicles operating on or in the vicinity of the maneuvering area; (10) A statement of the responsibilities and functions for each operating position; (11) A description of the arrangements made or proposed to be made by the ATS provider to ensure that it has, and will continue to receive, on a daily basis, the information necessary for providing the service; (12) A description of the arrangements made or proposed to be made by the ATS provider to ensure that it has, and will continue to be able to provide, information in connection with its air traffic services to another person whose functions reasonably require that information (includes SAR alerting); (13) A description of the ATS provider's document and record keeping system; (14) A copy of any agreement entered into by the ATS provider in relation to the provision of any of the air traffic services; (15) A copy of the document that sets out the provider's safety management system required under GACAR Part 5; (16) A copy of the ATS provider's contingency plan; (17) A copy of the ATS provider's security program; (18) A description of the processes and documentation used to present to staff the relevant standards, rules and procedures contained in ICAO Annexes 10 and 11, ICAO PANS-ATM, ICAO Regional Supplementary Procedures, and any of the ATS provider's site-specific instructions for the provision of air traffic services; (19) A description of the processes and documentation used to provide operational instructions to staff; (20) A description of the procedures to be followed to ensure	(6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐ (15)☐ (16)☐ (17)☐ (18)☐ (19)☐ (20)☐	(6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐ (15)☐ (16)☐ (17)☐ (18)☐ (19)☐ (20)☐	(6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐ (15)☐ (16)☐ (17)☐ (18)☐ (19)☐ (20)☐	

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	all operational staff are familiar with any operational changes that have been issued since they last performed operational duties; (21) A description of the provider's training and checking program; (22) A description of the procedures to be used in commissioning new facilities, equipment and services; (23) If authorized to designate and classify airspace under Subpart H, a description of methods and criteria used for conducting aeronautical studies as part of the airspace design process; (24) If authorized to establish and designate routes, points and minimum altitudes under Subpart G, a description of processes used; and (25) The procedures to be followed for revising the operations manual.	(21)☐ (22)☐ (23)☐ (24)☐ (25)☐	(21)☐ (22)☐ (23)☐ (24)☐ (25)☐	(21)☐ (22)☐ (23)☐ (24)☐ (25)☐	
2.27	Is the applicant's Operations Manual acceptable to the President?	☐	☐	☐	8.1.1.4.1.b § 171.51(c)
	Comments / Evidence				
	c. Manuals				
2.28	Has the applicant, as part of the operations manual, published an air traffic services procedures manual (ATSPM)?	☐	☐	☐	8.1.1.4.1.c § 171.53(a)
2.29	Where the applicant provides services across a number of facilities, has the applicant published the ATSPM in two parts as described in GACAR 171.53: (1) ATSPM Part 1, which is applicable across all air traffic service units at which the ATS provider provides services and is nationally standardized; and (2) ATSPM Part 2 (Unit Specific Procedures), which is applicable to individual ATS units and which contains procedures applicable only at that unit?	☐	☐	☐	8.1.1.4.1.c § 171.53(b)
2.30	If the applicant provides services at a single location have they combined the ATSPM in a single document?	☐	☐	☐	8.1.1.4.1.c § 171.53(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.31	Where the applicant produces an ATSPM Part 2, have they produced a separate ATSPM Part 2 for each ATS unit? *This also applies where there is more than on unit at a particular location.*	☐	☐	☐	8.1.1.4.1.c § 171.53(d)
2.32	Has the applicant established a procedure so that each of their ATSPMs can be approved by the President?	☐	☐	☐	8.1.1.4.1.c § 171.53(e)
2.33	Has the applicant proposed, or do they intend to propose, an alternative means of compliance with GACAR 171.53?	☐	☐	☐	8.1.1.4.1.c § 171.53(f)
	Comments / Evidence				
2.34	Has the applicant structured its ATSPM to be in full compliance with the formatting and administration requirements of GACAR 171.55?	☐	☐	☐	8.1.1.4.1.c § 171.55
2.35	Has the applicant established procedures to ensure the administration of its ATSPM – including approval by the President of any amendments – complies with GACAR 171.55?	☐	☐	☐	8.1.1.4.1.c § 171.55
	Comments / Evidence				
2.36	Has the applicant established procedures to ensure that the distribution of its ATSPM complies with the requirements of GACAR 171.57?	☐	☐	☐	8.1.1.4.1.c § 171.57
2.37	Is the applicant proposing an alternative means of compliance with the distribution requirements (e.g., electronic means, etc.)?	☐	☐	☐	8.1.1.4.1.c § 171.57
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	d. Air Traffic Controller Qualification Requirements				
2.38	Has the applicant provided evidence that <u>each</u> person providing an Air Traffic Control Service holds: • an air traffic controller (ATCO) certificate issued under GACAR Part 64 along with a valid rating, including any associated unit endorsement relating to the ATC service to be provided; • a current Class 3 medical certificate issued under GACAR Part 67; and • a current English proficiency certificate (or equivalent) as prescribed under GACAR Part 64, and that ratings and endorsements are fully compliant with the requirements of GACAR Part 171.61?	☐	☐	☐	8.1.1.4.1.d § 171.61
2.39	Has the applicant established procedures and practices to ensure that a person does not provide ATC services for which they do not hold a valid rating and endorsement except where they are acting as a student or trainee air traffic controller?	☐	☐	☐	8.1.1.4.1.d § 171.61(d)
	Comments / Evidence				
2.40	Has the applicant established processes, procedures and competent personnel to ensure that their air traffic controllers: (1) Are appropriately certificated; (2) Are competent to provide the ATC services for which they hold valid ratings and endorsements; (3) Comply with requirements for maintaining currency and proficiency under GACAR Part 64; (4) Comply with the provisions of Subpart F of GACAR 171 for the regulation of ATCO fatigue; (5) Hold a current Class 3 medical certificate; (6) Hold a current English Proficiency certificate; (7) Are not under the influence of psychoactive substances or medication or suffering from any illness or injury to an extent that may endanger the safety of aircraft to which an ATC is being provided?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	8.1.1.4.1.d § 171.63(a)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.41	Has the applicant established processes, procedures and competent personnel to ensure that Student ATCOs: (i) Hold a current Student ATCO certificate; (ii) Have successfully completed an approved course of initial training under GACAR Part 144, or a training course approved by an ICAO Contracting State that is acceptable to the President, in the rating discipline in which they will be providing an ATC service under supervision or will undertake a familiarization course under supervision; (iii) Commence the unit training plan within 3 months from the date of successfully completing the examinations for rating discipline in which they will be providing an ATC service under supervision; (iv) Comply with the provisions of Subpart F of Part 171 for the regulation of ATCO fatigue while undergoing OJT; (v) Hold a current Class 3 medical certificate; and (vi) Hold a current English Proficiency certificate?	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐	8.1.1.4.1.d § 171.63(b)(1)
2.42	Has the applicant established processes and procedures to ensure that an Air Traffic Controller Instructor (ATCI) supervising a Student ATCO holds a valid rating appropriate to the ATC service being provided?	☐	☐	☐	8.1.1.4.1.d § 171.63(b)(2)
2.43	Has the applicant established processes, procedures and competent personnel to ensure that each ATCI: (1) Holds an ATCI certificate and valid ratings and endorsements entitling them to provide the ATC services in which they are supervising trainee ATCO? (2) Have Has received specific training on the conduct of the unit training plan? (3) Who are is required to instruct or assess training in unusual circumstances and emergencies have has received specific training on the conduct and/or assessment of training in unusual circumstances and aircraft in emergencies? (4) Is competent to supervise trainee ATCO? (5) Are is assessed annually for their ongoing competence to supervise trainee ATCOs?	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	8.1.1.4.1.d § 171.63(c)
2.44	Has the applicant established procedures and practices to permit an ATCI to provide an ATC service without any training responsibilities, for sufficient time to remain competent on the specific sector(s) or operational position(s) for which he provides on-the-job training?	☐	☐	☐	8.1.1.4.1.d § 171.63(d)
	Comments / Evidence				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.45	Has the applicant established procedures to ensure that a controller who has not exercised the privileges of a particular rating and/or unit endorsement within the previous 6 months does not commence on-the- job training until he has been assessed by the concerned ATC training unit for previous competence and successfully completed the required training and assessments?	☐	☐	☐	8.1.1.4.1.d § 171.65(b)
2.46	Has the applicant established processes, procedures and competent personnel to ensure that: (a) Each unit has an appropriate number of suitably qualified examiners? (b) Examiners must not conduct examinations for which they do not hold the appropriate examiner authority issued under GACAR Part 183? (c) Examiners hold valid ratings appropriate to the examinations they are conducting?	(a)☐ (b)☐ (c)☐	(a)☐ (b)☐ (c)☐	(a)☐ (b)☐ (c)☐	8.1.1.4.1.d § 171.67
	Comments / Evidence				
	e. Training and Checking Programs				
2.47	Has the applicant established and implemented a training and checking program to ensure that an individual performing a function in conjunction with any air traffic services is competent to perform that function?	☐	☐	☐	8.1.1.4.1.e § 171.71(b)
2.48	Has the applicant defined, documented and maintained processes which address the integrity of staff training?	☐	☐	☐	8.1.1.4.1.e § 171.71(c)
2.49	Has the applicant developed and implemented a unit training plan (UTP) for each ATCU, approved by the President, which details the processes by which ATCOs are trained?	☐	☐	☐	8.1.1.4.1.e § 171.72(a)
	Provide comments or evidence regarding the approval process used by SS&AT for the UTPs				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.50	Has the applicant provided evidence that their UTP is divided into three phases including pre-OJT, OJT and recurrent training?	☐	☐	☐	8.1.1.4.1.e § 171.72(b)
2.51	Has the applicant provided evidence that they are maintaining training records as prescribed in Subpart Z of GACAR Part 171?	☐	☐	☐	8.1.1.4.1.e § 171.72(c)
2.52	Is the applicant's UTP fully documented in accordance with the requirements of GACAR § 171.72(d)?	☐	☐	☐	8.1.1.4.1.e § 171.72(d)
2.53	Has the applicant developed procedures to ensure each student and/or trainee ATCO is kept aware of their progress, including any areas where improvement is required and the goals they must achieve to successfully complete the training?	☐	☐	☐	8.1.1.4.1.e § 171.72(e)
2.54	Has the applicant developed procedures to ensure that a report of the student and/or trainee ATCO's performance is completed after each training session in accordance with the requirements of GACAR § 171.72(f)?	☐	☐	☐	8.1.1.4.1.e § 171.72(f)
	Comments / Evidence				
2.55	1. Has the applicant assigned the over-all responsibility of managing a specific UTP to the ATSU Manager/Chief who is responsible for the development, implementation, and monitoring of the UTP? 2. Has the applicant developed procedures to ensure that the ATSU Manager/Chief, or his assigned delegate, is responsible for the establishment and maintenance of a quality assurance program that adheres to the standards and procedures established by the GM-ATM?	(1)☐ (2)☐	(1)☐ (2)☐	(1)☐ (2)☐	8.1.1.4.1.e § 171.73(a)
2.56	Has the applicant provided evidence that they have directed the ATSU Manager/Chief to assign a training officer and that detailed terms of reference for the training officer are described in Parts 1 and 2 of the ATSPM?	☐	☐	☐	8.1.1.4.1.e § 171.73(b)
2.57	Does the applicant ensure each ATSU training officer maintains, in a manner acceptable to the President, a training record for each person undergoing training at the ATCU for the purpose of obtaining a rating or unit endorsement in respect of the ATCU, and that the training record includes the certificate number of the ACTI providing the training and certify that any information entered in the record is correct by signing and dating the entry?	☐	☐	☐	8.1.1.4.1.e § 171.73(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.58	Has the applicant established a procedure to ensure that, at the request of any person who is undergoing or has undergone training at an ATCU, they provide a copy of the person's training record to the person?	☐	☐	☐	8.1.1.4.1.e § 171.73(d)
2.59	Has the applicant established a procedure to ensure that at the request of the President, they provide the President with a copy of the training record of any person who is undergoing or has undergone training at the ATCU and who holds an ATCO certificate?	☐	☐	☐	8.1.1.4.1.e § 171.73(e)
	Comments / Evidence				
2.60	Do the applicant's UTP indicate the amount of training, if any, that will be conducted on a simulator?	☐	☐	☐	8.1.1.4.1.e § 171.75(a)
2.61	Have the applicant's simulator(s) been approved by the President as part of the course approval process for any particular UTP?	☐	☐	☐	8.1.1.4.1.e § 171.75(b)
2.62	Is the applicant able to demonstrate to the President how the simulator and the associated exercises will provide adequate support for the particular training plan?	☐	☐	☐	8.1.1.4.1.e § 171.75(c)
	Comments / Evidence				
2.63	Has the applicant provided evidence that: (a) They only use On-The-Job-Instructors (OJTI) who hold valid air traffic controller instructor (ACTI) certificates issued under GACAR Part 64. (b) Each OJTI works under the direction of the ATSU training officer. (c) They detail the duties of the OJTI in Parts 1 and 2 of the ATSPM.	(a)☐ (b)☐ (c)☐	(a)☐ (b)☐ (c)☐	(a)☐ (b)☐ (c)☐	8.1.1.4.1.e § 171.77
2.64	Has the applicant established procedures and practices to ensure that each ATCO receives an annual competence assessment as part of the renewal of unit license endorsements?	☐	☐	☐	8.1.1.4.1.e § 171.79
2.65	Has the applicant published, in Part 1 of their ATSPM, instructions for remedial training to ensure that proficiency standards are maintained?	☐	☐	☐	8.1.1.4.1.e § 171.81(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.66	Has the applicant established procedures and practices to ensure that they maintain remedial training records as prescribed in Subpart Z of part 171?	☐	☐	☐	8.1.1.4.1.e § 171.81(b)
	Comments / Evidence				
	f. Fatigue Management				
2.67	Has the applicant established procedures for the management of fatigue for all ATCOs that comply with the requirements of GACAR Part 171.91?	☐	☐	☐	8.1.1.4.1.f § 171.91
2.68	Has the applicant established procedures for the management of fitness for duty for all ATCOs that comply with the requirements of GACAR Part 171.92?	☐	☐	☐	8.1.1.4.1.f § 171.92
2.69	Has the applicant established procedures for the management of duty time for all ATCOs that comply with the requirements of GACAR Part 171.93?	☐	☐	☐	8.1.1.4.1.f § 171.93
	Comments / Evidence				
	g. Designation, Classification and Registration Of Airspace				
2.70	Has the applicant been authorized by the President for the designation and classification of airspace in accordance with GACAR Part 171.101?	☐	☐	☐	8.1.1.4.1.g § 171.101
2.71	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the designation of airspace in accordance with the requirements of GACAR Part 171.103(a)?	☐	☐	☐	8.1.1.4.1.g § 171.103(a)
2.72	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the classification of airspace in accordance with the requirements of GACAR Part 171.103(b), (c) and (d)?	☐	☐	☐	8.1.1.4.1.g § 171.103(b-d)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.73	If the applicant has been authorised by the President, has the applicant established and implemented procedures for the conduct of aeronautical studies in accordance with the requirements of GACAR Part 171.103(c)?	☐	☐	☐	8.1.1.4.1.g § 171.103(b-d)
	Comments / Evidence				
2.74	If the applicant has been authorised by the President, has the applicant established and implemented procedures for the determination of boundaries of designated airspace in accordance with the requirements of GACAR Part 171.105?	☐	☐	☐	8.1.1.4.1.g § 171.105
2.75	If the applicant has not been authorised by the President under GACAR Part 171.101, has the applicant established and implemented procedures for the application for designation and classification of airspace in accordance with the requirements of GACAR Part 171.107?	☐	☐	☐	8.1.1.4.1.g § 171.107
2.76	If the applicant has been authorised by the President under GACAR Part 171.101, has the applicant established and implemented procedures for managing and processing applications for designation and classification of airspace in accordance with the requirements of GACAR Part 171.107 that are made by non-authorised entities?	☐	☐	☐	8.1.1.4.1.g § 171.107
2.77	If the applicant has been authorised by the President, has the applicant established and implemented procedures for the designation, classification and registration of airspace in accordance with the requirements of GACAR Part 171.109?	☐	☐	☐	8.1.1.4.1.g § 171.109
2.78	If the applicant has been authorised by the President, has the applicant established and implemented procedures for the withdrawal of designations and change of airspace classification in accordance with the requirements of GACAR Part 171.111?	☐	☐	☐	8.1.1.4.1.g § 171.111
2.79	If the applicant has been authorised by the President, has the applicant established and implemented an Air Navigation Register in accordance with the requirements of GACAR Part 171.113(a)?	☐	☐	☐	8.1.1.4.1.g § 171.113(a)
2.80	If the applicant has been authorised by the President, has the applicant established and implemented procedures for operation of that Air Navigation Register in accordance with the requirements of GACAR Part 171.113(b), (c) and (d)?	☐	☐	☐	8.1.1.4.1.g § 171.113(b-d)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.81	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices to deal with airspace designations and classifications mandated by the President in accordance with the requirements of GACAR Part 171.115?	☐	☐	☐	8.1.1.4.1.g § 171.115
	Comments / Evidence				
	h. Establishment and Registration of Routes, Points and Minimum Altitudes				
2.82	Has the applicant been authorised by the President for the establishment of routes, points and minimum altitude in accordance with the provisions of GACAR Part 171.121?	☐	☐	☐	8.1.1.4.1.h § 171.121
2.83	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment and identification of ATS routes in accordance with the requirements of GACAR Part 171.123?	☐	☐	☐	8.1.1.4.1.h § 171.123
2.84	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment of routes where SLOP is authorised, in accordance with the requirements of GACAR Part 171.125?	☐	☐	☐	8.1.1.4.1.h § 171.125
2.85	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment of changeover points, in accordance with the requirements of GACAR Part 171.127?	☐	☐	☐	8.1.1.4.1.h § 171.127
2.86	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment and identification of significant points, in accordance with the requirements of GACAR Part 171.129?	☐	☐	☐	8.1.1.4.1.h § 171.129

	Audit Questionnaire	Yes	No	N/A	Reference *IGM/GACAR*
2.87	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment and identification of standard routes for taxiing aircraft, in accordance with the requirements of GACAR Part 171.131?	☐	☐	☐	8.1.1.4.1.h § 171.131
2.88	If the applicant has been authorised by the President, has the applicant established and implemented procedures and practices for the establishment of minimum flight altitudes, in accordance with the requirements of GACAR Part 171.133?	☐	☐	☐	8.1.1.4.1.h § 171.133
2.89	If the applicant has been authorised by the President, has the applicant established and implemented a routes and points register, in accordance with the requirements of GACAR Part 171.135?	☐	☐	☐	8.1.1.4.1.h § 171.135
2.90	If the applicant has been authorised by the President, has the applicant established and implemented procedures for dealing with the establishment and registration of routes, points and minimum altitudes where mandated by the President, in accordance with the requirements of GACAR Part 171.137?	☐	☐	☐	8.1.1.4.1.h § 171.137
	Comments / Evidence				
	i. **Coordination**				
2.91	Has the applicant established systems and procedures for ensuring effective coordination between its headquarters and each ATSU and, as a minimum, the agencies specified in GACAR Part 171.151?	☐	☐	☐	8.1.1.4.1.i § 171.151
2.92	Has the applicant established systems and procedures for ensuring effective coordination with aircraft operators in accordance with the requirements of GACAR Part 171.153?	☐	☐	☐	8.1.1.4.1.i § 171.153

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.93	Has the applicant established systems and procedures for ensuring effective coordination with military authorities in accordance with the requirements of GACAR Part 171.153?	☐	☐	☐	8.1.1.4.1.i § 171.153
2.94	Has the applicant established systems and procedures for ensuring effective coordination with meteorological service providers in accordance with the requirements of GACAR Part 171.157?	☐	☐	☐	8.1.1.4.1.i § 171.157
2.95	Has the applicant established systems and procedures for ensuring effective coordination with aeronautical information service providers in accordance with the requirements of GACAR Part 171.159?	☐	☐	☐	8.1.1.4.1.i § 171.159
2.96	Has the applicant established and appropriately documented systems and procedures for ensuring effective coordination relating to the general provision of ATC services, in accordance with the requirements of GACAR Part 171.161?	☐	☐	☐	8.1.1.4.1.i § 171.161
2.97	Has the applicant established and appropriately documented systems and procedures for ensuring effective coordination relating to the provision of flight information services, and alerting services, in accordance with the requirements of GACAR Part 171.163?	☐	☐	☐	8.1.1.4.1.i § 171.163
2.98	Has the applicant established and appropriately documented systems and procedures for ensuring effective coordination relating to the provision of air traffic advisory services, in accordance with the requirements of GACAR Part 171.165?	☐	☐	☐	8.1.1.4.1.i § 171.165
2.99	Has the applicant established and appropriately documented systems and procedures for ensuring effective coordination with aeronautical telecommunication stations, in accordance with the requirements of GACAR Part 171.167?	☐	☐	☐	8.1.1.4.1.i § 171.167
	Comments / Evidence				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
	j. Facilities and Equipment				
2.100	Has the applicant established facilities and equipment, and where necessary documentation, instructions and procedures relating to those facilities and equipment, in compliance with the requirements of GACAR Part 171.171?	☐	☐	☐	8.1.1.4.1.j § 171.171
2.101	Has the applicant established facilities and equipment, and where necessary documentation, instructions and procedures relating to those facilities and equipment, in compliance with the specific requirements of GACAR Part 171.173?	☐	☐	☐	8.1.1.4.1.j § 171.173
	Attach a copy of the facility schedule for each facility operated by the applicant				
2.102	Has the applicant established procedures and practices for the recording of voice and surveillance circuits in accordance with the requirements of GACAR Part 171.175?	☐	☐	☐	8.1.1.4.1.j § 171.175
2.103	Has the applicant established procedures and practices relating to the use of clocks and time in air traffic services, in accordance with the requirements of GACAR Part 171.177?	☐	☐	☐	8.1.1.4.1.j § 171.177
2.104	Has the applicant established procedures and practices relating to altimeter setting and altimeter setting indicators in air traffic services, in accordance with the requirements of GACAR Part 171.179?	☐	☐	☐	8.1.1.4.1.j § 171.179
2.105	Has the applicant deployed ATS surveillance systems, and established procedures and practices relating to their use, in accordance with the requirements of GACAR Part 171.181?	☐	☐	☐	8.1.1.4.1.j § 171.181
2.106	Has the applicant deployed ATS surveillance system situation displays, and established procedures and practices relating to their use, in accordance with the requirements of GACAR Part 171.183?	☐	☐	☐	8.1.1.4.1.j § 171.183
2.107	Has the applicant established procedures and practices relating to the performance of radar equipment, in accordance with the requirements of GACAR Part 171.185?	☐	☐	☐	8.1.1.4.1.j § 171.185
2.108	Has the applicant established procedures and practices relating to the performance of radar and automated systems, in accordance with the requirements of GACAR Part 171.187?	☐	☐	☐	8.1.1.4.1.j § 171.187

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.109	Has the applicant established procedures and practices relating to radar hand-offs, in accordance with the requirements of GACAR Part 171.189?	☐	☐	☐	8.1.1.4.1.j § 171.189
2.110	Has the applicant established procedures and practices relating to automated system failures, in accordance with the requirements of GACAR Part 171.191?	☐	☐	☐	8.1.1.4.1.j § 171.191
2.111	Has the applicant established procedures and practices relating to performance of back-up communication, in accordance with the requirements of GACAR Part 171.193?	☐	☐	☐	8.1.1.4.1.j § 171.193
2.112	Has the applicant established procedures and practices relating to interruptions to NAVAIDS or frequencies, in accordance with the requirements of GACAR Part 171.195?	☐	☐	☐	8.1.1.4.1.j § 171.195
2.113	Has the applicant established procedures and practices relating to opening and closing control positions, in accordance with the requirements of GACAR Part 171.197?	☐	☐	☐	8.1.1.4.1.j § 171.197
2.114	Has the applicant established procedures and practices relating to fire prevention and facility evacuation, in accordance with the requirements of GACAR Part 171.199?	☐	☐	☐	8.1.1.4.1.j § 171.199
	Comments / Evidence				
	k. Capacity and Air Traffic Flow Management				
2.115	Has the applicant established procedures and practices relating to capacity management, in accordance with the requirements of GACAR Part 171.201?	☐	☐	☐	8.1.1.4.1.k § 171.201
2.116	Has the applicant established procedures and practices relating to capacity assessment, in accordance with the requirements of GACAR Part 171.203?	☐	☐	☐	8.1.1.4.1.k § 171.203

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.117	Has the applicant established procedures and practices relating to the regulation of ATC capacity and traffic volumes, in accordance with the requirements of GACAR Part 171.205?	☐	☐	☐	8.1.1.4.1.k § 171.205
2.119	Has the applicant established procedures and practices relating to the enhancement of ATC capacity, in accordance with the requirements of GACAR Part 171.207?	☐	☐	☐	8.1.1.4.1.k § 171.207
2.120	Has the applicant established procedures and practices relating to the implementation of flexible use of airspace, in accordance with the requirements of GACAR Part 171.209?	☐	☐	☐	8.1.1.4.1.k § 171.209
2.121	Has the applicant established procedures and practices relating to the implementation of domestic air traffic flow management, generally in accordance with the requirements of GACAR Part 171.211?	☐	☐	☐	8.1.1.4.1.k § 171.211
2.122	Has the applicant established procedures and practices relating to the implementation of regional air traffic flow management, in accordance with the requirements of GACAR Part 171.211?	☐	☐	☐	8.1.1.4.1.k § 171.211
	Comments / Evidence				
	l. Air Traffic Control Services - General				
2.123	Has the applicant established procedures and practices to ensure that ATSU Managers/Chiefs include in the ATSPM those policies, standards, criteria and information required for the administration and management of all ATSUs?	☐	☐	☐	8.1.1.4.1.l § 171.231(a)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.124	Has the applicant established procedures and practices to ensure that ATSU Managers/Chiefs and supervisory personnel are familiar with all parts of the ATSPM and have an in-depth knowledge of those provisions that pertain to their management and supervisory responsibilities?	☐	☐	☐	8.1.1.4.1.1 § 171.231(b)
2.125	Has the applicant established procedures, practices and guidelines to ensure that ATSU Managers/Chiefs and supervisory personnel use their best judgment for the resolution of a situation for which direction is not provided?	☐	☐	☐	8.1.1.4.1.1 § 171.231(c)
2.126	Has the applicant established procedures to ensure ATSU Managers/Chiefs consult with the GM-ATM when dealing with situations which may set precedents or have ramifications on other units?	☐	☐	☐	8.1.1.4.1.1 § 171.231(c)
2.127	Has the applicant established procedures and practices to ensure that the application of air traffic control complies with the requirements of GACAR Part 171.233?	☐	☐	☐	8.1.1.4.1.1 § 171.233
2.128	Has the applicant established procedures and practices to ensure that the provision of air traffic control services complies with the requirements of GACAR Part 171.235?	☐	☐	☐	8.1.1.4.1.1 § 171.235
2.129	Has the applicant established procedures and practices to ensure that the operation of air traffic control services complies with the requirements of GACAR Part 171.237?	☐	☐	☐	8.1.1.4.1.1 § 171.237
2.130	Has the applicant established procedures and practices to ensure that the division of control responsibility complies with the requirements of GACAR Part 171.239?	☐	☐	☐	8.1.1.4.1.1 § 171.239
2.131	Has the applicant established procedures and practices to ensure that the transfer of control complies with the requirements of GACAR Part 171.241 and that the procedures are published in Part 1 of their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.241
2.132	Has the applicant established procedures and practices to ensure that their responsibilities in respect of military traffic conform to the requirements of GACAR Part 171.243?	☐	☐	☐	8.1.1.4.1.1 § 171.243
2.133	Has the applicant established procedures and practices to ensure that the acceptance of flight plans complies with the requirements of GACAR Part 171.245?	☐	☐	☐	8.1.1.4.1.1 § 171.245
2.134	Has the applicant established procedures and practices to ensure that the actions relating to position reporting comply with the requirements of GACAR Part 171.247?	☐	☐	☐	8.1.1.4.1.1 § 171.247
2.135	Has the applicant established procedures and practices to ensure that the reporting of operational and meteorological information complies with the requirements of GACAR Part 171.249?	☐	☐	☐	8.1.1.4.1.1 § 171.249

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.136	Has the applicant established procedures and practices to ensure that altimeter setting procedures comply with the requirements of GACAR Part 171.251?	☐	☐	☐	8.1.1.4.1.1 § 171.251
2.137	Has the applicant established procedures and practices to ensure that the presentation and uploading of flight plan and control data complies with the requirements of GACAR Part 171.253?	☐	☐	☐	8.1.1.4.1.1 § 171.253
	Comments / Evidence				
2.138	Has the applicant established procedures and practices to ensure that the procedures for ACAS comply with the requirements of GACAR Part 171.261 and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.261
2.139	Has the applicant published rules pertaining to the operation of civil VFR flights within the KSA as prescribed in GACAR Part 91 in Part 1of the ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.263
2.140	Has the applicant published rules pertaining to the operation of civil IFR flights within the KSA as prescribed in GACAR Part 91 in Part 1of the ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.265
2.141	Has the applicant established procedures and practices to ensure that the procedures for change from IFR to VFR flight comply with the requirements of GACAR Part 171.267 and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.267
2.142	Has the applicant established procedures and practices to ensure that the procedures for loss of vertical navigation performance required for RVSM comply with the requirements of GACAR Part 171.268 and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.268
2.143	Has the applicant established procedures and practices to ensure that the language use between ATC units complies with the requirements of GACAR Part 171.269?	☐	☐	☐	8.1.1.4.1.1 § 171.269

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.144	Has the applicant established procedures and practices to ensure that the response to communication congestion complies with the requirements of GACAR Part 171.270?	☐	☐	☐	8.1.1.4.1.1 § 171.270
2.145	Has the applicant established procedures and practices to ensure that their contingency arrangements comply with the requirements of GACAR Part 171.271 and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.271
2.146	Has the applicant established procedures and practices to ensure that their ATC contingency procedures comply with the requirements of GACAR Part 171.272 and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.272
2.147	Has the applicant established procedures and practices to ensure adequate response to failure or irregularity of systems and equipment, in compliance with the requirements of GACAR Part 171.273, and that appropriate procedures are published in their ATSPM?	☐	☐	☐	8.1.1.4.1.1 § 171.273
2.148	Has the applicant established procedures and practices to ensure that their response to operating irregularities complies with the requirements of GACAR Part 171.275?	☐	☐	☐	8.1.1.4.1.1 § 171.275
2.149	Has the applicant established procedures and practices to ensure that any release of information complies with the requirements of GACAR Part 171.277?	☐	☐	☐	8.1.1.4.1.1 § 171.277
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	m. Aerodrome Control Service				
2.150	Has the applicant clearly defined the objectives of aerodrome control and published these in Part 1of the ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.301(a)
2.151	Has the applicant published instructions for the aerodrome controller to carry out his responsibility of alerting service in Part 1 of their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.301(b)
2.152	Has the applicant ensured that instructions for visual surveillance from the control tower are published in Part 2 of the ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.301(c)
2.153	Has the applicant clearly defined and published the functions of aerodrome control in compliance with the requirements of GACAR Part 171.303?	☐	☐	☐	8.1.1.4.1.m § 171.303
2.154	Has the applicant established procedures and practices relating to aerodrome traffic pattern that comply with the requirements of GACAR Part 171.305?	☐	☐	☐	8.1.1.4.1.m § 171.305
2.155	Has the applicant established procedures and practices relating to selection of runway in use that comply with the requirements of GACAR Part 171.307 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.307
2.156	Has the applicant established procedures and practices relating to recording of persons on board that comply with the requirements of GACAR Part 171.309 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.309
2.157	Has the applicant established procedures and practices for information related to operation of aircraft that comply with the requirements of GACAR Part 171.311 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.311
2.158	Has the applicant established procedures and practices for essential information on aerodrome conditions that comply with the requirements of GACAR Part 171.313 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.313
2.159	Has the applicant established procedures and practices relating to the control of taxiing aircraft that comply with the requirements of GACAR Part 171.315 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.315
2.160	Has the applicant established procedures and practices relating to the control of persons and vehicles that comply with the requirements of GACAR Part 171.317 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.317

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.161	Has the applicant established procedures and practices relating to the control of aircraft in the traffic circuit that comply with the requirements of GACAR Part 171.319 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.319
2.162	Has the applicant established procedures and practices relating to the order of priority for arriving and departing aircraft that comply with the requirements of GACAR Part 171.321 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.321
2.163	Has the applicant established procedures and practices relating to the control of departing aircraft that comply with the requirements of GACAR Part 171.323 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.323
2.164	Has the applicant established procedures and practices relating to the control of arriving aircraft that comply with the requirements of GACAR Part 171.325 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.325
2.165	Has the applicant established procedures and practices relating to low visibility operations that comply with the requirements of GACAR Part 171.329 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.329
2.166	Has the applicant established procedures and practices relating to obstructed runway or runway incursion that comply with the requirements of GACAR Part 171.341 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.341
2.167	Has the applicant established procedures and practices relating to suspension of VFR operations that comply with the requirements of GACAR Part 171.343 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.343
2.168	Has the applicant established procedures and practices relating to authorisation of special VFR flights that comply with the requirements of GACAR Part 171.345 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.345
2.169	Has the applicant established procedures and practices relating to operation of aeronautical ground lighting that comply with the requirements of GACAR Part 171.347 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.347
2.170	Has the applicant established procedures and practices relating to aircraft navigation lights that comply with the requirements of GACAR Part 171.348 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.348

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.171	Has the applicant established procedures and practices relating to monitoring of visual aids that comply with the requirements of GACAR Part 171.349 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.349
2.172	Has the applicant established procedures and practices relating to aerodrome traffic signals that comply with the requirements of GACAR Part 171.351 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.351
2.173	Has the applicant established procedures and practices relating to provision of correct time that comply with the requirements of GACAR Part 171.353 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.353
2.174	Has the applicant established procedures and practices relating to tower and approach unit coordination that comply with the requirements of GACAR Part 171.355 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.355
2.175	Has the applicant established procedures and practices relating to VIP flights that comply with the requirements of GACAR Part 171.357 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.357
2.176	Has the applicant established procedures and practices relating to use of ATS surveillance systems in the aerodrome control service that comply with the requirements of GACAR Part 171.359 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.359
2.177	Has the applicant established procedures and practices relating to use of ATS surveillance systems for surface movement control that comply with the requirements of GACAR Part 171.361 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.m § 171.361
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.188	Has the applicant established procedures and practices relating to use of ATS surveillance systems in the approach control service that comply with the requirements of GACAR Part 171.385 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.385
2.189	Has the applicant established procedures and practices relating to general approach control procedures using ATS surveillance systems that comply with the requirements of GACAR Part 171.387 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.387
2.190	Has the applicant established procedures and practices relating to operations on parallel or near parallel runways that comply with the requirements of GACAR Part 171.393 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.393
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	n. Approach Control Service				
2.178	Has the applicant established procedures and practices relating to the general provision of the approach control service that comply with the requirements of GACAR Part 171.371 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.371
2.179	Has the applicant established procedures and practices relating to use of minimum levels that comply with the requirements of GACAR Part 171.372 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.372
2.180	Has the applicant established procedures and practices relating to information for departing traffic that comply with the requirements of GACAR Part 171.373 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.373
2.181	Has the applicant established procedures and practices relating to information for arriving traffic that comply with the requirements of GACAR Part 171.374 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.374
2.182	Has the applicant established procedures and practices relating to expected approach time that comply with the requirements of GACAR Part 171.375 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.375
2.183	Has the applicant established procedures and practices relating to holding by the approach unit that comply with the requirements of GACAR Part 171.377 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.377
2.184	Has the applicant established procedures and practices relating to approach sequence and clearance that comply with the requirements of GACAR Part 171.379 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.379
2.185	Has the applicant established procedures and practices relating to visual approaches that comply with the requirements of GACAR Part 171.381 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.381
2.186	Has the applicant established procedures and practices relating to instrument approaches that comply with the requirements of GACAR Part 171.382 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.382
2.187	Has the applicant established procedures and practices relating to coordination that comply with the requirements of GACAR Part 171.383 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.383

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.188	Has the applicant established procedures and practices relating to use of ATS surveillance systems in the approach control service that comply with the requirements of GACAR Part 171.385 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.385
2.189	Has the applicant established procedures and practices relating to general approach control procedures using ATS surveillance systems that comply with the requirements of GACAR Part 171.387 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.387
2.190	Has the applicant established procedures and practices relating to operations on parallel or near parallel runways that comply with the requirements of GACAR Part 171.393 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.393
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	o. Area Control Service				
2.191	Has the applicant clearly defined the objectives of the area control service and published those objectives in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.421
2.192	Has the applicant established procedures and practices relating to transfer of control that comply with the requirements of GACAR Part 171.423 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.423
2.193	Has the applicant established procedures and practices relating to transfer of communication that comply with the requirements of GACAR Part 171.425 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.425
2.194	Has the applicant established procedures and practices relating to control procedures that comply with the requirements of GACAR Part 171.427 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.427
2.195	Has the applicant established procedures and practices relating to coordination between adjacent area control centres that comply with the requirements of GACAR Part 171.429 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.429
2.196	Has the applicant established procedures and practices relating to coordination between the area control service and the approach control service that comply with the requirements of GACAR Part 171.431 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.431
2.197	Has the applicant established procedures and practices relating to coordination between positions in an area control centre that comply with the requirements of GACAR Part 171.433 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.o § 171.433
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	p. ATS Surveillance Services				
2.198	Has the applicant established procedures and practices relating to the relevant functions and associated procedures that surveillance systems can be used for, in compliance with the requirements of GACAR Part 171.471, and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.471
2.199	Has the applicant established procedures and practices relating to operational procedures that comply with the requirements of GACAR Part 171.473 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.473
2.200	Has the applicant established procedures and practices relating to performance checks that comply with the requirements of GACAR Part 171.475 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.475
2.201	Has the applicant established procedures and practices relating to minimum levels that comply with the requirements of GACAR Part 171.477 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.477
2.202	Has the applicant established procedures and practices relating to coordination of traffic under radar and procedural control that comply with the requirements of GACAR Part 171.479 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.479
2.203	Has the applicant established procedures and practices relating to use of SSR that comply with the requirements of GACAR Part 171.481 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.481
2.204	Has the applicant established procedures and practices relating to the operation of SSR transponders and ADS-B that comply with the requirements of GACAR Part 171.482 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.482
2.205	Has the applicant established procedures and practices relating to information based on Mode C that comply with the requirements of GACAR Part 171.483 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.483
2.206	Has the applicant established procedures and practices relating to radar identification procedures that comply with the requirements of GACAR Part 171.485 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.485
2.207	Has the applicant established procedures and practices relating to transfer of radar identification that comply with the requirements of GACAR Part 171.487 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.487

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.208	Has the applicant established procedures and practices relating to transfer of radar control that comply with the requirements of GACAR Part 171.489 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.489
2.209	Has the applicant established procedures and practices relating to provision of position information that comply with the requirements of GACAR Part 171.491 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.491
2.210	Has the applicant established procedures and practices relating to collision hazard information that comply with the requirements of GACAR Part 171.492 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.492
2.211	Has the applicant established procedures and practices relating to ATS surveillance system equipment failure that comply with the requirements of GACAR Part 171.493 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.493
2.212	Has the applicant established procedures and practices relating to ground radio failure that comply with the requirements of GACAR Part 171.494 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.494
2.213	Has the applicant established procedures and practices relating to adverse weather information that comply with the requirements of GACAR Part 171.495 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.495
2.214	Has the applicant established procedures and practices relating to radar vectoring that comply with the requirements of GACAR Part 171.497 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.497
2.215	Has the applicant established procedures and practices relating to interruption or termination of ATS surveillance that comply with the requirements of GACAR Part 171.499 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.499
2.216	Has the applicant established procedures and practices relating to application of radar separation that comply with the requirements of GACAR Part 171.501 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.501
2.217	Has the applicant established procedures and practices relating to speed control that comply with the requirements of GACAR Part 171.503 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.p § 171.503

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments / Evidence				
	q. Clearances				
2.218	Has the applicant established procedures and practices relating to ATC clearances, in general, that comply with the requirements of GACAR Part 171.521 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.521
2.219	Has the applicant established procedures and practices relating to content of clearances that comply with the requirements of GACAR Part 171.523 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.523
2.220	Has the applicant established procedures and practices relating to aircraft that are subject to air traffic control for part of flight, that comply with the requirements of GACAR Part 171.525 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.525
2.221	Has the applicant established procedures and practices relating to flights through intermediate stops that comply with the requirements of GACAR Part 171.526 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.526
2.222	Has the applicant established procedures and practices relating to departing aircraft that comply with the requirements of GACAR Part 171.527 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.527

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.223	Has the applicant established procedures and practices relating to enroute aircraft that comply with the requirements of GACAR Part 171.529 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.529
2.224	Has the applicant established procedures and practices relating to description of air traffic control clearances that comply with the requirements of GACAR Part 171.531 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.531
2.225	Has the applicant established procedures and practices relating to horizontal speed control instructions that comply with the requirements of GACAR Part 171.533 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.533
2.226	Has the applicant established procedures and practices relating to vertical speed control instructions that comply with the requirements of GACAR Part 171.535 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.535
2.227	Has the applicant established procedures and practices relating to coordination of clearances that comply with the requirements of GACAR Part 171.537 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.q § 171.537
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	r. Separation Methods and Minima				
2.228	Has the applicant established procedures and practices relating to separation methods and minima in general that comply with the requirements of GACAR Part 171.561 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.561
2.229	Has the applicant established procedures and practices relating to types of separation that comply with the requirements of GACAR Part 171.563 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.563
2.230	Has the applicant established procedures and practices relating to separation minima based on ATS surveillance systems that comply with the requirements of GACAR Part 171.564 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.564
2.231	Has the applicant established procedures and practices relating to reduction in separation minima in the vicinity of aerodromes that comply with the requirements of GACAR Part 171.565 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.565
2.232	Has the applicant established procedures and practices relating to reduction in separation minima between aircraft using the same runway that comply with the requirements of GACAR Part 171.566 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.566
2.233	Has the applicant established procedures and practices relating to reduction in separation minima for military traffic that comply with the requirements of GACAR Part 171.567 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.r § 171.567
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	s. **Special Procedures**				
2.234	Has the applicant established procedures and practices relating to special procedures in general that comply with the requirements of GACAR Part 171.581 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.581
2.235	Has the applicant established procedures and practices relating to fuel dumping that comply with the requirements of GACAR Part 171.583 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.583
2.236	Has the applicant established procedures and practices relating to photographic survey flights that comply with the requirements of GACAR Part 171.585 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.585
2.237	Has the applicant established procedures and practices relating to uncoordinated flights over the Red Sea that comply with the requirements of GACAR Part 171.587 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.587
2.238	Has the applicant established procedures and practices relating to strayed VFR flights and VFR flights encountering adverse meteorological conditions that comply with the requirements of GACAR Part 171.588 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.588
2.239	Has the applicant established procedures and practices relating to strayed or unidentified aircraft that comply with the requirements of GACAR Part 171.589 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.589
2.240	Has the applicant established procedures and practices relating to interception of civil aircraft that comply with the requirements of GACAR Part 171.591 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.591
2.241	Has the applicant established procedures and practices relating to potential hazards to civil aircraft that comply with the requirements of GACAR Part 171.593 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.593
2.242	Has the applicant established procedures and practices relating to unmanned free balloons that comply with the requirements of GACAR Part 171.595 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.595

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.243	Has the applicant established procedures and practices relating to air traffic incident reports that comply with the requirements of GACAR Part 171.596 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.596
2.244	Has the applicant established procedures and practices relating to repetitive flight plans that comply with the requirements of GACAR Part 171.597 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.597
2.245	Has the applicant established procedures and practices relating to the notification of suspected communicable disease or other public health risk aboard an aircraft that comply with the requirements of GACAR Part 171.599 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.s § 171.599
	Comments / Evidence				
	t. Alerting Service				
2.246	Has the applicant established procedures and practices relating to alerting service in general that comply with the requirements of GACAR Part 171.621 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.621
2.247	Has the applicant established procedures and practices relating to notification of rescue coordination centres that comply with the requirements of GACAR Part 171.623 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.623

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.248	Has the applicant established procedures and practices relating to use of communication facilities that comply with the requirements of GACAR Part 171.625 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.625
2.249	Has the applicant established procedures and practices relating to information to the operator that comply with the requirements of GACAR Part 171.629 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.629
2.250	Has the applicant established procedures and practices relating to information to aircraft operating in the vicinity of an aircraft in a state of emergency that comply with the requirements of GACAR Part 171.631 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.631
2.251	Has the applicant established procedures and practices relating to handling and reporting accidents and incidents that comply with the requirements of GACAR Part 171.633 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.t § 171.633
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	u. Emergencies				
2.252	Has the applicant established procedures and practices relating to emergencies, in general, that comply with the requirements of GACAR Part 171.641 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.641
2.253	Has the applicant established procedures and practices relating to signals that comply with the requirements of GACAR Part 171.643 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.643
2.254	Has the applicant established procedures and practices relating to unlawful interference and aircraft bomb threat that comply with the requirements of GACAR Part 171.645 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.645
2.255	Has the applicant established procedures and practices relating to radio communication failure that comply with the requirements of GACAR Part 171.647 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.647
2.256	Has the applicant established procedures and practices relating to degradation of aircraft position source data that comply with the requirements of GACAR Part 171.648 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.648
2.257	Has the applicant established procedures and practices relating to emergency descent that comply with the requirements of GACAR Part 171.649 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.649
2.258	Has the applicant established procedures and practices relating to emergency separation that comply with the requirements of GACAR Part 171.651 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.651
2.259	Has the applicant established procedures and practices relating to plotting aircraft in a state of emergency that comply with the requirements of GACAR Part 171.653 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.653
2.260	Has the applicant established procedures and practices relating to information to aircraft operating in the vicinity of an aircraft in a state of emergency that comply with the requirements of GACAR Part 171.655 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.u § 171.655

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.261	Has the applicant established procedures and practices relating to use of communication facilities that comply with the requirements of GACAR Part 171.657 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.n § 171.657
	Comments / Evidence				
	v. Flight Information Services				
2.262	Has the applicant established procedures and practices relating to the provision of flight information services, in general, that comply with the requirements of GACAR Part 171.671 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.671
2.263	Has the applicant established procedures and practices relating to the scope of flight information services that comply with the requirements of GACAR Part 171.672 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.672
2.264	Has the applicant established procedures and practices relating to automatic terminal information services that comply with the requirements of GACAR Part 171.673 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.673

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.265	Has the applicant established procedures and practices relating to traffic information that comply with the requirements of GACAR Part 171.675 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.675
2.266	Has the applicant established procedures and practices relating to traffic information broadcasts by aircraft that comply with the requirements of GACAR Part 171.677 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.677
2.267	Has the applicant established procedures and practices relating to meteorological information that comply with the requirements of GACAR Part 171.679 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.679
2.268	Has the applicant established procedures and practices relating to air traffic advisory services that comply with the requirements of GACAR Part 171.681 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.681
2.269	Has the applicant established procedures and practices relating to the recording and transmission of information on the progress of flights that comply with the requirements of GACAR Part 171.683 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.v § 171.683
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *IGM/GACAR*
	w. Communication Procedures				
2.270	Has the applicant established procedures and practices relating to communication procedures, in general, that comply with the requirements of GACAR Part 171.751 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.751
2.271	Has the applicant established procedures and practices relating to categories of ATS messages that comply with the requirements of GACAR Part 171.753 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.753
2.272	Has the applicant established procedures and practices relating to message composition that comply with the requirements of GACAR Part 171.755 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.755
2.273	Has the applicant established procedures and practices relating to phonetics and numbers that comply with the requirements of GACAR Part 171.757 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.757
2.274	Has the applicant established procedures and practices relating to transmitting technique that comply with the requirements of GACAR Part 171.759 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.759
2.275	Has the applicant established procedures and practices relating to ground station callsigns that comply with the requirements of GACAR Part 171.761 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.761
2.276	Has the applicant established procedures and practices relating to aircraft callsigns that comply with the requirements of GACAR Part 171.763 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.763
2.277	Has the applicant established procedures and practices relating to exchange of communications that comply with the requirements of GACAR Part 171.765 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.765
2.278	Has the applicant established procedures and practices relating to distress and urgency radiotelephony communications that comply with the requirements of GACAR Part 171.767 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.767

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.279	Has the applicant established procedures and practices relating to medical transport aircraft radiotelephony communication that comply with the requirements of GACAR Part 171.769 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.769
2.280	Has the applicant established procedures and practices relating to coordination with an aeronautical communication station that comply with the requirements of GACAR Part 171.771 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.771
2.281	Has the applicant established procedures and practices relating to unauthorised use of air traffic control frequencies that comply with the requirements of GACAR Part 171.773 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.773
2.282	Has the applicant established procedures and practices relating to phraseologies that comply with the requirements of GACAR Part 171.775 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.w § 171.775
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	x. Meteorological Requirements				
2.283	Has the applicant established procedures and practices relating to meteorological requirements, in general, that comply with the requirements of GACAR Part 171.781 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.781
2.284	Has the applicant established procedures and practices relating to flight information centres and area control centres that comply with the requirements of GACAR Part 171.783 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.783
2.285	Has the applicant established procedures and practices relating to approach control units that comply with the requirements of GACAR Part 171.785 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.785
2.286	Has the applicant established procedures and practices relating to aerodrome control towers that comply with the requirements of GACAR Part 171.787 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.787
2.287	Has the applicant established procedures and practices relating to communication stations that comply with the requirements of GACAR Part 171.789 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.789
2.288	Has the applicant established procedures and practices relating to aircraft observations that comply with the requirements of GACAR Part 171.791 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.x § 171.791
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	y. **Miscellaneous**				
2.289	Has the applicant established procedures and practices relating to job descriptions that comply with the requirements of GACAR Part 171.801 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.801
2.290	Has the applicant established procedures and practices relating to administrative and operational forms that comply with the requirements of GACAR Part 171.803 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.803
2.291	Has the applicant established procedures and practices relating to unit logs that comply with the requirements of GACAR Part 171.805 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.805
2.292	Has the applicant established procedures and practices relating to unit libraries that comply with the requirements of GACAR Part 171.807 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.807
2.293	Has the applicant established procedures and practices relating to unit directives that comply with the requirements of GACAR Part 171.809 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.809
2.294	Has the applicant established procedures and practices relating to letters of agreement that comply with the requirements of GACAR Part 171.811 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.y § 171.811
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	z. **Records and Reports**				
2.295	Has the applicant established procedures and practices relating to mandatory reporting of occurrences that comply with the requirements of GACAR Part 171.853 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.z § 171.853
2.296	Has the applicant established procedures and practices relating to records of communications that comply with the requirements of GACAR Part 171.854 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.z § 171.854
2.297	Has the applicant established procedures and practices relating to document retention that comply with the requirements of GACAR Part 171.855 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.z § 171.855
2.298	Has the applicant established procedures and practices relating to access to ATS records that comply with the requirements of GACAR Part 171.857 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.z § 171.857
2.299	Has the applicant established procedures and practices relating to flight strip filing procedures that comply with the requirements of GACAR Part 171.859 and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.z § 171.859
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	aa. List of Reportable Occurrences				
2.300	Has the applicant established procedures and practices relating to reportable occurrences that comply with the requirements of GACAR Part 171 Appendix A and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.aa § 171 App A
	Comments / Evidence				
	bb. Contingency Planning				
2.301	Has the applicant established procedures and practices relating to contingency planning that comply with the requirements of GACAR Part 171 Appendix B and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.bb § 171 App B
	Comments / Evidence				
	cc. Designation and Classification of Airspace				
2.302	If the applicant has been authorised by the President, has the applicant established procedures and practices relating to designation and classification of airspace that comply with the requirements of GACAR Part 171 Appendix c and published those procedures in their ATSPM?	☐	☐	☐	8.1.1.4.1.cc § 171 App C

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
	Comments / Evidence				
3. Regulatory Requirements – Part 4					
	a. Air Traffic Statistics				
3.1	Has the applicant established procedures and practices relating to the reporting of air traffic statistics that comply with the requirements of GACAR Part 4.53 and published those procedures in their ATSPM or operations manual?	☐	☐	☐	8.1.1.6.1.a § 4.53
	Comments / Evidence				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 1. AERONAUTICAL TELECOMMUNICATIONS SERVICE PROVIDERS

Section 2. Regulatory Oversight of Air Traffic Service Providers

8.1.2.1General Information

8.1.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Air Traffic Service Providers after they have been certified. The audits may also be applied in the re-certification of ATS service providers at or near expiry of their certification period.

8.1.2.1.2 The main reference document for audits of ANS providers including Air Traffic Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.1.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.1.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.1.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of ATS. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.1.2.1.6 The reason for this is that in order to obtain certification, the ATS Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.1.2.1.7 In order to retain their certification, the ATS Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.1.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors

need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance without looking at every part of the ATS organisation.

8.1.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.1.2.2 Audit Checklist

8.1.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.1.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

ATS Audit Checklist

AIR TRAFFIC SERVICE PROVIDER (PART 171)

AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 171.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 1. AERONAUTICAL TELECOMMUNICATIONS SERVICE PROVIDERS

Section 3. Development and Management of Operations Specifications

8.1.3.1 General Information

8.1.3.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 1. AERONAUTICAL TELECOMMUNICATIONS SERVICE PROVIDERS

Section 4. Evaluation of Flight Inspection and Calibration Reports

8.1.4.1 General Information

8.1.4.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 2. AERONAUTICAL TELECOMMUNICATION SERVICE PROVIDERS

Section 1. Certification of Aeronautical Telecommunications Service Providers

8.2.1.1 General Information

8.2.1.1.1 The purpose of this chapter is to provide guidance material for ANS Safety Oversight Inspectors in the management of applications for certification as an Aeronautical Telecommunication Service (ATEL) provider in KSA under the provisions of GACAR Part 170 and GACAR Part 173.

8.2.1.1.2 Specifically this chapter identifies the regulatory requirements that must be considered, and also provides a set of questions (checklist) regarding those regulatory requirements and additional questions (as required) which will enable an inspector to determine if an applicant can satisfy the regulatory requirements. Inspector Guidance: There are two purposes of the checklist questions. The first is to provide evidence that all regulatory requirements have been addressed when considering an application. The second is to allow the inspector to ensure that they have the required competency to provide aeronautical telecommunications services in KSA – aeronautical telecommunications services is a SAFETY CRITICAL activity and it is essential that the approved/certified organisation understands its safety obligations and has the right management structures,
operational personnel, equipment and procedures to fulfil those obligations.

8.2.1.1.3 Reserved

8.2.1.2 Regulatory Requirements – Part 170

8.1.1.2.1 The general regulatory requirement for an Aeronautical Telecommunications (ATEL) Service provider to obtain certification from GACA, and the requirements relating to that service, are contained in GACAR Part 170. The following extracts are relevant to the initial certification of an ATEL provider:

a. Applicability

§ 170.1 Applicability.

(c) …

(d) This part does not apply to:

(1) Air navigation services provided exclusively for military flight operations;

(2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or

(3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia

Inspector Guidance: *The provisions at 170.1.(d) seem to indicate that an ATEL provider involved only in managing facilities for military use at military aerodromes may not need to obtain a Part 170/172 certification.* Inspectors should exercise caution, as often facilities at military aerodromes are used by civil operations.

h.Certifications, Authorisations, Prohibitions

§ 170.3 Certifications, Authorizations, and Prohibitions.

(d) …

(e) No person may provide an air navigation service under this part without holding appropriate security authorization from the President.

(f) …

Inspector Guidance: *requirements relating to security authorisation are management by the aviation security (AvSec) division of GACA. Inspectors should consult with AvSec to determine the requirements and what advice to provide an applicant.*

i.Safety Management Systems

§ 170.7 Safety Management Systems.

(a) Certificate holders authorized to conduct operations under GACAR Part 171, 172, 173 or 175 must have a Safety Management System (SMS) that meets the requirements of GACAR Part 5 and is acceptable to the President.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171, 172, 173 or 175 must demonstrate, as part of the application process under GACAR § 170.25, that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President.

Inspector Guidance:*GENERAL Requirements relating to Safety Management Systems are at GACAR Part 5. GACAR Part 199 (Transition) allows existing ATEL organisations a period of 21 months from 1 March 2016 to become fully compliant with SMS requirements of GACAR Part 5. GACA ANS (ATEL) is considered an existing organisation. New applicants will need to demonstrate compliance with Part 5 prior to certification – however, inspectors may consider an application for exemption (i.e., conditional approval) if the applicant is able to meet all other requirements – AND is able to demonstrate that they will be fully compliant with SMS in a reasonable time – e- Book Volume 2 provides guidance.*
Guidance material for evaluating SMS is at e-Book Volume 2 – Safety Management Systems. In particular, Inspectors should review Chapters 3, 4 and 5 of Volume 2.
Specific checklists for assessing an applicant's compliance with GACA Part 5 requirements are at Chapter 11 Section 1 (ANS Safety Management System Evaluation Guidelines) of this document.

j. Security Program

§ 170.9 Security Program.

(a) Certificate holders authorized to conduct operations under GACAR Part 171 or 173 must have, and put into effect, a security program that is acceptable to the President and that sets out the procedures designed to protect its personnel, and any facility and equipment that it uses, in providing any of its services.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171 or 173 must demonstrate, as part of the application process under GACAR § 170.25, that it has a security program that is acceptable to the President.

Inspector Guidance: *Guidance on assessment of a security program, with checklists, can be found at Chapter 12, Section 4, of this document. This regulation should NOT be confused with 170.3(e) - this is not related to security authorisation.*

k. Qualification to Provide Service

§ 170.23 General Requirements.

A person may not provide an air navigation service unless that person—

(a) Is the Government of the Kingdom of Saudi Arabia; or

(b) Is a person who is to provide an air navigation service:

(1) In cooperation with the Government of the Kingdom of Saudi Arabia; or
(2) By arrangement with the Government of the Kingdom of Saudi Arabia; or

(c) is a person acceptable to the President; and

(d) Maintains a principal base of operations in the Kingdom of Saudi Arabia; and

(e) Obtains an ANSC.

Inspector Guidance: *for the purposes of interpreting this sub-regulation, GACA is considered to be a government agency, and therefore is in effect operating under the provisions of (a). A sub-contracted agency would qualify under (b). In assessing GACA ANS, inspectors would need to look at the arrangements for separating the provision of ANS by Saudi Air Navigation Services (SANS) and the regulatory function of GACA. It is likely that SANS would not qualify as (a) or (b). Inspectors should therefore consider GACA SANS under provision (c) – i.e., a person acceptable to the President. This provision would also apply to other organisations applying for certification, including organisations proposed by GACA SANS as consultants, contractors or sub-contractors. The assessment of wh*at/who constitutes a 'person acceptable to the President' should be based on an assessment of the organisation's competence and ability to comply with GACARs.

l. Exemptions Based on Other Approvals

§ 170.26 Exemptions Based on Approval Issued by another State

(a) Where an applicant for approval holds an approval as an ANS provider issued by the regulatory authority of another State acceptable to the President, the applicant may be exempted from certain requirements of this Part. (b) In making a decision regarding exemptions, the President may:
(1) require the applicant to provide evidence of equivalent compliance with the requirements of this Part or any other relevant Part;
(2) contact the regulatory authority of the State that issued the approval to validate equivalent compliance.

Inspector Guidance: *In general, it is unlikely that an ATEL provider certified by another State would seek or be granted exemptions – it is more likely that an applicant to provide ATEL in Saudi Arabia would be required to demonstrate full compliance. However, it is possible that they may seek exemptions relating to certain documents or systems – e.g., if they have ISO9000 accreditation for their quality management system, or if they have a particular safety management system in place that is configured differently to the GACAR requirements. In each case, an inspector must balance the safety intent of the GACAR against the cost (time, financial etc.) of absolute compliance with GACAR if they already hold an equivalent approval.*

m. Reasons for Denial

§ 170.29 Issuing or Denying a Certificate.

(a) …

(b) An application for an ANSC may be denied if the President finds that—

(1) …

(2) The applicant previously held an ANSC that was revoked;

(3) The applicant intends to fill or currently fills a key management position listed in GACAR Part 171, 172, 173, 175 or 179, as applicable, with an individual who exercised control over or who held the same or a similar position with a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or

(4) An individual who will have control over or have a substantial ownership interest in the applicant, had the same or similar control or interest in a certificate holder whose certificate was revoked or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process.

Inspector Guidance: *This sub-regulation is self-evident. The intent is to stop an applicant from nominating an unsuitable manager. It is important to note the use of the term 'materially contributed' – an inspector must not arbitrarily deny an application if a nominated manager was employed in another organisation whose certificate was revoked. There needs to be evidence that the nominated person was, in fact (not rumour or speculation) a person that was key to the reason for revocation.*

n. Base of Operations

§ 170.61 Maintaining a Principal Base of Operations; Change of Address

(a) Each certificate holder must maintain a principal base of operations.

(b) …

Inspector Guidance: *The intent of this sub-regulation is to ensure that the organisation is able to be contacted if and as required by the President – e.g., for regular oversight inspections, service of notices, etc.*

8.2.1.3 Regulatory Requirements – Part 5 – Safety Management System

8.2.1.3.1 The general regulatory requirement for an Aeronautical Telecommunication Service Provider to have in place a Safety Management System (SMS) are in GACAR Part 5, and GACAR Part 170. The requirements relating to that SMS, are contained in GACAR Part 5.

8.2.1.3.2 As a matter of policy, an ATEL Provider may implement a stand-alone SMS for its organisation – or, if it is part of a larger ANS entity, it may be covered under the broad SMS of the whole ANS entity.

Inspector Guidance: *A Safety Management System does not need to be complex – the simpler its design, the more straightforward it will be for a provider to comply with the SMS requirements. Inspectors should be mindful of the scope of operations of the organisation, and the regulatory requirement and quality management system requirements for certification, which should significantly mitigate safety matters which would be addressed under SMS. That is – if the organisation has a good quality management system in place, it should simplify compliance with safety management system requirements, and vice versa. The two systems are complimentary – one with a safety outcome, the other with a performance (including safety performance) outcome.*
Inspectors should use as a reference the SMS for a large air carrier like Saudia Airlines, or FlyNAS and should discuss SMS requirements with flight operations inspectors or airworthiness inspectors because SMS requirements have been in place for longer and are more established for flight operations and airworthiness operations.
If the ATEL provider is being covered under the provisions of a 'parent organisation' – e.g., if the provider is covered under an ANS-wide SMS, inspectors should ensure that particular attention is paid in the parent SMS to the specific safety issues within the specific provider, and should ensure that the provider is specifically represented on any SMS management structures, etc. Each provider (ATS, ATEL, AIS etc.) must be specifically represented.

8.2.1.4 Part 173 Regulatory Requirements

8.2.1.4.1 The following regulatory requirements of Part 173 must be evaluated as part of the certification audits. As there are a number of technical requirements specifically related to standards for provision of air traffic control and air traffic services, the full regulatory requirement is not copied into this document but reference is made to specific locations in Part 173. This is the same in the audit checklists.

a. General Provisions

§ 173.1 Applicability.

(a) Except as provided in (c) and (d), this part prescribes rules governing—
(1) The provision of aeronautical telecommunication services in the Kingdom of Saudi Arabia (KSA) by an aeronautical telecommunication service provider that holds or is required

to hold an Air Navigation Service Certificate (ANSC) under General Authority of Civil Aviation Regulation (GACAR) Part 170;
(2) Each person employed or used by an aeronautical telecommunication services provider when providing aeronautical telecommunication services under this part; and
(3) Flight inspection service providers who provide flight inspection services under this part.

(b) This part also prescribe rules for each air traffic service (ATS) to be provider authorized under GACAR Part 171 to incorporate certain items in their air traffic service procedures manual (ATSPM).

(c) This part does not apply to a person who operates an aeronautical facility on an aeronautical radio frequency and—

(1) The aeronautical facility—

. (i) Is a radio communication transmitter that does not support an air traffic service; or (ii) Is a radio navigation aid that does not support IFR flight or an air traffic service.

(2) The aeronautical facility is operated in accordance with—

(i) The applicable system characteristics prescribed in Annex 10, Volume III, Part II, Chapter 2 or Annex 10, Volume I, Chapter 3 to the Convention on International Civil Aviation; and
(ii) The applicable communication procedures prescribed in Annex 10,Volume II to the Convention on International Civil Aviation.

(3) The aeronautical facility does notinterfere with any other aeronautical telecommunication service or aeronautical facility;

(4) A radio apparatus license has been granted by the Communications and Information Technology Commission for the aeronautical facility; and
(5) An identification code or a call sign has been allocated for the aeronautical facility under GACAR § 173.11.

(d) This part does not apply to a person who operates a ground mobile radio on an aeronautical radio frequency and—
(1) The radio is not used to support an air traffic service;
(2) The radio is operated in accordance with the applicable communication procedures prescribed in Annex 10, Volume II to the Convention on International Civil Aviation;
(3) The radio transmission does not interfere with any other aeronautical telecommunication service or aeronautical facility; and

(4) A radio apparatus license has been granted by the Communications and Information Technology Commission.

Inspector Guidance: *reserved*

§ 173.3 Restrictions on Aeronautical Telecommunication Service Providers.

(a) No person may provide an aeronautical telecommunication service in the KSA unless the person complies with the provisions of this part and they have been certificated by the President under GACAR Part 170 to provide such service.

(b) Except as provided in GACAR Part 170, each aeronautical telecommunication service provider must comply with the limitations and provisions of their certificate, operations specifications and their manual prepared under Subpart C.

(c) No aeronautical telecommunication service provider authorized under this part may operate the following aeronautical telecommunication systems in the KSA:

(1) Microwave Landing System (MLS);
(2) Space-based elements of a Global Navigation Satellite Systems (GNSS); and
(3) Precision Approach Radar (PAR) systems.

Inspector Guidance: *reserved*

§ 173.7 Coordination Requirements.

Each aeronautical telecommunication service provider must establish systems and procedures for ensuring effective coordination with each of the following agencies—

(a) General Authority of Civil Aviation Sector;

(b) Any other aeronautical telecommunication service provider authorized under this part;

(c) Each air traffic service (ATS) provider operating under GACAR Part 171;

(d) Each instrument flight procedure service (IFPS) provider operating under GACAR Part 172;

(e) Each meteorological service (MET) provider operating under GACAR Part 179;

(f) Each aeronautical information service (AIS) provider operating under GACAR Part 175; (g) Each search and rescue (SAR) authority;

(h) Foreign aeronautical telecommunication service providers and ATS providers in adjoining States or Flight Information Regions (FIR);

(i) Aircraft operators; and

(j) The Saudi Arabian Armed Forces.

Inspector Guidance: *reserved*

§ 173.9 Regional Air Navigation Agreements.

Each aeronautical telecommunication service provider must coordinate with the GACA when interacting with foreign States or foreign AIS providers, and when there are implications for Regional Air Navigation Agreements for which the KSA is a party.

Inspector Guidance: *reserved*

§ 173.11 Identification Codes and Call Signs.

(a) No person may operate—….

(b) An applicant for the allocation of an identification code or a call sign must complete and submit an application in a form and manner acceptable to the President.

(c) The President may allocate an identification code for a radio navigation aid or a call sign for a radio communication transmitting aeronautical facility if the President is satisfied that the allocation of a code or call sign is not contrary to the interests of aviation safety.

Inspector Guidance: *reserved*

§ 173.13 Notification of Aeronautical Facility Information.

A person operating an aeronautical facility must, as soon as practicable—

(a) Forward to the provider of each AIS authorized under GACAR Part 175—

(1) Information on the operational details of the aeronautical facility, for publication in the KSA AIP; and
(2) Information concerning any change in the operational status of the aeronautical facility, for the issue of a NOTAM.

(b) Check, if applicable, that the information forwarded under paragraph (a)(1) has been accurately published; and

(c) Notify the President of any promulgated information incident.

Inspector Guidance: *reserved*

§ 173.15 Information Provided by an Aeronautical Facility.

A person operating an aeronautical facility must not permit the facility to continue in operational service if that person suspects or has any cause to suspect that the information being provided by that facility is erroneous.

Inspector Guidance: *reserved*

§ 173.17 Applicability of the Standards of the International Civil Aviation Organization.

Each aeronautical telecommunication services provider must provide services infull compliance with the applicable Standards of the International Civil Aviation Organization (ICAO). Specifically, the Standards as prescribed in ICAO Annex 10, Regional Supplemental Procedures as specified in ICAO Doc. 7030 and Air Traffic Management Procedures as specified in ICAO Doc. 4444 (PANS-ATM). Only items that include the prescriptive terms “shall” or “must” apply unless otherwise specified in this part.

Inspector Guidance: *reserved*

§ 173.19 Inspections.

Each aeronautical telecommunication services provider and each flight inspection service provider must allow the President to make any inspections, at any time, in order to allow the President to determine compliance with this part.

Inspector Guidance: *reserved*

b. Personnel

§ 173.31 Personnel Requirements.

Each aeronautical telecommunication service provider must employ, contract, or otherwise engage—

(a) A senior person, acceptable to the President, identified for the purposes of this part as the Director of aeronautical telecommunication services, who—

(1) Has the authority within the organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements; and

(2) Is responsible for ensuring that the organization complies with the requirements of this part; and

(b) A senior person or persons responsible to the Director of aeronautical telecommunication services for ensuring that the organization complies with its manual; and

(c) Sufficient technical personnel to inspect, supervise, and maintain the facilities listed in the manual.

Inspector Guidance: *reserved*

§ 173.33 Technicians Qualification.

(a) Each aeronautical telecommunication service provider must ensure that each technician is competent and holds appropriate qualifications to maintain the equipment to which they are assigned.

(b) Each aeronautical telecommunication service provider must ensure that each technician has been:....

(d) Each aeronautical telecommunication service provider must develop a periodic and comprehensive recurrent training program to ensure that each technician maintain the appropriate level of qualification. The established period must not exceed 12 months.

(e) Each aeronautical telecommunication service provider must develop and publish job descriptions for all technical staff assigned to maintain aeronautical telecommunication systems.

Inspector Guidance: *reserved*

§ 173.37 Human Performance.

Each aeronautical telecommunication service provider must ensure that Human Factors and performance are applied in the management of aeronautical telecommunications facilities, equipment or systems. The following activities must be conducted:

(a) Mandating Human Factors input to specific tasks/projects involving technical activities associated with aeronautical telecommunications facilities, equipment or systems;

(b) Raising awareness of Human Factors and initiating Human Factors training across the all concerned departments in an appropriate manner;

(c) Keeping abreast of developments within Human Factors and applying this knowledge as appropriate; and

(d) Considering human factors aspects in incident investigation.

c. Manual Requirements

§ 173.53 Manual Contents.

(a) Each aeronautical telecommunication service provider must provide the President with a manual containing…..

(b) Each manual, and all of its revisions, must be acceptable to the President. (c) Each aeronautical telecommunication service provider must—….

Inspector Guidance: *reserved*

§ 173.55 Operating and Maintenance Instructions.

(a) Each aeronautical telecommunication service provider must—….

(b) The operating and maintenance instructions required under paragraph (a)(1) must include—….

Inspector Guidance: *reserved*

§ 173.57 Documentation.

(a) Each aeronautical telecommunication service provider must hold copies of relevant equipment

manuals, technical standards, practices, instructions, and any other documentation that are necessary for the provision and operation of the facilities listed in the manual.

(b) Each aeronautical telecommunication service provider must establish a procedure for the control of the documentation required under paragraph (a) and any other applicable GACAR part.

(c) The procedure required under paragraph (b) must require that—…..

Inspector Guidance: *reserved*

d. Facilities

§ 173.71 Standard Radio Navigation Aids.

(a) Each aeronautical telecommunication service provider must use only standard radio navigation aids.

(b) Except as provided in (c), standard radio navigation aids include:…..

(c) Differences in radio navigation aids in any respect from the technical standards of Appendix B to this part must be approved by the President and published in the KSA AIP.

(d) Wherever there is installed a radio navigation aid that is neither an ILS nor an MLS, but which may be used
in whole or in part with aircraft equipment designed for use with the ILS or MLS, full details of parts that may be so used must be published in the KSA AIP.

Inspector Guidance: *reserved*

§ 173.75 Aeronautical Facility Requirements.

(a) Each aeronautical telecommunication service provider must establish a procedure to ensure that—.....

(b) Each aeronautical telecommunication service provider who intends to operate a temporary aeronautical facility to carry out site tests must establish a procedure for conducting those tests.

(c) The procedure required under paragraph (b) must require that—….

Inspector Guidance: *reserved*

§ 173.77 Periodic Inspection and Testing.

(a) Each aeronautical telecommunication service provider must establish a procedure for the periodic inspection….

(b) The procedure required under paragraph (a) must—….

(c) Each aeronautical telecommunication service provider must establish—…..

(d) The programs required by paragraphs (c)(2) and (c)(3) must be based on the criteria ….

(e) All flight inspections must be performed by a flight inspection service provider who has been authorized…

(f) Each aeronautical telecommunication service provider must notify the President of ….

Inspector Guidance: *reserved*

§ 173.79 Aeronautical Facility Performance.

Each aeronautical telecommunication service provider must establish a procedure to ensure that no aeronautical facility listed in the manual is placed into operational service unless—

(a) The person placing the aeronautical facility into operational service is assessed as competent and authorized according to the procedures required under GACAR § 173.33; and

(b) The appropriate checks detailed in the operating and maintenance instructions required under GACAR §173.55 have been carried out to verify the performance of the aeronautical facility; and

(c) The aeronautical facility record has been completed according to the procedures required under GACAR §173.143.

Inspector Guidance: *reserved*

§ 173.81 Inspection, Measuring, and Test Equipment.

(a) Each aeronautical telecommunication service provider must ensure that ….

(b) Each aeronautical telecommunication service provider must establish ….

(c) The procedure required under paragraph (b) must require that …

(d) If hardware and software systems are used for the performance testing of any aeronautical facility, … .

Inspector Guidance: *reserved*

§ 173.83 Procedures for the Notification of Aeronautical Facility Information.

(a) Each aeronautical telecommunication service provider must establish a procedure to ensure ….

(b) The procedure required under paragraph (a) must include a means to confirm that—….

Inspector Guidance: *reserved*

§ 173.85 Aeronautical Facility Check after Accident or Incident.

(a) Each aeronautical telecommunication service provider must establish a procedure …..

(b) The procedure required under paragraph (a) must require that—….

Inspector Guidance: *reserved*

§ 173.87 Facility Malfunction Incidents.

Each aeronautical telecommunication service provider must establish procedures—

(a) To notify, investigate, and report facility malfunction incidents in accordance with the requirements of GACAR § 173.141; and

(b) To implement corrective actions to eliminate the cause of a facility malfunction incident and

prevent its recurrence.

Inspector Guidance: *reserved*

§ 173.89 Spare Parts.

Each aeronautical telecommunication service provider must ensure that an adequate stock of spare parts is available for use all the time for the critical components of the facilities supporting the ATS systems. This stock must be stored and managed in accordance with supplier/manufacture requirements.

Inspector Guidance: *reserved*

e. Operating Requirements

§ 173.101 Continued Compliance.

Each aeronautical telecommunication service provider must—

(a) Continue to meet the standards and comply with the requirements of this part;

(b) Comply with all procedures referred to in its manual;

(c) Hold at least one complete and current copy of its manual at each location listed in its manual where a senior person is based; and

(d) Make each applicable part of its manual available to personnel who require those parts to carry out their duties.

Inspector Guidance: *reserved*

§ 173.105 Temporary Aeronautical Facility.

If a temporary aeronautical facility is operated for the purpose of a site test, the aeronautical telecommunication service provider is not required to comply with any requirements of this part, except for GACAR § 173.75(b) and (c).

Inspector Guidance: *reserved*

§ 173.107 Limitations on Aeronautical Telecommunication Service Providers.

(a) Except for the operation of a temporary aeronautical facility for site tests according to the procedures required under GACAR § 173.75(b), each aeronautical telecommunication service provider may ….

(b) Each aeronautical telecommunication service provider may not operate …

(c) Except for a site test is carried out according to the procedures required under GACAR § 173.75(b),….

Inspector Guidance: *reserved*

§ 173.109 Changes to Provider's Organization.

(a) Each aeronautical telecommunication service provider must apply and obtain prior acceptance …

(b) The President may impose any conditions that the President considers necessary in the interests of aviation safety…

(c) Each aeronautical telecommunication service provider must comply with ….

Inspector Guidance: *reserved*

f. Quality Assurance

§ 173.121 Quality Assurance.

(a) Each aeronautical telecommunication service provider must establish a quality assurance system … .

(b) The quality assurance system must include—….

(c) The procedure required under paragraph (b)(3) for corrective action must specify how—….

(d) The procedure required under paragraph (b)(4) for preventive action must specify how—….

(e) The internal audit program required under paragraph (b)(5) must—….

(f) The procedure for management review required under paragraph (b)(6) must—….

(g) The senior person responsible for the quality assurance system must—….

Inspector Guidance: *reserved*

g. Records and Reports

§ 173.141 Facility Malfunction Incident Reports.

(a) Each aeronautical telecommunication service provider must submit a facility malfunction incident report to the President within 24 hours of the facility malfunction incident.

(b) The report must include the following information-….

Inspector Guidance: *reserved*

§ 173.143 Records.

(a) Each aeronautical telecommunication service provider must establish procedures to …

(b) The procedures required under paragraph (a)(1) and (a)(3) must require that ….

(c) The procedures required under paragraph (a) must require—…

Inspector Guidance: *reserved*

h. Appendix A to GACAR Part 173 – Communication Systems

A.1 - Voice / Data Recording Equipment (including Annex A1.1 To Appendix A - Minimum Performance Specification For Recording Equipment)

Inspector Guidance: *reserved*

A.2 - VHF Aeronautical Radio Stations

Inspector Guidance: *reserved*

A.3 - Voice Communications Systems (VCS)

Inspector Guidance: *reserved*

A.4 - ATC Datalinks

Inspector Guidance: *reserved*

A.5 - Information and Alerting Systems

Inspector Guidance: *reserved*

A.6 - Automatic Terminal Information Service (ATIS)

Inspector Guidance: *reserved*

A.7– UHF Radio Equipment and Systems

Inspector Guidance: *reserved*

I. Appendix B to GACAR Part 173 – Radio Navigation Systems

B.1- General Requirements For ILS (including Annex B1.1 – Abbreviated Method Of Putting An ILS with an Established Mean Time Between Outages (MTBO) Into Service)

Inspector Guidance: *reserved*

B.2 - ILS Radio Noise Monitoring

Inspector Guidance: *reserved*

B.3 - ILS Monitors

Inspector Guidance: *reserved*

B.4 - ILS Flight Inspection Requirements

Inspector Guidance: *reserved*

B.5 – VHF Marker Beacons

Inspector Guidance: *reserved*

B.6 - Distance Measuring Equipment (DME) Transponders and Flight Inspection Requirements

Inspector Guidance: *reserved*

B.7 - Requirements for ILS and ILS/DME Identity Keying

Inspector Guidance: *reserved*

B.8 - Tactical Air Navigation (TACAN).

Inspector Guidance: *reserved*

B.9 - Requirements for Conventional and Doppler VHF Omni-Directional Range (CVOR/DVOR) Beacons

Inspector Guidance: *reserved*

B.10 - VHF Omnidirectional Range (VOR) Flight Inspection Requirements

Inspector Guidance: *reserved*

B.11 - Requirements for MF Non-Directional Beacons

Inspector Guidance: *reserved*

B.12 - Requirements for Instrumented Runway Visual Range (IRVR) Systems

Inspector Guidance: *reserved*

B.13 - Requirements for the Global Navigation Satellite System (GNSS)

Inspector Guidance: *reserved*

j. Appendix C to GACAR Part 173 - Surveillance Radar Equipment and Systems

C.1– Radar Systems

Inspector Guidance: *reserved*

C.2 – Radar Sensor Requirements

Inspector Guidance: *reserved*

C.3 – Transponder Protocols

Inspector Guidance: *reserved*

C.4 – SSR External Monitor Requirements

Inspector Guidance: *reserved*

C.5 – Primary Approach Radar Markers Requirements

Inspector Guidance: *reserved*

C.6 - Radar Display Requirements

Inspector Guidance: *reserved*

C.7 – Aerodrome Traffic Monitor Safety Requirements

Inspector Guidance: *reserved*

C.8 – Ergonomic Aspects of Radar Display Systems

Inspector Guidance: *reserved*

C.9 – Video Map Generation Equipment Requirements

Inspector Guidance: *reserved*

C.10 – Radar Recording Equipment Requirements

Inspector Guidance: *reserved*

C.11 – Surface Movement Radar Systems Requirements

Inspector Guidance: *reserved*

C.12 – Airport Remote Radar Feeds Requirements

Inspector Guidance: *reserved*

C.13 – Automatic Dependent Surveillance - Broadcast Requirements

Inspector Guidance: *reserved*

Appendix A
ATEL Certification Checklist

AERONAUTICAL TELECOMMUNICATION SERVICE PROVIDER (PART 173) (ATEL) ASSESSMENT

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 173.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements Part 170					
	General Requirements				
1.1	Is the application related specifically and only to: (1) Air navigation services provided exclusively for military flight operations; (2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or (3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia	☐	☐	☐	8.2.1.2.1.a § 170.1
1.2	Does the applicant hold an appropriate **security authorisation** from the President?	☐	☐	☐	8.2.1.2.1.b § 170.3
	Comments				
1.3	Can the applicant demonstrate that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President? *(see TGM Volume 8 Chapter 11 Section 1 for SMS checklist questions)*	☐	☐	☐	8.2.1.2.1.c 8.11.1 § 170.7
1.4	Has the applicant satisfied the SMS checklist requirements at TGM Volume 8 Chapter 11 Section 1? *(Attach completed Checklist)*				8.11.1 § 170.7
	Comments				
1.5	Can the applicant demonstrate that it has a Security Program that is acceptable to the President? *(see TGM Volume 8 Chapter 12 Section 4 for SMS checklist questions)*	☐	☐	☐	8.2.1.2.1.d § 170.9

1.6	Has the applicant satisfied the Security Program checklist requirements at TGM Volume 8 Chapter 12 Section 4? *(Attach completed Checklist)*	☐	☐	☐	8.2.1.2.1.d 8.12.4 § 170.9
	Comments				
1.7	Does the applicant qualify as a person able to provide an air navigation service under the provisions of GACAR Part 170.23?	☐	☐	☐	8.2.1.2.1.d § 170.23
1.8	Is the applicant seeking exemptions based on an approval issued by another State?	☐	☐	☐	8.2.1.2.1.e § 170.26
	Comments				
1.9	Is there any evidence that the applicant has nominated or is planning to nominate a person to fill a key management position that has previously have materially contributed to the revocation of a certificate?	☐	☐	☐	8.2.1.2.1.f § 170.23
1.10	Does the applicant maintain a principal base of operations?	☐	☐	☐	8.2.1.2.1.g § 170.61
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2. ATEL Specific Requirements – Part 173					
	a. General				
2.1	Does the applicant meet the criteria in GACAR Part 173.1 to be considered as an ATEL provider?	☐	☐	☐	8.2.1.4.1.a § 173.1
2.2	Does the applicant intend to operate the following system(s) in KSA: (1) Microwave Landing System (MLS); (2) Space-based elements of a Global Navigation Satellite Systems (GNSS); and (3) Precision Approach Radar (PAR) systems. *Note: These systems may not be operated in KSA*	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	(1) ☐ (2) ☐ (3) ☐	8.2.1.4.1.a § 173.3
2.3	Has the applicant established procedures and practices relating to the coordination requirements as specified in GACAR 173.7 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.7
2.4	Has the applicant established procedures and practices relating to the coordination of activities that will affect regional air navigation agreements as specified in GACAR 173.9 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.9
2.5	Has the applicant established procedures and practices relating to identification codes and callsigns as specified in GACAR 173.11 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.11
2.6	Has the applicant established procedures and practices relating to notification of aeronautical facility information as specified in GACAR 173.13 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.13
2.7	Has the applicant established procedures and practices relating to the validity of information provided by an aeronautical facility as specified in GACAR 173.15 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.15
2.8	Has the applicant established procedures and practices to ensure that they comply with the applicable standards of ICAO as specified in GACAR 173.17 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.17
2.9	Has the applicant established procedures and practices to ensure that they allow the President or his representative(s) to make inspections as specified in GACAR 173.19 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.a § 173.19

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				
	b. Personnel				
2.10	Has the applicant employed, contracted, or otherwise engaged a senior person, acceptable to the President, identified for the purposes of this part as the Director of aeronautical telecommunication services, who has the authority within the organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements, and is responsible for ensuring that the organization complies with the requirements of Part 173?	☐	☐	☐	8.2.1.4.1.b § 173.31(a)
	Attach the assessment conducted to determine that the Director of ATEL Services is acceptable to the President <u>*SUMMARY:*</u>				
2.11	Has the applicant employed, contracted, or otherwise engaged a senior person or persons responsible to the Director of aeronautical telecommunication services for ensuring that the organization complies with its manual?	☐	☐	☐	8.2.1.4.1.b § 173.31(b)
2.12	Has the applicant employed, contracted, or otherwise engaged sufficient technical personnel to inspect, supervise, and maintain the facilities listed in the manual?	☐	☐	☐	8.2.1.4.1.b § 173.31(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.13	Has the applicant provided evidence that each technician is competent and holds appropriate qualifications to maintain the equipment to which they are assigned?	☐	☐	☐	8.2.1.4.1.b § 173.33(a)
2.14	Has the applicant provided evidence that each technician has been appropriately trained and assessed as competent through a formal process?	☐	☐	☐	8.2.1.4.1.b § 173.33(b)
2.15	Has the applicant provided evidence that each technician has been given a certificate that includes the information required at GACAR 173.33(c)?	☐	☐	☐	8.2.1.4.1.b § 173.33(c)
2.16	Has the applicant provided evidence that each technician receives training as part of a periodic and comprehensive recurrent training program across its organisation?	☐	☐	☐	8.2.1.4.1.b § 173.33(d)
2.17	Has the applicant developed and published in its manual, job descriptions for all technical staff assigned to maintain aeronautical telecommunication systems?	☐	☐	☐	8.2.1.4.1.b § 173.33(e)
2.18	Has the applicant established procedures and practices to ensure that human factors and performance are applied in management of aeronautical telecommunications facilities, equipment or systems as specified in GACAR 173.19 and published those procedures in their operations manual?	☐	☐	☐	8.2.1.4.1.b § 173.37
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	c. Manual Requirements				
2.19	Has the applicant developed an Operations Manual (Manual) as required by GACAR Part 173.53?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)
2.20	Does the applicant's manual contain a statement signed by the Director of aeronautical telecommunication services, on behalf of the organization confirming that— (i) The manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with GACAR Part 173? and (ii) The manual, and all associated manuals, operating, and maintenance instructions, must be complied with by the organization's personnel at all times?	(i) ☐ (ii) ☐	(i) ☐ (ii) ☐	(i) ☐ (ii) ☐	8.2.1.4.1.c § 173.53(a)(1)
2.21	Does the applicant's manual contain the titles and names of the senior person or persons required under GACAR § 173.31(b)?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(2)
2.22	Does the applicant's manual contain the duties and responsibilities of the senior person or persons in question 2.21 above, including matters for which they have responsibility to deal directly with the President on behalf of their organization?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(3)
2.23	Does the applicant's manual contain an organization chart showing lines of responsibility of the senior persons and covering each location where ATEL services are provided?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(4)
2.24	Does the applicant's manual contain a summary of the organization's staffing structure at each location where ATEL services are provided?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(5)
2.25	Does the applicant's manual contain a list of each type of aeronautical facility operated by the aeronautical telecommunication service provider?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(6)
2.26	Does the applicant's manual contain a summary of the scope of activities at each location where the organization's personnel are based for the purpose of providing or maintaining the types of facilities listed in its manual?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(7)
2.27	Does the applicant's manual contain a summary of the operational details of each aeronautical facility associated with each location listed in its manual?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(8)
2.28	Does the applicant's manual contain the detailed procedures required under GACAR § 173.121 regarding internal quality assurance?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(9)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.29	Does the applicant's manual contain the detailed procedures, or an outline of the procedures including information that identifies the documentation that contains the detailed procedures, that are required under: (i) GACAR 173.33 regarding the competence of personnel? (ii) GACAR 173.75(a)(1) regarding the design, installation, and commissioning of facilities? (iii) GACAR 173.75(b) and (c) regarding the operation of temporary facilities for site tests? (iv) GACAR 173.57 regarding the control of documentation? (v) GACAR 173.77 regarding periodic inspections and testing of facilities? (vi) GACAR 173.79 regarding facility performance? (vii) GACAR 173.81 regarding the control, calibration, and maintenance of inspection, measuring, and test equipment? (viii) GACAR 173.83 regarding the notification of facility information? (ix) GACAR 173.85 regarding facility checks after notification of an accident or incident? (x) GACAR 173.87 regarding facility malfunction incidents? and (xi) Appendix A to Part 173 regarding the identification, collection, indexing, storage, maintenance, and disposal of records?	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐ (vii) ☐ (viii) ☐ (ix) ☐ (x) ☐ (xi) ☐	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐ (vii) ☐ (viii) ☐ (ix) ☐ (x) ☐ (xi) ☐	(i) ☐ (ii) ☐ (iii) ☐ (iv) ☐ (v) ☐ (vi) ☐ (vii) ☐ (viii) ☐ (ix) ☐ (x) ☐ (xi) ☐	8.2.1.4.1.c § 173.53(a)(10)
2.30	Does the applicant's manual contain details of the flight inspection service providers who will be carrying out flight inspection activities on behalf of the aeronautical telecommunication service provider?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(11)
2.31	Does the applicant's manual contain detailed procedures to control, amend, and distribute the manual?	☐	☐	☐	8.2.1.4.1.c § 173.53(a)(12)
2.32	Has the applicant established procedures to: (1) Ensure that its manual is amended, as required, to remain a current description of the aeronautical telecommunication service provider's organization, services, and facilities? (2) Ensure that any amendments made to its manual meet the applicable requirements of Part 173? (3) Comply with the manual amendment procedure contained in its manual? (4) Provide the President with a copy of each amendment to its manual? (5) Make such amendments to its manual as the President may consider necessary in the interests of aviation safety?	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐	8.2.1.4.1.c § 173.53(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.33	Does the applicant: (1) Have operating and maintenance instructions that set out the requirements for operating and maintaining each aeronautical facility listed in its manual? and (2) Provide the operating and maintenance instructions required under (1) above for the use and guidance of its personnel and the relevant staff authorized under GACAR Part 171?	(1)☐ (2)☐	(1)☐ (2)☐	(1)☐ (2)☐	8.2.1.4.1.c § 173.55(a)
2.34	Do the applicant's operating and maintenance instructions include: (1) Details of the critical performance parameters for each aeronautical facility? (2) The associated minimum performance levels for those critical performance parameters referred to in (1) above? (3) Details of the test equipment required for the measurement of those critical performance parameters referred to in (1) above? (4) Details of the mandatory inspections and test procedures for the operational service? (5) Details of the mandatory inspection and test procedures for the operation and maintenance of each aeronautical facility?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	8.2.1.4.1.c § 173.55(b)
2.33	Does the applicant hold copies of relevant equipment manuals, technical standards, practices, instructions, and any other documentation that are necessary for the provision and operation of the facilities listed in the manual?	☐	☐	☐	8.2.1.4.1.c § 173.57(a)
2.34	Has the applicant established and implemented a procedure for the control of the documentation required under GACAR 173.57(a) (i.e., Q2.33 above) and any other applicable GACAR part?	☐	☐	☐	8.2.1.4.1.c § 173.57(b)
2.35	Do the applicant's documentation control procedures require that: (1) All documentation is reviewed and authorized by an appropriate senior person referred to in GACAR § 173.31(b) before issue? (2) Current issues of all relevant documentation are accessible to staff at all locations if required for the provision and operation of aeronautical facilities? (3) All obsolete documentation is promptly removed from all points of issue or use? (4) Changes to documentation are reviewed and authorized by an appropriate senior person referred to in GACAR § 173.31(b)? (5) The current version of each item of documentation can be identified?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	8.2.1.4.1.c § 173.57(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				
	d. Facilities				
2.36	Has the applicant provided evidence that they only operate standard radio navigation aids in compliance with the requirements of GACAR 173.71?	☐	☐	☐	8.2.1.4.1.d § 173.71
2.37	Has the applicant established and implemented procedures to ensure that each facility listed in their manual complies in all respects with the requirements of GACAR 173.75(a)?	☐	☐	☐	8.2.1.4.1.d § 173.75(a)
2.38	Has the applicant established and implemented procedures to ensure that any temporary aeronautical facility complies in all respects with the requirements of GACAR 173.75(b) and (c)?	☐	☐	☐	8.2.1.4.1.d § 173.75(b, c)
2.39	Has the applicant established and implemented procedures for the periodic inspection and testing of the aeronautical facilities listed in the manual to verify that each aeronautical facility meets the applicable operational requirements and performance specifications for that facility, and that these procedures complies in all respects with the requirements of GACAR 173.77?	☐	☐	☐	8.2.1.4.1.d § 173.77
2.40	Has the applicant established and implemented procedures to ensure that no aeronautical facility listed in the manual is placed into operational service unless it meets the requirements specified in GACAR 173.79?	☐	☐	☐	8.2.1.4.1.d § 173.79
2.41	Has the applicant established and implemented procedures to ensure that appropriate inspection, measuring, and test equipment is available for personnel to maintain the operation of each aeronautical facility listed in the manual?	☐	☐	☐	8.2.1.4.1.d § 173.81(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.42	Has the applicant established and implemented procedures to control, calibrate, and maintain all the inspection, measuring, and test equipment in full compliance with the requirements of GACAR 173.81(b), (c) and (d)?	☐	☐	☐	8.2.1.4.1.d §173.81(b)(c)(d)
2.43	Has the applicant established and implemented procedures relating to the notification of aeronautical facility information in accordance with the requirements of GACAR 173.83, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.d § 173.83
2.44	Has the applicant established and implemented procedures relating to aeronautical facility checks after an accident or incident, in accordance with the requirements of GACAR 173.85, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.d § 173.85
2.45	Has the applicant established and implemented procedures relating to facility malfunction incidents, in accordance with the requirements of GACAR 173.85, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.d § 173.87
2.46	Has the applicant demonstrated that it maintains an adequate stock of spare parts is available for use all the time for the critical components of the facilities supporting the ATS systems?	☐	☐	☐	8.2.1.4.1.d § 173.89
2.47	Has the applicant developed procedures for monitoring the status of its spare parts stock?	☐	☐	☐	8.2.1.4.1.d § 173.89
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	e. Operating Requirements				
2.48	Has the applicant provided evidence that they hold at least one complete and current copy of their manual at each location listed in their manual where a senior person is based?	☐	☐	☐	8.2.1.4.1.e § 173.101(c)
2.49	Has the applicant made each applicable part of its manual available to personnel who require those parts to carry out their duties?	☐	☐	☐	8.2.1.4.1.e § 173.101(d)
2.50	Has the applicant established and implemented procedures relating to temporary aeronautical facilities in accordance with the requirements of GACAR 173.105, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.e § 173.105
2.51	Has the applicant established and implemented procedures relating to limitations on the operation of aeronautical telecommunications facilities in accordance with the requirements of GACAR 173.107, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.e § 173.107
2.52	Has the applicant established and implemented procedures relating to changes to its organisation in accordance with the requirements of GACAR 173.109, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.e § 173.109
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	f. Quality Assurance				
2.53	Has the applicant implemented a quality assurance system in compliance with the requirements of GACAR 173.121?	☐	☐	☐	8.2.1.4.1.f § 173.121(a)
2.54	Does the applicant's quality assurance system include: (1) A safety policy and safety policy procedures, including the procedure required under GACAR 173.87 for investigating facility malfunction incidents? (2) A procedure to ensure quality indicators, including equipment availabilities, malfunctions, faults, and personnel and customer feedback, are monitored to identify existing problems or potential causes of problems within the quality assurance system? (3) A procedure for corrective action to ensure existing problems that have been identified within the quality assurance system are corrected? (4) A procedure for preventive action to ensure that potential causes of problems that have been identified within the quality assurance system are remedied? (5) An internal audit program for the organization to ensure conformity with the procedures in the manual and to achieve the goals set in the safety policy? (6) Management review procedures, including the use of statistical analysis if appropriate, to ensure the continuing suitability and effectiveness of the quality assurance system in satisfying the requirements of Part 173?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐	8.2.1.4.1.f § 173.121(b)
2.55	Does the applicant's quality assurance system comply with the requirements of GACAR 173.121(c)-(g)?	☐	☐	☐	8.2.1.4.1.f §173.121(c)-(g)
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	g. Records and Reports				
2.56	Has the applicant established and implemented procedures relating to facility malfunction incident reports in accordance with the requirements of GACAR 173.141, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.g §173.141
2.57	Has the applicant established and implemented procedures relating to identification, collection, indexing, storage, maintenance, and disposal of the records in accordance with the requirements of GACAR 173.143, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.g §173.143
	Comments/Evidence				
	h. Technical Requirements - Communications Systems				
2.58	Has the applicant established and implemented procedures relating to voice and data recording equipment, including minimum performance specification for recording equipment, in accordance with the requirements of GACAR 173 Appendix A1, and A1.1, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A1 §173 App A1.1
2.59	Has the applicant established and implemented procedures relating to VHF aeronautical radio stations, in accordance with the requirements of GACAR 173 Appendix A2, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A2
2.60	Has the applicant established and implemented procedures relating to voice communications systems (VCS), in accordance with the requirements of GACAR 173 Appendix A3, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A3

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.61	Has the applicant established and implemented procedures relating to ATC datalinks, in accordance with the requirements of GACAR 173 Appendix A4, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A4
2.62	Has the applicant established and implemented procedures relating to information and alerting systems, in accordance with the requirements of GACAR 173 Appendix A5, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A5
2.63	Has the applicant established and implemented procedures relating to automatic terminal information systems (ATIS), in accordance with the requirements of GACAR 173 Appendix A6, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A6
2.64	Has the applicant established and implemented procedures relating to UHF radio equipment and systems, in accordance with the requirements of GACAR 173 Appendix A7, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.h §173 App A7
	Comments/Evidence				
	i. Technical Requirements – Radio Navigation Systems				
2.65	Has the applicant established and implemented procedures relating to general requirements for ILS including abbreviated methods of putting ILS with established MTBO into service, in accordance with the requirements of GACAR 173 Appendix B1, and B1.1, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B1 §173 App B1.1
2.66	Has the applicant established and implemented procedures relating to ILS radio noise monitoring, in accordance with the requirements of GACAR 173 Appendix B2, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B2

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.67	Has the applicant established and implemented procedures relating to ILS monitors, in accordance with the requirements of GACAR 173 Appendix B3, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B3
2.68	Has the applicant established and implemented procedures relating to ILS flight inspection requirements, in accordance with the requirements of GACAR 173 Appendix B4, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B4
2.69	Has the applicant established and implemented procedures relating to VHF marker beacons, in accordance with the requirements of GACAR 173 Appendix B5, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B5
2.70	Has the applicant established and implemented procedures relating to distance measuring equipment (DME) transponders and flight inspection requirements, in accordance with the requirements of GACAR 173 Appendix B6, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B6
2.71	Has the applicant established and implemented procedures relating to requirements for ILS and ILS/DME identity keying, in accordance with the requirements of GACAR 173 Appendix B7, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B7
2.72	Has the applicant established and implemented procedures relating to tactical air navigation (TACAN), in accordance with the requirements of GACAR 173 Appendix B8, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B8
2.73	Has the applicant established and implemented procedures relating to requirements for conventional and Doppler VHF omnidirectional range (CVOR/DVOR) beacons, in accordance with the requirements of GACAR 173 Appendix B9, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B9
2.74	Has the applicant established and implemented procedures relating to VHF omnidirectional range (VOR) flight inspection requirements, in accordance with the requirements of GACAR 173 Appendix B10, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B10
2.75	Has the applicant established and implemented procedures relating to requirements for MF non-directional beacons (NDBs), in accordance with the requirements of GACAR 173 Appendix B11, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B11

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.76	Has the applicant established and implemented procedures relating to requirements for instrumented runway visual range (IRVR) systems, in accordance with the requirements of GACAR 173 Appendix B12, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B12
2.77	Has the applicant established and implemented procedures relating to requirements for global navigation satellite systems (GNSS), in accordance with the requirements of GACAR 173 Appendix B13, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.i §173 App B13
	Comments/Evidence				
	j. Technical Requirements - Surveillance Radar Equipment and Systems				
2.78	Has the applicant established and implemented procedures relating to radar systems, in accordance with the requirements of GACAR 173 Appendix C1, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C1
2.79	Has the applicant established and implemented procedures relating to radar sensor requirements, in accordance with the requirements of GACAR 173 Appendix C2, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C2
2.80	Has the applicant established and implemented procedures relating to transponder protocols, in accordance with the requirements of GACAR 173 Appendix C3, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C3

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.81	Has the applicant established and implemented procedures relating to SSR external monitor requirements, in accordance with the requirements of GACAR 173 Appendix C4, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C4
2.82	Has the applicant established and implemented procedures relating to primary approach radar marker requirements, in accordance with the requirements of GACAR 173 Appendix C5, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C5
2.83	Has the applicant established and implemented procedures relating to radar display requirements, in accordance with the requirements of GACAR 173 Appendix C6, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C6
2.84	Has the applicant established and implemented procedures relating to aerodrome traffic monitor safety requirements, in accordance with the requirements of GACAR 173 Appendix C7, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C7
2.85	Has the applicant established and implemented procedures relating to ergonomic aspects of radar display systems, in accordance with the requirements of GACAR 173 Appendix C8, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C8
2.86	Has the applicant established and implemented procedures relating to video map generation equipment requirements, in accordance with the requirements of GACAR 173 Appendix C9, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C9
2.87	Has the applicant established and implemented procedures relating to radar recording equipment requirements, in accordance with the requirements of GACAR 173 Appendix C10, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C10
2.88	Has the applicant established and implemented procedures relating to surface movement radar systems requirements, in accordance with the requirements of GACAR 173 Appendix C11, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C11
2.89	Has the applicant established and implemented procedures relating to airport remote radar feeds requirements, in accordance with the requirements of GACAR 173 Appendix C12, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C12
2.90	Has the applicant established and implemented procedures relating to automatic dependent surveillance broadcast (ADS-B) requirements, in accordance with the requirements of GACAR 173 Appendix C13, and published these procedures in its manual?	☐	☐	☐	8.2.1.4.1.j §173 App C13

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 1. AIR TRAFFIC SERVICE PROVIDERS

Section 2. Regulatory Oversight of Aeronautical Telecommunications Service Providers

8.2.2.1 General Information

8.2.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Aeronautical Telecommunication Service Providers after they have been certified. The audits may also be applied in the re-certification of ATEL service providers at or near expiry of their certification period.

8.2.2.1.2 The main reference document for audits of ANS providers including Aeronautical Telecommunication Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.2.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.2.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.2.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of ATEL. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.2.2.1.6 The reason for this is that in order to obtain certification, the ATEL Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.2.2.1.7 In order to retain their certification, the ATEL Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.2.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance

without looking at every part of the ATS organisation.

8.2.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.2.2.2 Audit Checklist

8.2.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.2.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

ATEL Certification Checklist

AERONAUTICAL TELECOMMUNICATIONS SERVICE PROVIDER (PART 173) (ATEL) ASSESSMENT

AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 173.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 2. AIR TRAFFIC SERVICE PROVIDERS

Section 3.Certification and Audit of Flight Inspection Service Providers

8.2.3.1 General Information

8.2.3.1.1 The purpose of this chapter is to provide guidance to Air Navigation Services (ANS) Safety Oversight Inspectors on the:

(a) certification of Flight Inspection (also known as Flight Calibration) service providers intending to provide flight inspection services within the Kingdom of Saudi Arabia; and

(b) regular safety oversight and regulatory compliance auditing of Flight Inspection Service providers.

8.2.3.1.2 This chapter contains baseline certification and audit checklists for standardisation purposes. Where an inspector becomes aware of a non-standard situation, or a circumstance not covered in the checklist, he should adjust the standard checklists accordingly.

8.2.3.1.3 As a matter of policy, certification and audits will be based only on the regulatory requirements of GACAR, and the associated Standards and procedures in the current versions of ICAO documents as follows:

(a) ICAO Annex 10 – Aeronautical Telecommunications – Volumes I – V as applicable;

(b) ICAO Doc 8071 - Manual on Testing of Radio Navigation Aids – Volumes 1 - 3 as applicable;

(c) any other relevant ICAO document.

8.2.3.1.4 Where there is any discrepancy between the content of this document, and GACARs, the requirements of the GACARs take precedence.

8.2.3.1.5 This document is not concerned with the audit or review of flight inspection reports; this is covered in Section 8.2.4.

8.2.3.2 Context

8.2.3.2.1 Flight inspection is a critical component of the operation of Aeronautical Telecommunication Services

which in turn support the provision of Air Traffic Services, and Communication, Navigation and Surveillance services to aviation in general.

8.2.3.2.2 Flight inspection of navigation or surveillance infrastructure is generally conducted in one of five categories:

Site proving: A flight test conducted at the proposed site at the option of the President to determine the effects of the environment on the performance of the planned radio navigation aid;

Commissioning: An extensive flight inspection following ground proof-of-performance inspection to establish the validity of the signals-in-space. The results of this inspection should be correlated with the results of the ground inspection. Together they form the basis for certification of the facility;

Periodic: Flight inspections to confirm the validity of the signals-in-space on a regular basis or after major scheduled facility maintenance; or

Special: Flight inspections required as a result of suspected malfunctions, aircraft accidents, etc. (Typically, it is necessary to test only those parameters which have or might have an effect on facility performance. However, it may be economically advantageous in many cases to complete the requirements for a periodic inspection);

Flight Validation: Flight inspection services can also include the flight validation of instrument flight procedures designed or maintained under the provisions of GACAR Part 172.

8.2.3.2.3 Flight inspections should be scheduled and conducted using a priority system. The following is a suggested grouping:

Priority 1: Accident investigation, restoration of established facilities after unscheduled outages, and investigation of reported malfunctions; and

Priority 2: Periodic inspections, commissioning of newly installed facilities, associated instrument flight procedures, and evaluations of proposed sites for new installations.

8.2.3.2.4 When conducting a certification or audit of a flight inspection unit, an inspector should consider the unit to be comprised of three parts:

the flight inspection crew;

the flight inspection aircraft; and

the position-fixing system.

a. Flight inspection crew

The flight inspection crew normally consists of two pilots and one or two technicians or engineers. The members of the flight inspection crew should be experts in their individual fields, have sound knowledge and experience in flight testing/inspection procedures and requirements, and be capable of working as a team. GACA should formally authorize flight inspection personnel associated with a flight inspection unit. The objectives are to:

1. grant authority to the flight crew member who ensures the satisfactory operation of air navigation facilities;

2. provide a uniform method for examining employee competence; and

3. issue credentials that authenticate inspection authority.

Inspector Guidance: *The authorisation of flight inspection personnel in an organisation operating solely in KSA with KSA staff is straightforward as it is likely that the staffing will remain relatively static during a period of years. Some organisations however, may sub-contract flight inspection aircraft complete with crew, and inspection staff may change with each contract rotation in KSA. It is essential, then, that if a sub-contracted flight inspection aircraft and crew is used in KSA, the inspector checks qualification(s) of each crew with each contract rotation into KSA.*

GACAR Part 173 Appendix D - XI. Personnel Training and Qualification Requirements provides the legal basis for requiring evidence of training and qualification, and provides the basis for including qualification of personnel as part of initial certification and ongoing approval(s) or audits.

As a matter of policy, and in particular where non-KSA crews are used for inspections in KSA, and rotated during inspection schedules, inspectors should use the approval or authorisation of the inspection schedule as a trigger for ensuring personnel are appropriately qualified – i.e., when a flight inspection provider submits its planned flight inspection schedule to GACA for approval, it should also submit the names of personnel that will conduct the flight inspections, and their qualifications (if not already held on file at GACA).

b. Flight inspection aircraft

Many factors should be considered when selecting an aircraft as a vehicle for flight inspection. The number of aircraft required will be determined by the qualities of the aircraft chosen and factors such as the number of facilities to be flight inspected, their relative geographical locations, periodicity of inspections, and other duties of the aircraft. More guidance on the flight inspection aircraft instrumentation, antennas and other aspects is provided in ICAO Doc 8071 Volume 1.

Inspector Guidance: *Issues relating to flight operations or airworthiness certifications or approvals, and flight crew licensing, are not covered in the certification of flight inspection services. There is an implicit expectation that any aircraft used in flight inspection in KSA will have appropriate flight operations and airworthiness approval, and that all flight crew operating flight inspection services will have appropriate*

licenses.

c. Position-fixing systems

Position reference information for all types of flight testing/inspection is required for the determination of the accuracy of the navigation signal. The position-fixing system is independent from the facility under testing/inspection. The position-fixing system and the flight testing/inspection receiver contribute to the error budget. The overall error budget should be five times better than the published performance of the navigation signal.

The position-fixing system generates position reference information using the same coordinate system as the navigation system under testing, e.g. a reference distance for a DME, a reference localizer deviation, or a reference glide path signal. A great variety of technical solutions have been developed, either using position fixing equipment, which provide information already in the correct coordinate system, or using computer systems, which calculate the reference information from one or more sensors.

A more general approach is the use of a position reference system that provides information for all phases of the flight inspection. A state-of-the-art solution is the combination of different sensors for the testing, including INSs, barometric altimeters, tracking of several DME facilities, and GNSS augmented as necessary. A high degree of automation can be achieved for the flight inspection since continuous position reference information is available.

Inspector Guidance: *Position fixing in modern flight inspection service systems is generally fully automated – however inspectors should be familiar with the basic principles behind the need for accurate position fixing and its criticality in ensuring accurate flight inspection results. More detailed guidance on position fixing systems is provided in ICAO Doc 8071 Volume 1.*

8.2.3.3 Regulatory Requirements – Part 173 - General

8.2.3.3.1 Certification and audit of flight inspection services is based on the ability of an applicant or established provider to meet regulatory requirements. The main regulatory reference for certification and audit of Flight Inspection services is GACAR Part 173 – Aeronautical Telecommunications. The following extracts are relevant to this guidance material and the associated audit checklists:

a. Restrictions on Flight Inspection Service Providers

GACAR § 173.5 Restrictions on Flight Inspection Service Providers

(a) No person may provide a flight inspection services in the KSA unless the person complies with the applicable provisions of this part, they have been certificated by the President under GACAR Part 170

and they have been authorized by the President under Subpart D to provide such service.

(b) Except as provided in GACAR Part 170, each flight inspection service provider must comply with the limitations and provisions of their certificate, operations specifications and their manual prepared under Appendix D to this part.

Inspector Guidance: *This regulation establishes a requirement for any flight inspection service provider to obtain a certification under the provisions of GACAR Part 170, and an authorization under the provisions of Sub -Part D or GACAR Part 173. The provisions of sub-part D are discussed later in this document. The certification process will normally be conducted using the standard GACA 5-Phase process (refer TGM 8.0.2).*

Part 170 contains a provision that allows the President to exempt an applicant for certification from some requirements for certification. This is based on the fact that some applicants may already hold an approval as a Flight Inspection service provider in another State. Rather than ask the applicant to conduct a full certification process, GACA may accept the approval issued by that particular State. There are certain matters an inspector must consider and these are discussed at (TBD).

b. Inspections

GACAR § 173.19 Inspections

Each aeronautical telecommunication services provider and each flight inspection service provider must allow the President to make any inspections, at any time, in order to allow the President to determine compliance with this part.

Inspector Guidance: *This regulation establishes a requirement for any flight inspection service provider to allow an inspector (i.e., an inspector operating under a specific delegation or authorization issued by the President) to conduct inspections at any time.*

The purpose of these inspections is solely for the purpose of determining if a provider is in compliance with the regulations (as part of a certification process, or as part of regular safety oversight).

An inspector's authority under delegation from the President is generally in the form of a 'credential' or formal document or card that identifies the inspector, and specifically identifies what the inspector can do under his delegated authority.

c. Content of an Aeronautical Telecommunication Service Provider Manual

GACAR § 173.53 Manual Contents

(a) Each aeronautical telecommunication service provider must provide the President with a manual

containing—

(1) .....

(11) Details of the flight inspection service providers who will be carrying out flight inspection activities on behalf of the aeronautical telecommunication service provider; and

(12) ....

Inspector Guidance: *This regulation establishes a requirement for any aeronautical telecommunication (ATEL) service provider to tell GACA who they will use to conduct flight inspections.*

When an inspector is certifying or auditing an ATEL provider, they must ensure that that ATEL provider has nominated a flight inspection service provider – AND that the nominated flight inspection service provider is properly certified by GACA.

It is also possible for the President to make a determination that an ATEL provider must use a flight inspection service provider nominated by the President. In this case it is still the responsibility of the inspector to ensure the specified flight inspection service provider is properly certified and subject to regular safety oversight auditing. NOTE: This sub-regulation discussion relates to an ATEL provider's Manual. Specific requirements for a Flight Inspection Service provider's Manual are at 8.2.3.3.1(d) below.

d. Requirements for Periodic Inspection and Testing

GACAR § 173.77 Periodic Inspection and Testing

(a) Each aeronautical telecommunication service provider must establish a procedure for the periodic inspection and testing of the aeronautical facilities listed in the manual to verify that each aeronautical facility meets the applicable operational requirements and performance specifications for that facility.

(b) The procedure required under paragraph (a) must—

(1) Include ground inspections and tests, and if necessary, flight tests; and

(2) Include the criteria for establishing or changing the interval between the periodic tests for each aeronautical facility listed in the manual, having regard to—

(i) Any applicable information published by ICAO;

(ii) Any applicable reliability data for the aeronautical facility; and

(iii) Information on the proven reliability performance of the aeronautical facility, and of

other similar aeronautical facilities, and the stability of the aeronautical facility's operating environment.

(3) Ensure that the grounds for establishing or changing the interval between the periodic tests for each aeronautical facility listed in the manual are documented.

(c) Each aeronautical telecommunication service provider must establish—

(1) A program of periodic ground inspections for each aeronautical facility listed in the manual; and

(2) A program of periodic ground tests for each aeronautical facility listed in the manual; and

(3) A program of periodic flight tests for each radio navigation aid listed in the manual unless the applicant can establish from the criteria under paragraph (b)(2) that periodic ground tests can replace the periodic flight tests for the aeronautical facility without affecting the safety of air navigation.

(d) The programs required by paragraphs (c)(2) and (c)(3) must be based on the criteria required under paragraph (b)(2) and must specify the maximum interval between the tests for each aeronautical facility.

(e) All flight inspections must be performed by a flight inspection service provider who has been authorized by the President under Appendix D to this part.

(f) Each aeronautical telecommunication service provider must notify the President of any radio navigation aid that is not subjected to periodic flight tests.

Inspector Guidance: *This regulation sets general requirements on an ATEL provider relating to inspections (ground and flight inspections). In particular, this regulation establishes the legal requirement for an ATEL provider to develop a program (schedule) of ground and flight inspections based on ICAO criteria including intervals between inspections.*

An inspector should be looking for coordination arrangements between the ATEL provider and the flight inspection service provider.As part of the regulatory oversight/audit process inspectors should establish a routine to review planned flight inspection schedules and ensure they are consistent with both regulatory (Part 173) requirements (type of inspection, interval, etc.,) and ICAO (Annex 10, Doc 8071) requirements or procedures. This is not specifically covered in this sub-part of the regulation – but an inspector can use the provisions of § 173.19 (Inspections) to establish this review process.

e. Requirements for a Service Provider to Notify Changes to its Organisation

GACAR § 173.109 Changes to Provider's Organisation

(a) Each aeronautical telecommunication service provider must apply and obtain prior acceptance by the President if they propose to change any of the following—

(1) The Director of aeronautical telecommunication services;

(2) The listed senior persons;

(3) The types of aeronautical facility operated under the authority of the certificate; and

(4) The flight inspection service provider.

(b) The President may impose any conditions that the President considers necessary in the interests of aviation safety, on the aeronautical telecommunications service provider while any changes under paragraph (a) are occurring or as a consequence of those changes.

(c) Each aeronautical telecommunication service provider must comply with any conditions imposed by the President under paragraph (b).

Inspector Guidance: *This regulation requires an ATEL provider relating to obtain agreement of the President to certain changes including a proposal to change the flight inspection service provider. If a change of provider was proposed, the minimum requirement by the president would be that the flight inspection service provider was certified.*

Note that 173.109(b) give the President the authority to impose conditions on the ATEL provider. This could include requiring the ATEL provider to apply certain conditions on its flight inspection service provider. An inspector must be aware of any such conditions.

8.2.3.4 Regulatory Requirements – Part 173 – Specific to Flight Inspection

8.2.3.4.1 As previously discussed, the main regulatory reference for certification and audit of Flight Inspection services is GACA Regulation Part 173 – Aeronautical Telecommunications. Appendix D to Part 173 provides the specific regulatory requirements. The following extracts are relevant to this guidance material and the associated audit checklists:

a. General Requirements

GACAR Part 173 Appendix D - I. General

(a) This appendix prescribes requirements applicable to flight inspection service providers and their equipment.

(b) This appendix is divided into two parts as follows:

(1) Flight inspection service providers – Authorization Procedures.

(2) Annexes prescribing specific flight inspection requirements for specific types of navigational aids. Note: Additional flight inspection requirements for certain navigation aids are prescribed in Appendices B.4 and B.6 to this part.

(c) Each flight inspection service provider authorized under this part must be capable of using flight inspection techniques to measure accurately the signals in space radiated by those navigational aids which they are approved to inspect.

Inspector Guidance: *Sub-part (a) reinforces the fact that this appendix within the regulation has the same force of law as the regulations themselves. It used the term "prescribe" to ensure that is understood.*

The only regulator requirement in this section of Appendix D is sub-point (c) which requires a flight inspection service provider to demonstrate that can apply techniques to accurately measure signals in space. For guidance purposes, information on flight inspection techniques can be found in ICAO Doc 8071 Volumes 1 and 2.

When conduction certification, and in particular where fully automated flight inspection systems are used, an inspector should seek clarification from the flight inspection service provider about how they would meet the accuracy requirement.

b. Application procedures for flight inspection service providers

GACAR Part 173 Appendix D - II. Application Procedure

(a) Any request for the authorization of flight inspection service provider must be submitted by the aeronautical telecommunication service provider authorized under this part with the required information in a coherent documentary form.

(b) The flight inspection service provider may propose an aircraft or system which is new in concept or not in common use for flight inspection. In such a case, the President may seek advice from other Civil Aviation Authorities and may also initiate a general consultation with the industry. If a new system or aircraft is proposed or the flight inspection service provider does not have a demonstrable history of flight inspection, then practical demonstrations of capability are necessary. The tests will be in two parts and the flight inspection service provider may be required to perform either or both parts:

(1) A demonstration of position fixing accuracy. This will be evaluated on an established test range. The precise details of this trial cannot be defined until details of the flight inspection service provider's system are known.

(2) A demonstration of overall system performance. For this trial the flight inspection service provider will make a simulated commissioning inspection of the selected navigational aid. The trial may require several similar flight profiles to be flown to demonstrate the repeatability of measured results.

(c) Each flight inspection service provider must provide the President with a build state document of the measuring equipment, a complete and formalized list of the current issues of all relevant documentation and a manual describing the entire operation. If the flight inspection service provider proposes to make any changes to a flight inspection system, operation, or organisation, the President must approve these changes before the organisation is permitted to make any further flight inspections.

(d) Where authorization for ILS inspection is granted under this appendix it may be limited to the flight inspection of specific categories of ILS.

(e) For all flight inspection service providers, the President may require that a practical demonstration of ability is given.

Inspector Guidance: *This sub-regulation is straightforward. It requires a flight inspection service provider to make a formal application containing certain information (this is separate to its Manual as required later). The core of this sub-part is the requirement for a provider to indicate whether or not a new aircraft or flight*

inspection system is being proposed. If it is, then there are additional requirement on the provider to prove to the President that the aircraft or system is 'fit for purpose'.

It is unlikely that a completely new system would be proposed and tested in KSA. It is more likely that a service provider would bring a now aircraft or system to KSA from another State, in which appropriate testing and evaluation has been done. If this is the case, the inspector must obtain from the service provider copies of documents and approvals from that State. The inspector should also be prepared to contact the civil aviation authority in that State to confirm the information.

The inspector should also ensure that the State that issued the approvals originally is acceptable to the President. This is to ensure that the regulatory authority in that State is competent. One method of confirming that competency is to look at the ICAO CMA website to determine if there are any listed safety concerns on the State authority.

c. Requirements relating to a provider's organisation and quality

GACAR Part 173 Appendix D - III. Organisation and Quality

Any organisation intending to perform flight inspection of navigation aids must demonstrate that it is competent, having regard to any relevant previous conduct and experience, equipment, organisation, staffing maintenance and other arrangements, to produce accurate and adequate flight inspection results in relation to ATS safety aspects.

Inspector Guidance: *This sub-regulation is not specifically about quality control or quality management of individual systems, or the actual flight inspections conducted - it is more broadly related to an assessment of the competence and quality (and quality management) of the flight inspection organisation as a whole, and an inspector's judgement about the ability of the organisation to consistently conduct 'accurate and adequate' flight inspections in KSA.*

Judgement on this sub-regulation alone would be subjective. An inspector must base any decision here on the results from responses to all other regulatory requirements.

This sub-regulation does, however, provide the inspector with the opportunity to examine or determine the service provider's business in terms of business competence, previous experience, how well it is organised, what level of staffing it has, and other relevant matters.

ICAO Doc 8071 provides the following guidance:

"…The management of organisational features that can cause a risk to safety should be conducted systematically. The effective management of quality should be achieved by the derivation of policy and application of principles and practices designed to prevent the occurrence of factors that could cause accidents.

The minimum requirements for the quality system should include written procedures that document all of the actions necessary to ensure the safe operation of navigation aids. The ISO 9000 quality management model provides a useful framework, and particular note has to be made of the following features expected in the quality management system.

a) Organisational and individual accountability. Accountability and responsibility should be documented, traceable, and verifiable from the point of action through to the accountable manager (in most cases the Chief Executive).

b) Management review. The system for management review should be effective and should ensure that senior management is fully cognizant of the systems and features that affect safety.

c) Exposition or company documentation. An exposition or company documentation should be provided to clearly describe the organisational structure, personnel, accountabilities, responsibilities, resources, facilities, capabilities, policies, and purposes of the organisation.

d) Record keeping. Records should be accurate, legible, and capable of independent analysis. The retention period for records should be defined. Commissioning records and those documenting system modifications (e.g. changes to ILS antenna configuration from sideband reference to capture effect) should be kept for the entire life cycle of the facility…."

d. Requirements relating to a provider's (operations) manual

GACAR Part 173 Appendix D - IV. Manual

A manual must be provided by each flight inspection service provider to detail the overall flight inspection service provider and its intended operation. The following aspects must be included (or referenced to other documents) in the Manual, or provided in a coherent documentary system.

GACAR Part 173 Appendix D - V. Manual Contents

The manual must include the following contents-

(a) Scope of flight inspection tasks.

(b) Types of navigational aids to be inspected. (For ILS the organisation must state the categories of ILS to calibrate.)

(c) Organisational Chart & technical details.

(d) Personnel responsibilities, terms of reference and authority to act. (e) Procedures for notifying of major organisational changes.

(f) Procedures for notifying the President of the latest state of the flight inspection program.

(g) Procedures for notifying the aeronautical telecommunication service provider of proposed equipment

changes and modifications or change of aircraft type.

(h) Details of the aircraft which the organisation wishes to use for flight inspection.

(i) Functional description, technical specification and manufacturer's type number for all major items of the flight inspection system. This must include details of the equipment used for calibrating the system.

(j) Location, characteristic and type of all measurement aerials on the aircraft.

(k) Technical description of any parts of the system which the applicant has designed or built.

(l) The design authority for all equipment must be stated.

(m) Procedures for inspection of equipment.

(n) Details of all uses of software and firmware in the measurement system. Also details of software and firmware support.

(o) Details of a log or record system for faults and maintenance of the measuring system.

(p) Documentation Control. List of documents held and produced.

(q) Details of initial and recurrent training and checking requirements and programs for flight inspection personnel.

(r) Details of any internal and external auditing system e.g. auditing of the organisation by any other organisation not associated with the production of inspection results.

(s) Details of the quality management system.

(t) Details of any formal or implicit approvals which the organisation has received from other foreign civil aviation authorities including a list of any navigation aids which the organisation regularly inspects under such a formal or implicit approval. This will include:

(1) Type of navigation aid.

(2) Location of navigation aid.

(3) Category of navigation aid (if applicable).

(u) Flight inspection operating instructions for the inspector and flight crew.

(v) A typical or test flight inspection report.

(w) A typical or test sample structure measurement for those navigational aids where structure measurements form part of a normal flight inspection.

(x) A statement showing to 95% confidence, the measurement uncertainty which the organisation claims to achieve for each of the measurable parameters.

(y) Details of statistical methods or interpolative techniques which may be applied.

(z) Details of any operating certificates held in respect of aircraft operations.

(aa) Procedures for the control of sub-contractors.

(bb) A statement of compliance with the flight inspection requirements of this appendix.

Inspector Guidance: *This sub-regulation contains requirements for the most critical deliverable from a service provider – the Operations Manual. The Operations Manual may be a single large document, but is more commonly delivered as a set of documents, and a service provider will often include references or links to other required documents or evidence rather than deliver these. This may be because the referenced document is a common standard (e.g., an ICAO document, or an RTCA standard, etc.,) or is too large to print, in which case it may be delivered as a 'soft copy' document (i.e., on an electronic storage device).*

The requirements in the sub-regulation are mostly self-explanatory, and are consistent with requirements for operations manuals across most other regulated entities in GACA (e.g., airlines, aerodromes, maintenance organisations etc.). Further guidance or assistance can be obtained by consulting with inspectors in those areas. Additional guidance can be found in ICAO Doc 8071 Volumes 1 and 2.

In relation to (q) training, an inspector should evaluate if the applicant has established methods for determining required job competencies:

a) all personnel directly engaged in the flight inspection, maintenance, or installation of an aeronautical navigation aid should be adequately qualified and trained, as well as experienced in their

job functions;

b) the management system should include a written procedure for ensuring the continued competence of personnel through regular assessment; and

c) initial and recurrent training programmes for aeronautical navigation aid specialists should include a detailed explanation of maintenance procedures and their effect on the integrity of the radiated signal.

e. Requirements relating to the provider's aircraft

GACAR Part 173 Appendix D - VI. Aircraft

(a) The aircraft used must be appropriate for the purpose of flight inspection and must be operated in a way which ensures accurate measurement of all parameters.

(b) The aircraft must be a multi-engine type capable of safe flight within the intended operational envelope with one engine inoperative, fully equipped and instrumented for night and instrument flight.

(c) The aircraft must be managed by two flying crew members.

(d) A cross-wind limit must be set which will allow measurement accuracies to be within the limits required. This limit must be shown in the operating instructions.

(e) The aircraft must have a stable electrical system with sufficient capacity to operate the additional electronic and recording equipment.

(f) Measures must be taken to reduce propeller modulation to an acceptably low level.

Inspector Guidance: *ICAO Doc 8071 provides the following guidance on a flight inspection aircraft: The following desirable characteristics should be found in a flight inspection aircraft:*

reliable, efficient type equipped and certified for IFR operations;

sufficient carrying capacity for the flight crew, as well as all necessary electronic and recording equipment

and spares. It may also be necessary to have additional capacity to transport ground personnel and equipment;

sufficient range and endurance to complete a normal mission without reservicing;

aerodynamically stable throughout its speed range, but particularly at speeds encountered during flight inspection;

low noise and vibration levels;

low electrical noise characteristics to minimize interference with received signals; e.g. propeller modulation of the received signal must be as low as possible;

stable electrical system of adequate capacity to operate the required electronic equipment in addition to the aircraft equipment;

reasonably wide-speed and altitude range to enable flight inspection to be conducted, where possible, under the conditions encountered by users. Good low-speed characteristics are essential where theodolite tracking by ground observers is carried out;

suitable for future modifications or expansion of equipment to allow for inspection of additional aids or to increase accuracy or processing speed on existing facilities;

aircraft cabin environmental control equipment that minimizes the adverse effects of temperature and humidity on the sensitive test equipment used in flight inspection systems and maintains a comfortable environment for the crew; and equipped with an autopilot to reduce crew workload.

The flight inspection aircraft contains a full range of navigation equipment as required for instrument flying. Additional equipment must be provided for the monitoring and recording of the received navigation signals. The navigation receivers may be used for both navigation and flight inspection. Special flight inspection receivers installed in addition to those used for navigation are preferable because of their special accuracy requirements. When navigation receivers are shared between the pilot and observer, the control of the receiver during flight inspection should be with the technician/engineer.

f. Requirements relating to the service provider’s inspection or calibration equipment

GACAR Part 173 Appendix D - VII. Equipment

(a) The purpose of the navigation aid flight inspection is to verify that all parameters of the navigation aid meet the requirements specified in Annex 10 to the Convention on Civil Aviation and any other specific requirements of this part. The equipment fitted in the aircraft must be capable of measuring all these parameters.

(b) The navigation aid measuring equipment must not interfere with the operation or accuracy of the aircraft's normal navigation and general avionics equipment.

(c) The flight inspection measurements must be adequately protected against the prevailing Electro Magnetic environment effects internal or external to the aircraft. Abnormal interference effects must be clearly identified on the inspection results.

(d) The inspection system must have the facility for listening to the identity modulation of the navigation aid being inspected.

(e) The flight inspection system must include equipment which can determine and record the aircraft's position in space relative to a fixed reference point. The uncertainty of measurement must be commensurate with the parameter being inspected.

(f) The flight inspection system must include equipment which can record the measured parameters of the navigation aid being inspected.

(g) All recordings must be marked so that they can be correlated with the aircraft's position at the time of the measurement.

(h) Aerials must be positioned in such a manner that they are not obscured from the signal during any normal inspection flight profiles.

(i) The aerials to be used for tracked structure measurements must be positioned with due regard to the tracking reference on the aircraft. If the aerials and the reference are not in close proximity, this error must be addressed in the measurement uncertainty calculations and in setting the operational crosswind limit. Alternatively, the errors may be corrected using information from the aircraft's attitude sensors and data concerning movement of the aerial's phase center.

Inspector Guidance: *Further information regarding inspection or calibration equipment can be found in ICAO Doc 8071 volume 1 and 2 – in particular guidance relating to aerials and antenna.*

g. Requirements relating to the service provider's method of determining measurement uncertainty

GACAR Part 173 Appendix D - VIII. Measurement Uncertainty

(a) The measurement uncertainty for any parameter must be small compared with the operational limits for that parameter.

(b) The measurement uncertainty to 95% probability must be calculated for each of the parameters to be measured. The method of calculation and any assumptions made must be clearly shown.

(c) Many measurements are a combination of receiver output and aircraft position. In these cases the figure required is the sum of all the errors involved in the measurement, including aircraft position.

(d) For measurements which can only be derived from recordings, the accuracy and resolution of the recording equipment must be included in calculating the expected measurement uncertainty.

(e) When modifications are made which will affect the uncertainty of measurement of any parameter, new calculations must be submitted.

(f) The uncertainties stated in (e) must be maintained under the specified environmental conditions for a flight inspection procedure. The operator must define the environmental conditions (temperature range, humidity range, etc.).

(g) Details of measurement uncertainty with respect to temperature must be available for all the measuring equipment. This may be in the form of test results made by the operator, or manufacturer's specifications. If manufacturer's specifications are quoted, the flight inspection service provider must be prepared to produce manufacturer's test results as evidence.

(h) If the measuring equipment requires any warm-up or cooling time, this must be clearly indicated in the operating instructions.

(i) The accuracy of marking must be commensurate with the accuracy required in the final figure. Specific requirements are given in the appropriate annex to this appendix.

Inspector Guidance: *Further information regarding inspection or calibration equipment can be found in ICAO Doc 8071 volume 1 and 2.*

h. Requirements relating to how the service provider inspects or calibrates inspection equipment

GACAR Part 173 Appendix D - IX. Inspection Procedures and Standards

(a) All measuring equipment used for flight inspection must be calibrated to defined standards.

(b) Clearly defined inspection procedures must be applied to all equipment involved in the measurement of parameters in the appropriate annex to this appendix. All equipment and standards used in the inspection process must have traceability to KSA or international standards.

(c) When any equipment used is claimed to be self-calibrating, the internal processes involved must be clearly defined. This involves showing how the equipment's internal standard is applied to each of the parameters which it can measure or generate. The internal standard must have traceability to KSA or international standards.

(d) Details of inspection intervals required must be contained in the inspection records. The flight inspection service provider must be prepared to produce evidence in support of the quoted inspection intervals.

Inspector Guidance: *Further information regarding inspection or calibration equipment can be found in ICAO Doc 8071 volume 1 and 2. It is important that an applicant for certification is able to provide evidence of and claims to 'self-calibration and that there is clear traceability to appropriate State or international standards.*

i. Requirements relating to the service provider's operating instructions

GACAR Part 173 Appendix D - X. Operating Instructions

(a) The operating instructions must ensure that all measurements are made to defined and documented procedures.

(b) This documentation must include concise details of:

(1) The flight profile to be used for each individual measurement;

(2) Pre-flight inspection of measuring equipment;

(3) Siting of any necessary ground tracking or position fixing equipment.

(4) Scheduled maintenance and inspection of the measuring equipment.

(5) Operation of the measuring equipment;

(6) Production of the flight inspection report;

(7) Certification; and

(8) The method of calculating any results which are not directly output by the measuring equipment.

Inspector Guidance: *Further information regarding inspection or calibration equipment can be found in ICAO Doc 8071 volume 1 and 2.*

j. Requirements relating to the service provider's training and qualification

GACAR Part 173 Appendix D - XI. Personnel Training and Qualification Requirements

(a) All personnel concerned with the flight inspection must be adequately trained and qualified for their job functions.

(b) The flight inspection service provider must show that all personnel concerned with the flight inspection are adequately trained and qualified for their job functions.

(c) The flight inspection service provider must have a procedure for ensuring the competence of its personnel. This procedure must have provision for regular assessment of competence.

(d) Particularly for the inspection of precision approach aids, the flight crew's familiarity with each location to be inspected is considered to be of importance. The flight inspection service provider's procedures and instructions must include details of training and familiarization which will apply to the flight crew.

Inspector Guidance: *Based on the guidance in ICAO Doc 8071, a flight inspection service provider should provide evidence that they have established methods for determining required job competencies, including requirements that:*

a) all personnel directly engaged in the flight inspection, maintenance, or installation of an aeronautical navigation aid should be adequately qualified and trained, as well as experienced in their job functions;

b) the management system should include a written procedure for ensuring the continued competence of personnel through regular assessment; and

c) initial and recurrent training programmes for aeronautical navigation aid specialists should include a detailed explanation of maintenance procedures and their effect on the integrity of the radiated signal.

As part of the certification and ongoing regulatory compliance auditing of flight inspection service providers, inspectors should establish procedures to check the qualifications of flight inspection personnel – particularly if those personnel are rotated into KSA on sub-contract. Refer to 8.2.3.2.4.a for further guidance on requirements for validation of qualifications.

k. Requirements relating to flight inspection reports

GACAR Part 173 Appendix D - XII. Flight Inspection Report

(a) The flight inspection report must clearly and accurately document the measured performance of a navigational aid.

(b) All flight inspection results must be documented to a report format acceptable to the President. The minimum information to be provided on the report must be:

(1) Station name and facility designation.

(2) Category of operation.

(3) Date of inspection.

(4) Serial number of report.

(5) Type of inspection.

(6) Aircraft registration.

(7) Manufacturer and type of system being inspected.

(8) Wind conditions.

(9) Names and functions of all personnel involved in the inspection.

(10) Results of all measurements made.

(11) Method of making each measurement (where alternatives are available). These may be referenced to the operating instructions.

(12) Details of associated attachments (recordings, etc.).

(13) Details of extra flights made necessary by system adjustments.

(14) An assessment by the aircraft captain of the navigational aid's performance.

(15) Comments by the navigation aid inspector/equipment operator.

(16) Details of any immediately notifiable deficiencies.

(17) Statement of conformance/non-conformance.

(18) Navigation aid inspector's signature.

(19) Pilot's signature.

(20) Signature of the individual who is legally responsible (if different from (18) or (19)).

Inspector Guidance: *The flight inspection report serves as the basic means of documentation and dissemination of the results of each flight inspection. The senior flight inspector is responsible for initiating the report and ensuring that it clearly records the results of each parameter measured, along with an assessment of the conformance of the facility performance to the required standards. This assessment will normally involve an analysis of the data recordings and a review of the computer-aided analysis carried out on the data gathered during the inspection. Flight inspection reports should allow for "before" and "after" results to be entered into routine documentation of the adjustments made to the facilities.*

Procedures and guidance on the audit (evaluation) of inspection reports is contained in TGM Volume 8 Chapter 8.2.4.

l. Requirements relating to the service provider's use of records or graphs

GACAR Part 173 Appendix D - XIII. Records and Graphs

(a) Records and graphs must be produced in a manner which ensures that system parameters may accurately be deduced from them.

(b) If recordings or graphs are used to derive figures for the inspection report, the scales must be commensurate with the permitted measurement uncertainty limits.

Note: If the recordings or graphs are only used to show that results are within designated tolerances, they may be presented on a reduced scale.

(c) The data from which these recordings and graphs are made must be stored with sufficient accuracy that

expanded scale plots can be provided on demand.

(d) For flights where parameters are evaluated by comparison of the received signal and the output of a tracking device, only the final result need be presented for a normal inspection unless other data has been requested by the aeronautical telecommunication service provider. Position data and raw signal data must be recorded or stored and provided on demand.

(e) The minimum identification on each record and graph must be:

(1) Serial number.

(2) Date.

(3) Description of type of flight.

(4) Name of airport.

(5) Designation of facility being inspected.

(f) The flight inspection service provider must provide for approval, details of the arrangements to be made for archiving data from flight inspection results.

Inspector Guidance: *The flight inspection data recordings serve as a record of the raw signal information used to assess ground facility performance. The recording medium may be a strip chart or electronic files of sampled data. Data recordings are normally archived and maintained on file with the flight inspection reports. This data should be made available to engineering and maintenance personnel for solving site problems and for assessing trends in facility or equipment performance. Further information relating to records and graphs can be found in ICAO Doc 8071 Volume 1.*

8.2.3.5 Regulatory Requirements of GACAR Part 172 for Flight Validation

8.2.3.5.1 Certification and audit of flight inspection services is primarily based on the requirements of Part 173. If a flight inspection service provider intends to conduct flight validation of instrument flight procedures (IFP) (sometimes referred to as flight inspection of IFP) they must comply with relevant requirements of Part 173, and the specific requirements of GACAR Part 172.

Note: An applicant seeking approval to conduct flight validation of instrument flight procedures only – i.e., the applicant will not be seeking approval to conduct flight inspection services – may apply separately for a flight validation approval under the provisions of Part 172. Technical Guidance Material and relevant checklists are at Volume 8 Chapter 6 Section 5 (i.e., section 8.6.5 of this document) and Volume 8 Chapter 6 Section 8 (section 8.6.8 of this document).

8.2.3.5.2 The following extracts from GACAR Part 172 are relevant to this guidance material and the associated audit checklists (see also 8.6.8):

a. Requirements relating to Flight Validation

§ 172.57 Flight Validation.

(a) Each IFPS provider must establish detailed procedures for conducting the flight validation of an IFP as required by this section. The flight validation procedures must include the use of equipment that—

(1) Has the precision, and accuracy traceable to appropriate standards, that are necessary for the validation being performed;

(2) Has known measurement uncertainties including, but not limited to, the software, firmware and crosswind uncertainties;

(3) Records the actual flight path of the validation aircraft;

(4) Is checked before being released for use, and at intervals not exceeding the calibration intervals recommended by the manufacturer, to establish that the system is capable of verifying the integrity of the IFP; and

(5) Is operated in accordance with flight validation system procedures and criteria by persons who are competent and current on the system used.

(b) Except as provided .....

(c) The following IFP .....

(d) Where a flight validation is conducted the following elements must be evaluated:

(1) All segments of the IFP must be flown;

(2) In the case of SIDs and PDRs, all segments of the procedure from the departure end of the runway (DER) to joining the en-route structure or termination point must be flown; and

(3) In the case of IAPs all segments of the procedure from the Arrival/ Initial Fix through to the end of the Missed Approach must be flown.

(4) Flight validation of the visual maneuvering area must also be carried out.

(e) Where procedures share the same segment of flight (e.g. initial), the shared segment needs only to be validated once.

(f) In the case of RNAV IFP a test database produced by an appropriate navigation data-coding provider for use in the RNAV system must be used.

(g) In the case of RNAV (GNSS) IAPs of a T- or Y- bar design, manual entry of the procedure into the RNAV system in use is acceptable. In this case the validating pilot will need to manually activate the Course Deviation Indicator (CDI) scaling changes during the different phases of the flight.

(h) Each custodian of ……

(i) The IFP designer may participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure's design from the flight validation pilot.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

b. Requirements relating to Flight Validation Crew

§ 172.59 Crew Requirements.

(a) Flight validations must be performed by qualified and experienced flight validation pilots. The qualifications and experience for flight validation pilots are specified in Appendix B to this part.

(b) The minimum crew of the validation aircraft must be one pilot to validate the IFP and an observer to assist the pilot in the validation process while observing the "out of cockpit" environment. In the case of an aircraft requiring two pilots, one of the pilots may carry out the observer role. It is required that the observer has successfully completed an ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, for the design and validation of IFP.

(c) Where the procedure to be flight validated is an RNAV (GNSS) IFP of a T- or Y- bar design and is to be manually loaded into the RNAV system, the flight validation pilot must ensure that the observer is fully competent in the use of the RNAV system to be used for the flight.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

c. Requirements relating to Flight Validation Aircraft

§ 172.61 Aircraft Requirements.

The aircraft to be used for flight validation of an IFP must have the performance capabilities appropriate to the categories for which the IFP has been designed.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

d. Requirements relating to Meteorological Conditions during Flight Validation

§ 172.63 Meteorological Conditions.

All IFP validation flights must be conducted during daylight hours in visual meteorological conditions (VMC), which allow the flight to be carried out with a flight visibility of not less than 8KM, and in sight of the surface throughout the flight validation of the procedure.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

e. Requirements relating to Validation of the Navigation Database

§ 172.65 Navigation Database Validation.

(a) Navigation database validation must be performed for all RNAV instrument flight procedures. Such procedures are coded using ARINC 424 path terminators to define specific nominal tracks, which are defined by waypoint location, waypoint type, and path terminator and, where appropriate, speed

constraint, altitude constraint and course.

(b) Navigation database validation must ensure that the coding of the procedure in the RNAV/FMS system does not compromise the flyability of the procedure.

(c) If the database validation is unable to take place until after the effective date of the IFP, then NOTAM action must be required to delay the effective date.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

f. Requirements relating to Validation Reports

§ 172.67 Validation Reports.

Where a ground and/or flight and navigation database validation has been conducted, a report must be completed by each of the following where applicable:

(a) IFP designer;

(b) IFP flight validating pilot; and

(c) Relevant ATS unit.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

g. Requirements relating to Flight Validation Pilots

APPENDIX B TO GACAR PART 172 – REQUIREMENTS FOR FLIGHT VALIDATION PILOTS

(a) Qualifications. Each IFP flight validation pilot must hold an airline transport pilot certificate issued in accordance with GACAR Part 61 or be otherwise acceptable to the President.

(b) Training. Each IFP flight validation pilot must have successfully completed:

(1) An ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, for the design and validation of instrument flight procedures;

(2) A flight validation course conducted by GACA or an organisation acceptable to the President and possess a letter of competency issued by President certifying competence to conduct flight validations; and

(3) A course in aerodrome lighting and visual approach slope guidance systems conducted by GACA or an organisation acceptable to the President and possess a letter of competency issued by President certifying competence to conduct aerodrome lighting inspections.

(c) Experience. Each IFP flight validation pilot must have:

(1) At least 2 years' experience in the flight validations of IFP; and

(2) Completed an IFP flight validation flight within the previous year.

(d) Rotorcraft. Rotorcraft IFP procedures must be flight validated by pilots who, in addition to the above qualifications, are certificated in the rotorcraft category and helicopter class rating and are familiar with rotorcraft procedure design and operations. Should the validation pilot not be qualified as pilot-in-command of a helicopter (or other type of aircraft) to be used for a validation flight, another qualified pilot may be assigned to be the pilot in command (PIC) provided the validation pilot occupies either a control seat or a seat in close proximity to the PIC, and directs the conduct of the validation.

Note - Additional clarification may be found in the Quality Assurance Manual for Flight procedure Design (ICAO Doc. 9906) – Volume 5: Validation of Instrument Flight Procedures, and Volume 6: Flight Validation Pilot Training and Evaluation.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

In relation to the requirement for PANS-OPS training, some training organisations offer an abbreviated PANS-OPS training course (and ARINC 424 database training) that is specifically designed for validation pilots on the basis that a validation pilot does not need to qualify as a designer. These courses would be acceptable to the president on recommendation of the inspector.

8.2.3.6 Requirements Deriving from ICAO Standards, Procedures or Guidance

8.2.3.6.1 In addition to requirements that derive from GACAR Part 172 or Part 173, a flight inspection service provider will be required to demonstrate that they comply with standards or procedures established by ICAO. The extracts at 8.2.3.6.2 below, if indicated, contain requirements additional to those in Part 172 or Part 173. Where it is determined that there is a conflict between the requirements below, and those derived from GACARs, the GACARs have priority, unless there is an identified safety concern. In all cases where there is a determined conflict in requirements, an inspector must investigate, and if necessary initiate a process to amend the regulations and associated guidance material.

8.2.3.6.2 Reserved

8.2.3.7 Auditing of Flight Inspection Service Providers

General Information

8.2.3.7.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Flight Inspection Service Providers after they have been certified. The audits may also be applied in the re-certification of Flight Inspection Service Providers at or near expiry of their certification period.

8.2.3.7.2 The main reference document for audits of ANS providers including Flight Inspection Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.2.3.7.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.2.3.7.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.2.3.7.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of flight inspection. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.2.3.7.6 The reason for this is that in order to obtain certification, the Flight Inspection Service Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the

President.

8.2.3.7.7 In order to retain their certification, the Flight Inspection Service Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.2.3.7.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance without looking at every part of the Flight Inspection Service Provider's organisation.

8.2.3.7.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

Audit Checklist

8.2.3.7.10 The template at Appendix B should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist (Appendix A).

8.2.3.7.11 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

Flight Inspection Service Provider

Certification Checklist

FLIGHT INSPECTION SERVICE PROVIDER ASSESSMENT

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 173 and where applicable GACAR Part 172.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	a. General Requirements				
	General Requirements				
1.1	Does the applicant hold a certification as a flight inspection services provider under GACAR Part 170, or is the applicant seeking exemption from Part 173 requirements under the provisions of Part 170.26? • If Exemptions are requested, complete Section 2 ***Evidence / Inspector Comments***	☐	☐	☐	8.2.3.3.1.a §170.26 §173.05
1.2	Is the applicant applying for additional/new approvals by adding Operations Specifications? ***Evidence / Inspector Comments***	☐	☐	☐	8.2.3.3.1.a §173.05
1.3	Has the applicant provided assurance that they understand and will comply with the requirements relating to regulatory compliance and safety inspections by SS&AT?	☐	☐	☐	8.2.3.3.1.b §173.19
1.4	Does the applicant have an agreement in place (contract or other document) with the Part 173 Aeronautical Telecommunications (ATEL) service provider as a/the flight inspection service provider, and is that agreement reflected in the ATEL provider's manual?	☐	☐	☐	8.2.3.3.1.c §173.53(a)(11)
1.5	Has the applicant established procedures for the periodic inspection and testing of the aeronautical facilities identified by the Part 173 ATEL provider? ***Evidence / Inspector Comments***	☐	☐	☐	8.2.3.3.1.d §173.77
1.6	Has the applicant recently been engaged by the ATEL provider, or changed services provided to the ATEL provider, and provided information to the ATEL so that the ATEL can notify GACA of a change? *(note: this question is not related to change notification by the flight inspection service provider)* ***Evidence / Inspector Comments***	☐	☐	☐	8.2.3.3.1.e §173.109

2. Exemptions					
	Exemptions *(list below any and all exemptions requested by the applicant and decisions made regarding this exemptions)*				
2.1		☐	☐	☐	
	Evidence / Inspector Comments				
2.2		☐	☐	☐	
	Evidence / Inspector Comments				
2.3		☐	☐	☐	
	Evidence / Inspector Comments				
2.4		☐	☐	☐	
	Evidence / Inspector Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
3.	**Specific Requirements for Flight Inspection**				
	General				
3.1	Has the applicant adequately defined his capabilities to use appropriate and contemporary inspection techniques to accurately measure signals in space from navigation aids they are seeking approval to inspect?	☐	☐	☐	8.2.3.4.1.a §173.D.I.(c)
3.2	If the applicant is using fully automated systems, is the applicant able to demonstrate how they would meet accuracy requirements?	☐	☐	☐	8.2.3.4.1.a §173.D.I.(c)
	Evidence / Inspector Comments				
3.3	Has the ATEL that will engage the flight inspection service provider submitted this application, or has that ATEL provided evidence that they support the application by this flight inspection service provider?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(a)
3.4	Is the applicant proposing to use an aircraft or system which is new in concept or not in common use for flight inspection? • Yes – go to next question • No – go to 3.10	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)
3.5	If a new aircraft or system is proposed, has the applicant provided evidence of a demonstrable history of flight inspection?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)
	Evidence / Inspector Comments				
3.6	Have you (SS&AT inspector) or a certification team member contacted other Civil Aviation Authorities to discuss the new aircraft or systems?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)
	Evidence / Inspector Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
3.7	Is a demonstration of position fixing accuracy required?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)(1)
	Evidence / Inspector Comments				
	Acceptable ☐	*Not Acceptable* ☐			
3.8	Is a demonstration of overall system performance required?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)(2)
	Evidence / Inspector Comments				
	Acceptable ☐	*Not Acceptable* ☐			
3.9	Is the new aircraft or new system acceptable?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(b)
	Evidence / Inspector Comments				
3.10	Has the applicant provided a 'build state document of the measuring equipment, a complete and formalized list of the current issues of all relevant documentation and a manual describing the entire operation?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(c)
3.11	Is the applicant proposing to make any changes to a flight inspection system or method of operation?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(c)
3.12	Is the applicant seeking approval to conduct inspections of ILS? • If YES go to next question • If NO go to Question 3.15	☐	☐	☐	8.2.3.4.1.b §173.D.II.(d)
3.13	Is the applicant seeking approval for inspection of Category II or Category III ILS systems? • If YES go to next question • If NO go to Question 3.15	☐	☐	☐	8.2.3.4.1.b §173.D.II.(d)
3.14	Has the applicant provided evidence of his capability to conduct inspections of Category II and/or Category III ILS Systems?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(d)
	Evidence / Inspector Comments				
	Acceptable ☐	*Not Acceptable* ☐			

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
3.15	Is a practical demonstration of ability indicated or required?	☐	☐	☐	8.2.3.4.1.b §173.D.II.(e)
	Evidence / Inspector Comments				
	Organisation and Quality				
3.16	Has the applicant provided evidence of organisational competence?	☐	☐	☐	8.2.3.4.1.c §173.D.III
3.17	Has the applicant provided evidence of previous experience in flight inspection, management of equipment, business organisation, recruitment, training and maintenance of staff, or other arrangements considered necessary to ensure the organisation can provide a consistent quality of service?	☐	☐	☐	8.2.3.4.1.c §173.D.III
3.18	Has the applicant provided copies of previous inspection reports / results (relating to other ATEL providers) to demonstrate competence?	☐	☐	☐	8.2.3.4.1.c §173.D.III
	Evidence / Inspector Comments				
	Operations Manual				
3.19	Has the applicant submitted a manual detailing the overall flight inspection service provider and its intended operation? *(specific questions relating to the Manual follow below)*	☐	☐	☐	8.2.3.4.1.d §173.D.IV
3.20	Does the submitted Manual contain a scope of flight inspection tasks?	☐	☐	☐	8.2.3.4.1.d §173.D.V(a)
3.21	Does the submitted Manual contain a list of the types of navigational aids to be inspected? *(For ILS the organisation must state the categories of ILS to calibrate.)*	☐	☐	☐	8.2.3.4.1.d §173.D.V(b)
3.22	Does the submitted Manual contain the organisational chart & technical details?	☐	☐	☐	8.2.3.4.1.d §173.D.V(c)
3.23	Does the submitted Manual contain details of personnel responsibilities, terms of reference and authority to act?	☐	☐	☐	8.2.3.4.1.d §173.D.V(d)
3.24	Does the submitted Manual contain procedures for notifying of major organisational changes?	☐	☐	☐	8.2.3.4.1.d §173.D.V(e)
3.25	Does the submitted Manual contain procedures for notifying the President of the latest state of the flight inspection program?	☐	☐	☐	8.2.3.4.1.d §173.D.V(f)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
3.26	Does the submitted Manual contain procedures for notifying the aeronautical telecommunication service provider of proposed equipment changes and modifications or change of aircraft type?	☐	☐	☐	8.2.3.4.1.d §173.D.V(g)
3.27	Does the submitted Manual contain details of the aircraft which the organisation wishes to use for flight inspection?	☐	☐	☐	8.2.3.4.1.d §173.D.V(h)
3.28	Does the submitted Manual contain a functional description, technical specification and manufacturer's type number for all major items of the flight inspection system, including details of the equipment used for calibrating the system?	☐	☐	☐	8.2.3.4.1.d §173.D.V(i)
3.29	Does the submitted Manual contain information about the location, characteristic and type of all measurement aerials on the aircraft?	☐	☐	☐	8.2.3.4.1.d §173.D.V(j)
3.30	Does the submitted Manual contain a technical description of any parts of the system which the applicant has designed or built?	☐	☐	☐	8.2.3.4.1.d §173.D.V(k)
3.31	Does the submitted Manual contain information about the design authority for all equipment?	☐	☐	☐	8.2.3.4.1.d §173.D.V(l)
3.32	Does the submitted Manual contain procedures for inspection of equipment?	☐	☐	☐	8.2.3.4.1.d §173.D.V(m)
3.33	Does the submitted Manual contain details of all uses of software and firmware in the measurement system, and also details of software and firmware support?	☐	☐	☐	8.2.3.4.1.d §173.D.V(n)
3.34	Does the submitted Manual contain details of a log or record system for faults and maintenance of the measuring system?	☐	☐	☐	8.2.3.4.1.d §173.D.V(o)
3.35	Does the submitted Manual contain details of documentation control including a list of documents held and produced?	☐	☐	☐	8.2.3.4.1.d §173.D.V(p)
3.36	Does the submitted manual provide details of initial and recurrent training and checking requirements and programs for flight inspection personnel?				8.2.3.4.1.d §173.D.V(q)
3.37	Does the submitted Manual contain details of any internal and external auditing system e.g. auditing of the organisation by any other organisation not associated with the production of inspection results?	☐	☐	☐	8.2.3.4.1.d §173.D.V(r)
3.38	Does the submitted Manual contain details of the quality management system?	☐	☐	☐	8.2.3.4.1.d §173.D.V(s)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
3.39	Does the submitted Manual contain details of any formal or implicit approvals which the organisation has received from other foreign civil aviation authorities including a list of any navigation aids which the organisation regularly inspects under such a formal or implicit approval? This will include: • Type of navigation aid. • Location of navigation aid. • Category of navigation aid (if applicable).	☐	☐	☐	8.2.3.4.1.d §173.D.V(t)
3.40	Does the submitted Manual contain flight inspection operating instructions for the inspector and flight crew?	☐	☐	☐	8.2.3.4.1.d §173.D.V(u)
3.41	Does the submitted Manual contain a typical or test flight inspection report?	☐	☐	☐	8.2.3.4.1.d §173.D.V(v)
3.42	Does the submitted Manual contain a typical or test sample structure measurement for those navigational aids where structure measurements form part of a normal flight inspection?	☐	☐	☐	8.2.3.4.1.d §173.D.V(w)
3.43	Does the submitted Manual contain a statement showing to 95% confidence, the measurement uncertainty which the organisation claims to achieve for each of the measurable parameters?	☐	☐	☐	8.2.3.4.1.d §173.D.V(x)
3.44	Does the submitted Manual contain details of statistical methods or interpolative techniques which may be applied?	☐	☐	☐	8.2.3.4.1.d §173.D.V(y)
3.45	Does the submitted Manual contain details of any operating certificates held in respect of aircraft operations?	☐	☐	☐	8.2.3.4.1.d §173.D.V(z)
3.46	Does the submitted Manual contain details of any operating certificates held in respect of aircraft operations?	☐	☐	☐	8.2.3.4.1.d §173.D.V(aa)
3.47	Does the submitted Manual contain a statement of compliance with the flight inspection requirements of Part 173 Appendix D?	☐	☐	☐	8.2.3.4.1.d §173.D.V(bb)
3.50	Does the submitted Manual contain additional relevant information? If so, list or comment below.	☐	☐	☐	8.2.3.4.1.d §173.D.V
	Evidence / Inspector Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
	Provider's Aircraft				
3.51	Has the applicant provided evidence that the aircraft to be used will be appropriate for the purpose of flight inspection and will be operated in a way which ensures accurate measurement of all parameters?	☐	☐	☐	8.2.3.4.1.e §173.D.VI(a)
3.52	Has the applicant provided evidence that the aircraft to be used will be a multi-engine type capable of safe flight within the intended operational envelope with one engine inoperative, fully equipped and instrumented for night and instrument flight?	☐	☐	☐	8.2.3.4.1.e §173.D.VI(b)
3.53	Has the applicant provided evidence that the aircraft to be used will be managed by two flying crew members?	☐	☐	☐	8.2.3.4.1.e §173.D.VI(c)
3.54	Has the applicant provided evidence that a cross-wind limit will be set which will allow measurement accuracies to be within the limits required? *(This limit must be shown in the operating instructions)*	☐	☐	☐	8.2.3.4.1.e §173.D.VI(d)
3.55	Has the applicant provided evidence that the aircraft to be used will have a stable electrical system with sufficient capacity to operate the additional electronic and recording equipment?	☐	☐	☐	8.2.3.4.1.e §173.D.VI(e)
3.56	Has the applicant provided evidence that measures will be / have been taken to reduce propeller modulation to an acceptably low level?	☐	☐	☐	8.2.3.4.1.e §173.D.VI(f)
	Evidence / Inspector Comments				
	Inspection or calibration equipment				
3.57	Has the applicant provided evidence that the equipment fitted in the aircraft is be capable of measuring all the parameters for a navigation aid as specified in Annex 10 to the Convention on Civil Aviation and any other specific requirements of GACAR Part 173?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
3.58	Has the applicant provided evidence that the navigation aid measuring equipment will not interfere with the operation or accuracy of the aircraft's normal navigation and general avionics equipment?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(b)
3.59	Has the applicant provided evidence that the flight inspection measurements will be adequately protected against the prevailing Electro Magnetic environment effects internal or external to the aircraft? *(Abnormal interference effects must be clearly identified on the inspection results)*	☐	☐	☐	8.2.3.4.1.f §173.D.VII(c)
3.60	Has the applicant provided evidence that the inspection system will have the facility for listening to the identity modulation of the navigation aid being inspected?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(d)
3.61	Has the applicant provided evidence that the flight inspection system will include equipment which can determine and record the aircraft's position in space relative to a fixed reference point? *(The uncertainty of measurement must be commensurate with the parameter being inspected)*	☐	☐	☐	8.2.3.4.1.f §173.D.VII(e)
3.62	Has the applicant provided evidence that the flight inspection system will include equipment which can record the measured parameters of the navigation aid being inspected?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(f)
3.63	Has the applicant provided evidence that all recordings will be marked so that they can be correlated with the aircraft's position at the time of the measurement?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(g)
3.64	Has the applicant provided evidence that aerials will be positioned in such a manner that they are not obscured from the signal during any normal inspection flight profiles?	☐	☐	☐	8.2.3.4.1.f §173.D.VII(h)
3.65	Has the applicant provided evidence that the aerials to be used for tracked structure measurements will be positioned with due regard to the tracking reference on the aircraft? *(If the aerials and the reference are not in close proximity, this error must be addressed in the measurement uncertainty calculations and in setting the operational crosswind limit. Alternatively, the errors may be corrected using information from the aircraft's attitude sensors and data concerning movement of the aerial's phase center)*	☐	☐	☐	8.2.3.4.1.f §173.D.VII(i)
	Evidence / Inspector Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Method of determining measurement uncertainty				
3.66	Has the applicant provided evidence that the measurement uncertainty for any parameter will be small compared with the operational limits for that parameter?	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(a)
3.67	Has the applicant provided evidence that the measurement uncertainty to 95% probability will be calculated for each of the parameters to be measured? *(The method of calculation and any assumptions made must be clearly shown)*	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(b)
3.68	Reserved	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(c)
3.69	Has the applicant provided evidence that for measurements which can only be derived from recordings, the accuracy and resolution of the recording equipment will be included in calculating the expected measurement uncertainty?	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(d)
3.70	Has the applicant provided evidence that when modifications are made which will affect the uncertainty of measurement of any parameter, new calculations will be submitted?	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(e)
3.71	Has the applicant provided evidence that the uncertainties stated in question 3.70 above will be maintained under the specified environmental conditions for a flight inspection procedure? *(The operator must define the environmental conditions (temperature range, humidity range, etc.))*	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(f)
3.72	Has the applicant provided evidence that details of measurement uncertainty with respect to temperature will be available for all the measuring equipment? *(This may be in the form of test results made by the operator, or manufacturer's specifications. If manufacturer's specifications are quoted, the flight inspection service provider must be prepared to produce manufacturer's test results as evidence)*	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(g)
3.73	Has the applicant provided evidence that if the measuring equipment requires any warm-up or cooling time, this will be clearly indicated in the operating instructions?	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(h)
3.74	Has the applicant provided evidence that the accuracy of marking will be commensurate with the accuracy required in the final figure? *(Specific requirements are given in ICAO Annex 10 and the appropriate sections of Part 173)*	☐	☐	☐	8.2.3.4.1.g §173.D.VIII(i)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Evidence / Inspector Comments				
	Inspection or calibration of inspection equipment				
3.75	Has the applicant provided evidence that all measuring equipment used for flight inspection will be calibrated to appropriate defined standards?	☐	☐	☐	8.2.3.4.1.h §173.D.IX(a)
3.76	Has the applicant provided evidence that clearly defined inspection procedures will be applied to all equipment involved in the measurement of parameters in the appropriate annex to Part 173? *(All equipment and standards used in the inspection process must have traceability to KSA or international standards)*	☐	☐	☐	8.2.3.4.1.h §173.D.IX(b)
3.77	Has the applicant provided evidence that when any equipment used is claimed to be self-calibrating, the internal processes involved will be clearly defined? *(This involves showing how the equipment's internal standard is applied to each of the parameters which it can measure or generate. The internal standard must have traceability to KSA or international standard)*	☐	☐	☐	8.2.3.4.1.h §173.D.IX(c)
3.78	Has the applicant provided evidence that details of inspection intervals required will be contained in the inspection records? *(The flight inspection service provider must be prepared to produce evidence in support of the quoted inspection intervals)*	☐	☐	☐	8.2.3.4.1.h §173.D.IX(d)
	Evidence / Inspector Comments				
	Operating Instructions				
3.79	Has the applicant provided evidence that their operating instructions will ensure that all measurements are made to defined and documented procedures?	☐	☐	☐	8.2.3.4.1.i §173.D.X(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/G4CAR*
3.80	Has the applicant provided evidence that the operating instructions will include concise details of factors including: • The flight profile to be used for each individual measurement; • Pre-flight inspection of measuring equipment; • Siting of any necessary ground tracking or position fixing equipment. • Scheduled maintenance and inspection of the measuring equipment. • Operation of the measuring equipment; • Production of the flight inspection report; • Certification; and • The method of calculating any results which are not directly output by the measuring equipment.	☐	☐	☐	8.2.3.4.1.i §173.D.X(b)
	Evidence / Inspector Comments				
	Training and Qualification				
3.81	Has the applicant provided evidence that all personnel concerned with the flight inspection within the ATEL provider will be / are adequately trained and qualified for their job functions? *(Note: The inspector must obtain such evidence either directly from the flight inspection service provider, or the ATEL to which the flight inspection service provider is contracted)*	☐	☐	☐	8.2.3.4.1.j §173.D.XI(a)
3.82	Has the applicant provided evidence that all personnel concerned with the flight inspection *(within the flight inspection organisation)* will be / are adequately trained and qualified for their job functions?	☐	☐	☐	8.2.3.4.1.j §173.D.XI(b)
3.83	Has the applicant provided evidence that they will have a procedure for ensuring the competence of their personnel? *(This procedure must have provision for regular assessment of competence)*	☐	☐	☐	8.2.3.4.1.j §173.D.XI(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
3.84	Has the applicant provided evidence that for the inspection of precision approach aids, the flight crew's familiarity with each location to be inspected is considered to be of particular importance? *(The flight inspection service provider's procedures and instructions must include details of training and familiarization which will apply to the flight crew)*	☐	☐	☐	8.2.3.4.1.j §173.D.XI(d)
	Evidence / Inspector Comments				
	Flight inspection reports				
3.85	Has the applicant provided evidence that he flight inspection report will clearly and accurately document the measured performance of a navigational aid.	☐	☐	☐	8.2.3.4.1.k §173.D.XII(a)
3.86	Has the applicant provided evidence that all flight inspection results will be documented to a report format acceptable to the President and will contain, as a minimum: 1. Station name and facility designation. 2. Category of operation. 3. Date of inspection. 4. Serial number of report. 5. Type of inspection. 6. Aircraft registration. 7. Manufacturer and type of system being inspected. 8. Wind conditions. 9. Names and functions of all personnel involved in the inspection. 10. Results of all measurements made. 11. Method of making each measurement (where alternatives are available). These may be referenced to the operating instructions. 12. Details of associated attachments (recordings, etc.). 13. Details of extra flights made necessary by system adjustments. 14. An assessment by the aircraft captain of the navigational aid's performance. 15. Comments by the navigation aid inspector/equipment operator. 16. Details of any immediately notifiable deficiencies. 17. Statement of conformance/non-conformance. 18. Navigation aid inspector's signature. 19. Pilot's signature. 20. Signature of the individual who is legally responsible (if different from (18) or (19)). *(Note: An applicant may propose an alternative format (e.g., as a result of automated formatting requirements) if it can be demonstrated that it will achieve the same outcome)*	☐	☐	☐	8.2.3.4.1.k §173.D.XII(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Evidence / Inspector Comments				
	Use of records or graphs				
3.87	Has the applicant provided evidence that records and graphs will be produced in a manner which ensures that system parameters may accurately be deduced from them?	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(a)
3.88	Has the applicant provided evidence that if recordings or graphs are used to derive figures for the inspection report, the scales will be commensurate with the permitted measurement uncertainty limits? *(Note: If the recordings or graphs are only used to show that results are within designated tolerances, they may be presented on a reduced scale)*	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(b)
3.89	Has the applicant provided evidence that the data from which these recordings and graphs are made will be stored with sufficient accuracy that expanded scale plots can be provided on demand?	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(c)
3.90	Has the applicant provided evidence that for flights where parameters are evaluated by comparison of the received signal and the output of a tracking device, only the final result need be presented for a normal inspection unless other data has been requested by the ATEL service provider? *(Note: Position data and raw signal data must be recorded or stored and provided on demand)*	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(d)
3.91	Has the applicant provided evidence that the minimum identification on each record and graph will be: 1. Serial number. 2. Date. 3. Description of type of flight. 4. Name of airport. 5. Designation of facility being inspected?	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(e)
3.92	Has the applicant provided details of the arrangements to be made for archiving data from flight inspection results?	☐	☐	☐	8.2.3.4.1.1 §173.D.XIII(f)
	Evidence / Inspector Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
4.	**Specific Requirements for Flight Validation of Instrument Flight Procedures** *(see also Section 8.6.8 – text and checklist)*				
	Specific Requirements				
4.1	Has the applicant established and provided evidence of procedures that include the use of equipment that: 1. Has the precision, and accuracy traceable to appropriate standards, that are necessary for the validation being performed; 2. Has known measurement uncertainties including, but not limited to, the software, firmware and crosswind uncertainties; 3. Records the actual flight path of the validation aircraft; 4. Is checked before being released for use, and at intervals not exceeding the calibration intervals recommended by the manufacturer, to establish that the system is capable of verifying the integrity of the IFP; and 5. Is operated in accordance with flight validation system procedures and criteria by persons who are competent and current on the system used?	☐	☐	☐	8.2.3.5.2.a §172.57(a)
4.2	Has the applicant established and provided evidence of procedures that when a flight validation is conducted the following elements will be evaluated: 1. All segments of the IFP must be flown; 2. In the case of SIDs and PDRs, all segments of the procedure from the departure end of the runway (DER) to joining the en-route structure or termination point must be flown; and 3. In the case of IAPs all segments of the procedure from the Arrival/ Initial Fix through to the end of the Missed Approach must be flown. 4. Flight validation of the visual maneuvering area must also be carried out?	☐	☐	☐	8.2.3.5.2.a §172.57(d)
4.3	Has the applicant established and provided evidence of procedures that, in the case of RNAV IFP validation, a test database produced by an appropriate navigation data-coding provider for use in the RNAV system will be used?	☐	☐	☐	8.2.3.5.2.a §172.57(f)
4.4	Has the applicant established and provided evidence of procedures that, in the case of RNAV (GNSS) IAPs of a T- or Y- bar design, for manual entry of the procedure into the RNAV system? *(This should include procedures for the validating pilot to manually activate the Course Deviation Indicator (CDI) scaling changes during the different phases of the flight)*	☐	☐	☐	8.2.3.5.2.a §172.57(g)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
4.5	Has the applicant established and provided evidence of procedures allowing the IFP designer to participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure's design from the flight validation pilot?	☐	☐	☐	8.2.3.5.2.a §172.57(i)
	Evidence / Inspector Comments				
	Requirements relating to Flight Validation Crew				
4.6	Has the applicant provided evidence that flight validations will be performed by qualified and experienced flight validation pilots, in accordance with the qualifications and experience requirements of Part 172 Appendix B? *(refer also questions 4.13 – 4.16)*	☐	☐	☐	8.2.3.5.2.b §172.59(a)
4.7	Has the applicant established and provided evidence of procedures requiring that if a pilot is used in an observer role, that pilot has successfully completed an ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, for the design and validation of IFP? *(Note: The training course can be the abbreviated PANS-OPS training for validation pilots course offered by some training institutions)*	☐	☐	☐	8.2.3.5.2.b §172.59(b)
4.8	Has the applicant established procedures and provided evidence that where the procedure to be flight validated is an RNAV (GNSS) IFP of a T- or Y- bar design and is to be manually loaded into the RNAV system, the flight validation pilot will ensure that the observer is fully competent in the use of the RNAV system to be used for the flight?	☐	☐	☐	8.2.3.5.2.b §172.59(c)
	Evidence / Inspector Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Requirements relating to Flight Validation Aircraft				
4.9	Does the aircraft to be used for flight validation of IFPs have the performance capabilities appropriate to the categories for which the IFPs have been designed?	☐	☐	☐	8.2.3.5.2.c §172.61
	Evidence / Inspector Comments				
	Requirements relating to Meteorological Conditions during Flight Validation				
4.10	Has the applicant established procedures and provided evidence that any flight validation activities will only be carried out during daylight hours and in visual meteorological conditions (VMC), which allow the flight to be carried out with a flight visibility of not less than 8KM, and in sight of the surface throughout the flight validation of the procedure?	☐	☐	☐	8.2.3.5.2.d §172.63
	Evidence / Inspector Comments				
	Requirements relating to Validation of the Navigation Database				
4.11	Has the applicant provided evidence that they have established procedures for navigation database validation, procedure coding and management of NOTAM action relating to delayed database validation?	☐	☐	☐	8.2.3.5.2.e §172.65
	Evidence / Inspector Comments				
	Requirements relating to Validation Reports				
4.12	Has the applicant provided evidence that they have established procedures for completing validation reports relating to flight validation and/or navigation database validation?	☐	☐	☐	8.2.3.5.2.f §172.67

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Evidence / Inspector Comments				
	Requirements relating to Flight Validation Pilots				
4.13	Does each IFP flight validation pilot hold an airline transport pilot certificate issued in accordance with GACAR Part 61 or otherwise acceptable to the President?	☐	☐	☐	8.2.3.5.2.g §172.B.a
4.14	Has each IFP validation pilot completed: 1. An ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, for the design and validation of instrument flight procedures; 2. A flight validation course conducted by GACA or an organisation acceptable to the President and possess a letter of competency issued by President certifying competence to conduct flight validations; and 3. A course in aerodrome lighting and visual approach slope guidance systems conducted by GACA or an organisation acceptable to the President and possess a letter of competency issued by President certifying competence to conduct aerodrome lighting inspections?	☐	☐	☐	8.2.3.5.2.g §172.B.b
4.15	Does each IFP validation pilot have the following experience: 1. At least 2 years' experience in the flight validations of IFP; and 2. Completed an IFP flight validation flight within the previous year.	☐	☐	☐	8.2.3.5.2.g §172.B.c
4.16	**For Validation of Rotorcraft IFPs Only** Does the applicant meet the requirement that rotorcraft IFP procedures must be flight validated by pilots who, in addition to the qualifications in Part 173 Appendix B (a-c), are certificated in the rotorcraft category and helicopter class rating and are familiar with rotorcraft procedure design and operations? *(Should the validation pilot not be qualified as pilot-in-command of a helicopter (or other type of aircraft) to be used for a validation flight, another qualified pilot may be assigned to be the pilot in command (PIC) provided the validation pilot occupies either a control seat or a seat in close proximity to the PIC, and directs the conduct of the validation)*	☐	☐	☐	8.2.3.5.2.g §172.B.d
	Evidence / Inspector Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
	General Comments *(Insert below any general comments regarding the submission, required actions, etc.)*				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

Appendix B

Flight Inspection Service Provider

Audit Checklist

FLIGHT INSPECTION SERVICE PROVIDER AUDIT
AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This audit has been completed against the requirements of GACAR Part 173 and where applicable GACAR Part 172.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
		☐	☐	☐	
	Evidence / Inspector Comments				
		☐	☐	☐	
	Evidence / Inspector Comments				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 2. AIR TRAFFIC SERVICE PROVIDERS

Section 4. Evaluation of Flight Inspection and Calibration Reports

8.2.4.1 General Information

8.2.4.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 2. AIR TRAFFIC SERVICE PROVIDERS

Section 5. Reserved

8.2.5.1 Reserved

8.2.5.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 3. AERONAUTICAL INFORMATION SERVICE PROVIDERS

Section 2. Regulatory Oversight of Aeronautical Information Service Providers

8.3.2.1 General Information

8.3.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Aeronautical Information Service (AIS) Providers after they have been certified. The audits may also be applied in the re-certification of AIS service providers at or near expiry of their certification period.

8.3.2.1.2 The main reference document for audits of ANS providers including Aeronautical Information Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.3.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.3.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.3.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of AIS. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.3.2.1.6 The reason for this is that in order to obtain certification, the AIS Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.3.2.1.7 In order to retain their certification, the AIS Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.3.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance without looking at every part of the AIS organisation.

8.3.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.3.2.2 Audit Checklist

8.3.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.3.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A to eBOOK chapter 3 - Section 2

AISP Audit Checklist

(Including AIS & QMS manuals checklist)

This audit checklist may be used for issue, renew and amendment of AIS Providers certificate as well as for Regulatory oversight and On-site Demonstration & Inspection

AERONAUTICAL INFORMATION SERVICES PROVIDER

(PART 175) ASSESSMENT

CHECKLIST

ORGANISATION	Add full name of the organization and AISP
DATE OF ASSESSMENT	dd/mm/yyyy
ASSESSMENT REFERENCE NUMBER	nnn/yyyy

This assessment has been completed against the requirements of GACAR Part 170 and Part 175.

(Select ():

Issue of certificate Renew of certificate Amendment of certificate

Regulatory oversight On-site Demonstration & Inspection

	Name	Signature	Date
Compliance Assessment Completed			
Technical Assessment Completed			

Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

#	Audit Questionnaire	Reply/Comments /Evidence provided by the Organization	Status of implementation	Reference *TGM/GACAR*
1.				
1.1	?		Satisfactory Not satisfactory Not applicable	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 3. AERONAUTICAL INFORMATION SERVICE PROVIDERS

Section 3. Terrain and Obstacle Data Management

8.3.3.1 Purpose

This section describes the aerodrome/heliport and obstacle survey requirements and provides guidance and information for Aerodrome/Heliport Operators and Aeronautical Surveyors.

Inspector Guidance:

There are two purposes of this section. The first is to allow the inspector to ensure that Aeronautical surveyors and providers of eTOD and surveyed aeronautical data meets all requirements to be accepted by the GACA President. The second is to provide guidance describing the aerodrome/heliport and obstacle survey requirements.

8.3.3.2 Scope

Aeronautical surveyors as an integral part of Aeronautical Information Management (AIM) are involved in the aeronautical data chain; therefore, the integrity of aeronautical data must be maintained throughout the data chain. It's essential that data provided by the aeronautical surveyors must be at the required level of quality. This section covers guidance for:

(a) Acceptance of surveyors.

(b) Information and survey areas.

(c) Survey procedures and requirements.

(d) Quality Assurance and deliverable presentation.

(e) Specifications for terrain & obstacle data surveys.

(f) Aerodrome/heliport obstacle charts and plan.

8.3.3.2 Applicability

This section is applicable to all aeronautical surveyors and providers of electronic Terrain and Obstacle Data (eTOD) for Areas 1, 2, 3 and 4 to be accepted by GACA President as well as to all operators of Certificated Aerodromes/Heliports. This section applies up to the moment when the aeronautical data and/or information are made available by the aeronautical survey service providers to the next intended user.

This section establishes the requirements to be met for conducting the following surveying activities:

(a) Obstacle Limitation Surfaces Surveys.

(b) Electronic Terrain and Obstacle Data (eTOD) Surveys.

(c) Aerodrome/Helicopter Plan Surveys.

(d) Aerodrome Obstacles Chart Type A Surveys.

(e) Precision Approach Terrain Chart Surveys.

(f) Visual Approach chart Surveys. and

(g) Any other type of survey required in the aviation industry within the KSA.

8.3.3.3 Related Regulatory Provisions

This section should be read in the context of the following provisions:

(a) GACAR Part 175 – Aeronautical Information Services.

(b) GACAR Part 139 – Certification and operations aerodromes.

(c) ICAO Doc 10066 – Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM).

(d) ICAO Doc 8126 – Aeronautical Information Services Manual.

(e) ICAO Doc 8697 – Aeronautical chart Manual.

(f) ICAO Doc 9675 – World Geodetic System – 1984 (WGS-84) Manual.

(g) ICAO Doc 8168 – Aircraft Operations – Volume II – Construction of Visual and Instrument Flight Procedures.

(h) ICAO Doc 9137 – Airport Services Manual, Part 6

8.3.3.3.1Related Reading Material

The following documents provide additional material related to the provision of AIS:

(a) GACAR Part 1 – Definitions Abbreviations and Editorial Conventions.

(b) GACAR Part 2 – Units of measurement to be used in air and ground operations.

(c) GACAR Part 5 – Safety Management Systems.

(d) GACAR Part 170 – Certification - Air Navigation Service Providers.

(e) ICAO Doc 9859 – Safety Management Manual.

(f) ICAO Doc 8400 – Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC).

(g) ICAO Doc 9855 – Guidelines on the Use of the Public Internet for Aeronautical Applications.

8.3.3.3.2 Terminology

(a) Requirements using the operative verb “must” are mandatory.

(b) Requirements using the operative verb “should” are recommended.

(c) Requirements using the operative verb “may” are optional.

8.3.3.4 Acceptance of aeronautical surveyors

8.3.3.4.1 Introduction

(a) GACAR Part §175.135 is stating that ‘Surveyors and providers of electronic terrain and obstacle data for Areas 1, 2, 3 and 4 must be accepted by the President’.

(b) In this section, the term “Aeronautical Surveyors” will be used for “Aerodrome/Heliport Surveyors and providers of electronic terrain and obstacle data (eTOD) for Areas 1, 2, 3, 4; obstacle and terrain data sets; obstacle and terrain in Take-off Flight Path Area and penetration of aerodrome/heliport Obstacle Limitation Surfaces (OLS)”.

(c) The field survey staffs, and project managers must be competent in ICAO aerodrome/heliport and eTOD surveying techniques and experienced at working in an operational aerodrome environment.

(d) Aeronautical Surveyors must apply for acceptance in the form and manner established by the president.

8.3.3.4.2 Application for acceptance

8.3.3.4.2.1 Applicants must submit a formal request for acceptance to GACA President through the project holder using the application form in appendix A of this section and must provide the following documentations but not limited to:

(a) Operations and survey Manuals.

(b) Methodology of survey and list of equipment.

(c) Accreditation to an ISO standard or operate an equivalent quality control system. The requirements for

quality assurance, aeronautical data processing procedures, deliverables and basic reporting format structure are provided in ICAO Doc 9675 – WGS-84 Manual.

(d) Details of management personnel and designation of 'Accountable Executive'.

(e) List of professionally qualified surveyors.

(f) Designation of 'Project Managers' to oversee the survey.

(g) Curriculum Vitae (CV) of all personnel involved in the survey.

(h) Declaration signed by the Accountable Executive for ensuring compliance of requirements given in GACAR and having good understanding and knowledge of GACA Regulations, ICAO Annexes 15, 4, 14 and all GACA and ICAO requirements pertaining to aeronautical and eTOD surveys.

(i) Evidence of competency to prepare aeronautical charts as specified in GACAR Part 175 and relevant ICAO documents.

(j) Professional indemnity cover.

8.3.3.4.3 Acceptance

8.3.3.4.3.1 If GACA President accepts the appointment of Accountable Executive and Aeronautical Surveyors, the applicant will be advised in writing and the Aeronautical Surveyor will be issued a notice of acceptance of appointment through the project holder. The notice of acceptance will contain:

(a) The name of the person accepted by the President as Aeronautical Surveyor.

(b) Any conditions that the President may impose.

8.3.3.4.3.2 The acceptance is not transferable and is valid only for a specific project.

8.3.3.4.3.3 The acceptance will remain valid unless withdrawn by GACA President or an organization ceases to occupy the function of aeronautical surveyor or the specific project is terminated.

8.3.3.4.4 Rejection of Application

8.3.3.4.4.1 GACA President will notify the applicant in writing through the project holder if an appointment is not accepted. The Notification letter will state the qualification, experience, or knowledge areas that have been assessed as unsatisfactory.

8.3.3.4.4.2 An unsuccessful applicant may re-apply if additional evidence can be provided to rectify any deficiency in the original application.

8.3.3.4.5 Assessment criteria

QUALIFICATIONS	
Criteria	Requirement
Basic qualification	Professionally qualified as surveyor.
Advanced training	Evidence of advanced training must be provided. It is expected that aeronautical surveyor team has completed several advanced or refresher courses after gaining the initial qualification. Details of attendance and participation in relevant conferences including papers presented etc. should be included. The major areas of an aeronautical survey are: (a)aeronautical survey process (b)geodetic datum and geodetic control (c)runway surveying (d)navigational-aid surveying (e)obstacles and eTOD surveying (f)data management and reporting specifications
Data processing software	Evidence of familiarity and operation with survey instrument and data processing software must be provided.
RELEVANT EXPERIENCE	
Criteria	Requirement
Aeronautical survey	Details of the aeronautical surveyor’s experience in aeronautical survey domain.
Collecting aeronautical data and airport survey	Details of the aeronautical surveyor’s experience in collecting aeronautical data, maintaining data sets and databases, airport features, obstacles, terrain, obstructions and navigational aids.
Aeronautical charts	Details of the aeronautical surveyor’s experience in producing of relevant aeronautical charts as per ICAO requirements of obstacles and terrain.
Concept and solution in aeronautical survey	Details of the aeronautical surveyor’s experience in providing concept and solution development in the domain of obstacle survey should be detailed.

Supervision & Management	Aeronautical surveyor project manager must demonstrate experience in a supervisory role and/or equivalent supervisory or management experience in a related industry. It's expected that the Aeronautical surveyor project managers will be able to demonstrate: (a)their capability for supervision and management. (b)how they intend to ensure the organization's ongoing operational compliance with GACA Regulations and ICAO requirements. (c)how they intend to ensure they retain enough resources to maintain survey process effectiveness and full safety compliance with ICAO requirements. (d)how they ensure the efficiency of the survey project progress.
KNOWLEDGE (the following criteria will normally be assessed during the evaluation of aeronautical surveyor's team)	
Criteria	Requirement
Regulatory requirements	(a)Knowledge of the regulatory requirements applicable to civil aviation in Saudi Arabia and in respect of aeronautical information services, aerodromes/heliports and its environs, obstacle limitation surfaces, eTOD areas, PANS-OPS surfaces, navigational facilities, obstacle charts, etc. (b)The aeronautical surveyor must demonstrate a thorough knowledge of relevant GACA Regulations, ICAO requirements on accuracies, integrity, WGS-84, data collection quality, etc.

AIS/AIM	Detailed knowledge in the principles and practice of aeronautical information services with the rules contained in ICAO Annexes 15 and 4 and ICAO Docs 10066, 8126 and 8697 is required including: (a)Terrain and obstacle data sets. (b)Aerodrome mapping data sets. (c)Terrain and obstacle data requirements. (d)Terrain and obstacle attributes provision requirements. (e)Electronic terrain and obstacle data pertaining to Areas 1, 2, 3 and 4. (f)Aerodrome Obstacle Chart — ICAO Type A. (g)Aerodrome Obstacle Chart — ICAO Type B. (h)Aerodrome Terrain and Obstacle Chart — ICAO. (i)Terrain and obstacle data collection surface. (j)Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media. (k)Take-off flight path areas.
Navigation Systems	The Aeronautical surveyor must demonstrate a thorough understanding of the principles of operation of relevant ground and space-based navigation systems.

Surveying procedures.	The Aeronautical surveyor must demonstrate detailed knowledge of all surveying procedures including: (a)Data management, workflow & control (b)Quality checks and verification (c)Record keeping (d)QMS requirements (e)Automation tools requirements (f)Publishing and standards (g)Regulatory requirements
Responsibilities as Aeronautical surveyor	The Aeronautical surveyor must have a thorough understanding of his responsibilities in the provision of data.

8.3.3.4.6 Assessment checklist

AERONAUTICAL SURVEYOR ASSESSMENT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial acceptance or amendment of acceptance has been completed.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Assessment Completed			
Interview Assessment Completed (if required)			
Overall Assessment Completed			
If Assessment Satisfactory			
Recommended for Acceptance			

Audit Questionnaire	**Yes**	**No**	**N/A**	**Reference** *TGM/GACAR*
	1-General Requirements			

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.1	Does the application submit a formal request?	☐	☐	☐	eBOOK 8.3.3
1.2	Application for acceptance: Does the application provide the following in attachment to his request for acceptance as aeronautical surveyor?				eBOOK 8.3.3
	(a)Operations and survey Manuals;	☐	☐	☐	
	(b)Methodology of survey and list of equipment;	☐	☐	☐	
	(c)Accreditation to an ISO standard or operate an equivalent quality control system. The requirements for quality assurance, aeronautical data processing procedures, deliverables and basic reporting format structure are provided in ICAO Doc 9675 – WGS-84 Manual;	☐	☐	☐	
	(d)Details of management personnel and designation of 'Accountable Executive';	☐	☐	☐	
	(e)List of professionally qualified surveyors;	☐	☐	☐	
	(f)Designation of 'Project Managers' to oversee the survey;	☐	☐	☐	

Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
(g)Curriculum Vitae of all personnel involved in the survey. The field survey staffs, and project managers must be competent in ICAO aerodrome and eTOD surveying techniques and experienced at working in an operational aerodrome/heliport environment;	☐	☐	☐	
(h)Declaration signed by the Accountable Executive of understanding and knowledge of concerning GACA Regulations, ICAO Annexes 15, 4, 14 and all GACA and ICAO requirements pertaining to aeronautical and eTOD surveys;	☐	☐	☐	
(i)Evidence for competency to prepare aeronautical charts as specified in GACAR Part 175 and relevant ICAO documents;	☐	☐	☐	
(j)Professional indemnity cover.	☐	☐	☐	

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1.3	Does the applicant's written submission address all relevant requirements and details of the manner in which he will ensure that the Project Manager and surveyor's functions and duties are performed?	☐	☐	☐	eBOOK 8.3.3
	Comments/Observations				
	2-Qualifications				
2.1	Has the applicant provided evidence of completion of training program on the concept to conduct aeronautical survey course?	☐	☐	☐	eBOOK 8.3.3
2.2	Has the applicant provided evidence of advanced training? It is expected that aeronautical surveyor team has completed several advanced or refresher courses after gaining the initial qualification. Details of attendance and participation in relevant conferences including papers presented etc. should be included.	☐	☐	☐	eBOOK 8.3.3
2.3	Has the applicant provided evidence of the following advanced training?				eBOOK 8.3.3
	(a)aeronautical survey process	☐	☐	☐	
	(b)geodetic datum and geodetic control	☐	☐	☐	
	(c)runway surveying	☐	☐	☐	

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	(d)navigational-aid surveying	☐	☐	☐	
	(e)obstacles and eTOD surveying	☐	☐	☐	
	(f)data management and reporting specifications	☐	☐	☐	
2.4	Has the applicant provided details of attendance and participation in relevant conferences including papers presented etc.?	☐	☐	☐	eBOOK 8.3.3
2.5	Has the applicant provided evidence of qualification and knowledge of survey instrument operation and data processing software?	☐	☐	☐	eBOOK 8.3.3
	Comments				
	3-Relevant Experience – aeronautical survey				
3.1	Has the applicant provided details of aeronautical surveyor experience?	☐	☐	☐	eBOOK 8.3.3

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
3.2	Has the applicant demonstrated experience in the collecting aeronautical data, maintaining data sets and databases, airport features, obstacles, terrain, obstructions and navigational aids? *Experience must be assessed by GACA as sufficient for the aeronautical surveyor to competently fulfil the duties and function of an aeronautical surveyor.*	☐	☐	☐	eBOOK 8.3.3
3.3	Has the applicant demonstrated sufficient specific experience to achieve competency? *It is expected that the experience required for an aeronautical surveyor company to achieve competency would not normally be less than 2 years full-time experience in aeronautical survey involving the survey of a considerable number of airports.*	☐	☐	☐	eBOOK 8.3.3

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
3.4	Has the applicant demonstrated sufficient overall experience to achieve competency? *The assessment of surveyor experience relative to a particular type of survey will take into account the number of airports and obstacles that an "experienced" surveyor is likely to survey in the normal course of his/her duties. For example, the number of eTOD areas that an "experienced" surveyor may have completed*	☐	☐	☐	eBOOK 8.3.3
3.5	Has the applicant demonstrated sufficient experience in producing of relevant aeronautical charts as per ICAO requirements of obstacles and terrain?	☐	☐	☐	eBOOK 8.3.3
3.6	Has the applicant demonstrated sufficient experience in providing concept and solution development in the domain of obstacle survey?	☐	☐	☐	eBOOK 8.3.3
	Comments				
	4-Relevant Experience – Supervision and Management				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
4.1	Has the applicant provided evidence to demonstrate project manager experience in a supervisory role and/or equivalent supervisory or management experience in a related industry? The role of project manager involves accepting responsibility for the work of other persons, including surveyors	☐	☐	☐	eBOOK 8.3.3
4.2	Has the applicant provided evidence to demonstrate project manager experience in?				eBOOK 8.3.3
	(a)capability for supervision and management;	☐	☐	☐	
	(b)how to ensure the organization's ongoing operational compliance with GACA Regulations and ICAO requirements;	☐	☐	☐	
	(c)how to ensure they retain enough resources to maintain survey process effectiveness and full safety compliance with ICAO requirements.	☐	☐	☐	
	(d)how to ensure the efficiency of the survey project progress.	☐	☐	☐	

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments				
	5-Knowledge				
5.1	Has the applicant provided evidence in Knowledge of the regulatory requirements applicable to civil aviation in Saudi Arabia and in respect of aeronautical information services, aerodromes/heliports and its environs, obstacle limitation surfaces, eTOD areas, PANS-OPS surfaces, navigational facilities, obstacle charts, etc.?	☐	☐	☐	eBOOK 8.3.3
5.2	Has the applicant provided evidence in Knowledge of relevant GACA Regulations, ICAO requirements on accuracies, integrity, WGS-84, data collection quality, etc.?	☐	☐	☐	eBOOK 8.3.3
5.3	Has the applicant provided evidence in Knowledge of the principles and practice of aeronautical information services with the rules contained in ICAO Annexes 15 and 4 and ICAO Docs 10066, 8126 and 8697 is required including?				eBOOK 8.3.3
	(a)Terrain and obstacle data sets;	☐	☐	☐	
	(b)Aerodrome mapping data sets;	☐	☐	☐	
	(c)Terrain and obstacle data requirements;	☐	☐	☐	

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	(d)Terrain and obstacle attributes provision requirements ;	☐	☐	☐	
	(e)Electronic terrain and obstacle data pertaining to Areas 1, 2, 3 and 4;	☐	☐	☐	
	(f)Aerodrome Obstacle Chart — ICAO Type A;	☐	☐	☐	
	(g)Aerodrome Obstacle Chart — ICAO Type B;	☐	☐	☐	
	(h)Aerodrome Terrain and Obstacle Chart — ICAO;	☐	☐	☐	
	(i)Terrain and obstacle data collection surface;	☐	☐	☐	
	(j)Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media;	☐	☐	☐	
	(k)Take-off flight path areas.	☐	☐	☐	
5.4	Has the applicant manpower to demonstrate a thorough understanding of the principles of operation of relevant ground and space-based navigation systems?	☐	☐	☐	eBOOK 8.3.3
5.5	Has the applicant demonstrate detailed knowledge of all operating procedures including?				eBOOK 8.3.3
	(a)Data management, workflow & control	☐	☐	☐	
	(b)Quality checks and verification	☐	☐	☐	
	(c)Record keeping	☐	☐	☐	

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	(d)QMS requirements	☐	☐	☐	
	(e)Automation tools requirements	☐	☐	☐	
	(f)Publishing and standards	☐	☐	☐	
	(g)Regulatory requirements	☐	☐	☐	
5.6	Has the applicant demonstrate an understanding of his responsibilities in the provision of data?	☐	☐	☐	eBOOK 8.3.3
5.7	Has the applicant demonstrated a high standard of detailed knowledge in respect of instrument flight procedure design?	☐	☐	☐	eBOOK 8.3.3
Comments					

Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
Overall Comments				

8.3.3.5 Survey requirements

8.3.3.5.1 This sub-section details the survey requirements, plan presentation and survey data sets required by the General Authority for Civil Aviation (GACA) to ensure Aerodrome/Heliport Certificate Holders comply with their mandatory responsibilities as detailed in GACA Regulations and ICAO Annexes.

CHAPTER 1

AERODROME/HELIPORT SURVEY

1.1 Purpose

1.1.1 The purpose of aerodrome/heliport survey information is to enable aerodrome/heliport Certificate applicant/ Holders to meet their safety and regulatory responsibilities for:

(a) Aerodrome/heliport Certificate applicant/ Holders.

(b) Design and development of operational flight procedures.

(c) Development of aeronautical charts, data sets and presentation of survey information.

(d) Safety risk analysis and evaluation.

(e) Considering human factors principles in surveying, data presentation and chart development

1.2 Aerodrome/Heliport Certificate applicant/ Holders requirements

1.2.1 Aerodrome/Heliport Certificate applicant/ Holders are required to have formal arrangements with Aeronautical Surveyor describing all survey requirements and maintenance of aeronautical information and aeronautical data.

1.2.2 Aerodrome/Heliport Certificate applicant/ Holders should consult with their selected Aeronautical Surveyor on the technical content of thissection.

1.2.3 Aerodrome/Heliport Certificate applicant/ Holders should ensure provision is made within any survey contract to confirm that these requirements are complied with.

1.2.4 Any new survey contract between the Aerodrome/Heliport Certificate applicant/ Holders and a new aeronautical surveyor (survey company) must provide a seamless transition from that point reached in the survey life cycle with the previous contractor.

1.2.5 Aerodrome/Heliport Certificate applicant/ Holders should maintain a quality management system covering its aeronautical data activities and aeronautical information provision activities.

1.2.6 All Aerodrome/Heliport Certificate applicant/ Holders requirements regarding aeronautical data and aeronautical information as well as aeronautical charts are described in GACA Regulation part 175 and Part 139, ICAO Annexes 14, 15 and 4 and ICAO PANS-AIM.

1.2.7 Aerodrome/Heliport Certificate applicant/ Holders are required to provide GACA President with an aeronautical study including safety assessment as per GACAR Part 77 for all obstacles penetrating aerodrome/heliport Obstacle Limitation Surfaces (OLS) and for all obstacles in area 2 considered as hazard to air navigation. Aeronautical study including safety assessment must be submitted to GACA President within a maximum of 30 days from the date when the obstacles penetrating OLS and obstacles considered as hazard to air navigation are detected.

1.3 Survey purpose

1.3.1 The basic survey purpose applied in this section is to provide reliable lists of all aerodrome/heliport facilities (i.e. runways, navigation aids, etc.) and features identified as obstacles for each certified aerodrome/heliport constrained by the appropriate area ofinterest.

1.3.2 These lists form, among others, the basis for developing all aeronautical charting including visual approach charts and instrument flight procedures charts, obstacle filtering (using obstacle identification and obstacle limitation surfaces), aeronautical data and obstacle database, analysis for Instrument Flight Procedures (IFP) design and aeronautical publications.

1.3.3 It is important for aeronautical surveyors to understand the tasks and challenges faced by the end user - i.e., for the preparation of Aeronautical Charts, for use by AIS Service Providers, IFP designers, Aerodrome/Heliport Inspectors, aeronautical data exchange and for Aerodrome/Heliport Certificate applicant/ Holders in achieving physicalsafeguarding.

1.3.4 From an IFP design perspective, a reliable representation of the aerodrome/heliport and its obstacle environment forms the critical baseline for successful and safe IFP design.

1.3.5 For guidance and policy on points that are not covered within this section, advice should be sought from the Aviation Standards Sector within GACA.

1.3.6 This part of this section is structured to assist Aeronautical Surveyors through the following logical steps:

(a) Choosing the relevant aerodrome/heliport survey classification (Table 1-1);

(b) Determining the areas and facilities to be surveyed (Table 1-2 - Table 1-2a);

(c) Surveying the areas required.

(d) Settling aerodrome/heliport Facilities and Master Obstacle data lists.

(e) Producing plans, digital data sets and filtering obstacle data as required.

(f) Producing a survey report with relevant appendixes which demonstrates the reliability of the data; and

(g) Distributing relevant data, information and charts.

1.4 Mandatory Requirements

1.4.1 Aerodrome/Heliport Certificate applicant/ Holders must provide accurate survey information of their aerodromes/heliports and environs according to the type of operation identified by the aerodrome/heliport survey classification and survey areas required as prescribed in Tables 1-1 and 1-2/1-2a and must be carried out to measure any changes at the periodic intervals as set out in Table 1-3.

1.4.2 Aerodrome/Heliport Certificate applicant/ Holders must keep all records (reports, digital data, charts, etc.) of aeronautical survey and must provide an updated copy to GACA President.

1.4.3 Aerodrome/Heliport Certificate applicant/ Holders must provide any change in the location and design of aerodrome/heliport facilities (Navaids, threshold, parking stand, taxiway, buildings, etc.) to the appropriate Aeronautical Surveyor team.

1.4.4 Aerodrome/Heliport Certificate applicant/ Holders must develop aerodrome/heliport and terrain data sets as required in this section and GACA Regulation Part 175.

1.5 Survey Areas

1.5.1 The Aerodrome/heliport Survey Classifications are prescribed in Table 1-1:

Type of Operation	Aerodrome/heliport Survey Classification
Aerodrome/heliport with Non-instrument runway	**1**
Aerodrome/heliport with Non-precision approach runway	**2**
Aerodrome/heliport with precision approach runway, category I	**3**
Aerodrome/heliport with precision approach runway, category II and III	**4**

Table 1-1 Aerodrome/heliport Survey Classification

1.5.2 The Aerodrome/heliport Survey Areas **Mandatory Requirements** for a particular Aerodrome/heliport Survey Classification are prescribed in Table1-2:

Survey Area	Aerodrome/heliport Survey Classification			
	1	2	3	4
Aerodrome/Heliport Plan. (reference chapter 5)	☐	☐	☐	☐
Aerodrome/helipoprt Obstacle Limitation Surfaces-OLS. (reference chapter 6)	☐	☐	☐	☐
Area bounded by the lateral extent of the aerodrome/heliport Obstacle Limitation Surfaces-OLS (terrain) (reference chapter 6)	☐	☐	☐	☐
Penetrations of the aerodrome/heliport OLS. (reference chapter 6)	☐	☐	☐	☐
Take-off Flight Path Area – terrain data. (refer to chapter 8)	☐	☐	☐	☐
Objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area. (refer to chapter 8)	☐	☐	☐	☐

Aerodrome Obstacle Chart – Type A. (reference chapter 8) (If regularly used by international civil aviation)	-	☐	☐	☐
Precision Approach Terrain Chart. (reference chapter 9)	-	-	-	☐
Visual Approach Chart. (reference chapter 10)	☐	☐	☐	☐
eTOD Area 4. (reference chapter 7)	-	-	-	☐
eTOD Area 2a terrain. (reference chapter 7)	-	☐	☐	☐
eTOD Area 2a obstacle collection surface must have a height of 3 m above the nearest runway elevation measured along the runway center line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end. (reference chapter 7)	-	☐	☐	☐
Obstacles within eTOD Area 2 that are assessed as being a hazard to air navigation. (reference chapter 7)	-	☐	☐	☐

Table1-2 Aerodrome/heliport Survey Area – MandatoryRequirements

1.5.3 The Aerodrome/heliport Survey Areas **RecommendedRequirements** for a particular Aerodrome/heliport Survey Classification are prescribed in Table1-2-a:

Survey Area	Aerodrome/heliport Survey Classification			
	1	2	3	4
Within eTOD Area 2 terrain, the area extending to a 10km radius from the ARP (reference chapter 7).	-	☐	☐	☐
Within eTOD Area 2 terrain the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation. (reference chapter 7)	-	☐	☐	☐
eTOD areas 2b, 2c and 2d data need not be collected for obstacles less than a 3 m above ground in Area 2b and less than a 15 m above ground in Area 2c. (reference chapter 7)	-	☐	☐	☐
eTOD terrain area 3. (reference chapter 7)	-	☐	☐	☐
eTOD obstacle areas 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-meter (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area. (reference chapter 7)	-	☐	☐	☐
Aerodrome mapping data	-	☐	☐	☐

Table1-2-a Aerodrome/heliport Survey Area – RecommendedRequirements

1.6 Area 2 availability

1.6.1 Terrain data

(a) Terrain data must be provided for:

(1) Area 2a.

(2) The take-off flight path area; and

(3) An area bounded by the lateral extent of the Aerodrome/Heliport Obstacle Limitation Surfaces.

(b) In addition to the minimal set of electronic terrain data specified above, terrain data should be provided for, within Area 2, as follows:

(1) In the area extending to a 10-km radius from the ARP; and

(2) Within the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.

1.6.2 Obstacle data

(a) Obstacle data must be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

(b) Obstacle data must be provided for:

(1) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The area 2a obstacle collection surface must have a height of 3 m above the nearest runway elevation measured along the runway centerline, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end.

(2) The minimum height of an obstacle in Area 2a depends on the elevation of the nearest point on the centerline and the terrain elevation.

(3) Objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; (intension to be given to Aerodrome Obstacle Chart — ICAO Type A (Operating Limitations)

with reduced slope of 1.0 per cent or less).

(4) Penetrations of the aerodrome/heliport obstacle limitation surfaces.

***Note**: Take-off flight path areas are specified in ICAO Annex 4, 3.8.2. Aerodrome obstacle limitation surfaces are specified* **in Annex 14, Volume 1, Chapter 4**

(c) In addition to the minimal set of electronic obstacle data specified above, Obstacle data should be provided for Areas 2b, 2c and 2d for obstacles that penetrate the relevant obstacle data collection surface specified in chapter 7 except data need not be collected for obstacles less than a 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

1.7 Area 3 availability

1.7.1 Terrain data should be provided for Area 3 to support aerodrome mapping data.

1.7.2 Obstacle data should be provided for Area 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-meter (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.

1.8 Area 4 availability

1.8.1 Terrain data must be provided for Area 4 for all runways where precision approach Category II or III operations have been established (or planned to be established) and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.

1.8.2 Obstacle data must be provided for Area 4 for all runways where precision approach Category II or III operations have been established (or planned to be established).

1.8.3 Since the vertical accuracy for Area 4 is 1 m, it is recommended that obstacle data for all objects over 1 meter in height (above ground level) be provided.

1.9 Area 2 Data requirements:

1.9.1 In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation must comply with the Area 1 numerical requirements.

1.9.2 In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data must comply with the Area 1 numerical

requirements.

1.9.3 In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, obstacle data must be collected and recorded in accordance with the Area 1 requirements.

1.9.4 To avoid confusion within terrain data set and if digital terrain data collection techniques are most efficiently, it is recommended that all Area 2 is provided with data according to Area 2 numerical requirements. (Refer to chapter 7 for data numerical requirements).

1.10 Additional data

1.10.1 Where additional terrain data is collected to meet other aeronautical requirements, the terrain data sets should be expanded to include this additional data. For example, a non-standard departure/arrival procedure could require additional terrain data outside the lateral limits of OLS.

1.10.1

1.10.2 Where additional obstacle data is collected to meet other aeronautical requirements, the obstacle data sets should be expanded to include this additional data.

1.11 Survey Frequency

1.11.1 Surveys must be undertaken for all Survey Areas required to measure any changes at the periodic intervals (frequency) prescribed in Table1-3.

Survey Type	**Aerodrome/heliport Survey Classification**	**Frequency**
Geodetic Connection;	1, 2, 3 and 4	a.An initial mandatory survey. b. When more accurate Reference frame for WGS-84 becomes Available c. When an aerodrome/heliport facility needs to be commissioned

Mandatory Aerodrome/heliport Survey Areas (Full Survey)	1, 2, 3 and 4	a. Initial survey b. Once in 5years c. If any doubt exists as to validity of previous survey
Validation Assessment (check survey)	1, 2, 3 and 4	a. Annually after the mandatory surveys b. If any change to aerodrome/heliport layout or facilities or obstacles

Table1-3 Aerodrome/heliport Survey -Frequency

1.12SurveyProcedures

1.12.1GeodeticConnection

(a)The procedures for a geodetic connection are detailed in ICAO Doc 9674.

(b)The geodetic connection date must be included on the Survey Declaration Form (see Appendix C).

1.12.2Mandatory Survey (Full Survey)

(a)The procedures for the mandatory surveys (full surveys) including geodetic connections of the airport, airport facilities, magnetic variation and obstacle survey are detailed in Chapter 2 and chapter 3.

(b)Full survey must be conducted at the initial commissioning of the aerodrome/heliport and as specified in table 1-3

(c)All mandatory surveys (Full surveys) must be included on the Survey Declaration Form (see Appendix C).

1.12.3 Validation Assessment (Check survey)

(a)The validation Assessment (check survey) must be conducted Annually after the mandatory surveys and for any change to aerodrome/heliport layout or facilities or obstacles.

(b)Yearly checks survey is considered to meet the requirement for “regular intervals”, as stated in the note to PANS-OPS (ICAO Doc 8168) Volume II, Part I, Section 3, Chapter 2, paragraph 2.6.2.1.

(c)The validation Assessment (check survey) must be conducted to identify any changes in the aerodrome/heliport layout and/or aerodrome/heliport facilities since the previous survey (such as addition/modifications of new aircraft stands, shifting of threshold or holding positions, addition or removal of obstacles including significant tree growth or reduction etc.). Any change must be

surveyed to the specifications detailed in this section.

(d)The validation Assessment (check survey) must be conducted for any new construction in the aerodrome/heliport (such as new RWY, TWY, Apron, Stand, temporary RWY, buildings, etc.)

(e)The validation Assessment (check survey) may also be conducted if the operations from a particular runway needs to be upgraded or if new Instrument Flight Procedures (IFPs) or Visual Approach Procedure planned to be designed for the aerodrome/heliport.

(f)All Validation Assessment Surveys must be included on the Survey Declaration Form (see AppendixC).

1.12.4eTOD Surveys

Refer to Chapter 7 of this section, GACAR Part 175, ICAO Annex 15, ICAO PANS-AIM Doc 10066 and ICAO AIS Manual Doc 8126.

1.13DataManagement

1.13.1 The aeronautical surveyor must declare the new, amended and deleted records and the reason(s) for the change as part of the surveyreport.

1.13.2 If no changes were found to any of the attributes in an existing record, original record number and survey date must be retained.

1.13.3 Proper data management is critical during the entire survey and subsequent declaration process. Aeronautical surveyors' teams are urged to implement rigorous data handling processes and practices to eliminate erroneous data. Each surveyed entity and associated attributes must be dealt with as a unique data record stream.

1.13.4 Any change to an existing data record stream identified during a subsequent Validation Assessment Survey must necessitate a re-issue of the entire data record with a new survey date while retaining the original unique identifier. A change of location to an existing feature must require a new unique identifier to be applied.

1.13.5 If a Subsequent Validation Assessment (check survey) is submitted following an initial Full Survey performed as Mandatory Aerodrome/heliport Survey, all previous data records must be updated, and the existing survey obstacle number retained with the new survey date.

1.13.6 Any new obstacle or changes to existing obstacle penetrating the aerodrome/heliport OLS may be subject to NOTAM until surveyed in concordance with this section and the standards in GACAR Part 139, allowing entry into the AIP.

1.13.7 All data records, including e-TOD data, must be provided in a format consistent with the requirements of this section and the requirements of ICAO Annex 15, ICAO PANS-AIM and ICAO AIS Manual, and must be compatible with General Authority for Survey and Geospatial Information (GASGI) requirements.

1.14 Survey Declaration Form

1.14.1 A "Survey Declaration Form" (see Appendix C) must accompany any Full or Validation Assessment Surveys undertaken as well as Geodetic survey and eTOD survey.

1.14.2 Completion of this Form confirms that the survey submitted information meets the requirements and accuracies detailed in this section, their operational requirements and the type of survey undertaken (full, check, geodetic or eTOD survey).

1.14.3 It's the responsibility of the Aerodrome/Heliport Certificate applicant/ Holders to keep the record of survey report including the survey declaration form of the aerodrome/heliport.

1.14.4 Submission of a check Survey Declaration form is required to maintain the validity of the relevant published information including aeronautical charts.

1.15Minimum Survey Accuracy and Integrity Requirements

1.15.1 Appropriate survey methods must be applied to qualify the accuracy and integrity of the data provided. Survey methodology must be clearly demonstrated in the Survey Report and all coordinates must be traceable to their source of production by an unbroken audit trail, as required by ICAO Annex 15, ICAO PANS-AIM Doc 10066 and ICAO AIS Manual Doc 8126.

1.15.2 Requirements are clearly stated in ICAO DOC 9674-AN/946 (WGS-84 Manual) and the most stringent survey accuracy must apply for Aerodrome/heliport Survey Classification 2, 3 and 4 as prescribed in ICAO DOC 9674.

1.16Survey Package

1.16.1 Requirements and content of the survey package are specified in chapter 3 of this section. The completed package must consist of the following:

(a) Two electronic copies including the Survey Report and Declaration forms in Adobe PDF format; Survey Plans and aeronautical charts in Adobe PDF and CAD formats; survey data in Adobe PDF, AIXM5.1, .crc, .xls and KML formats.

(b) Terrain and obstacle data sets and Aerodrome mapping data sets as required.

(c) One original signed copy of completed Survey Declaration Form.

(d) Hard copies in duplicate of survey package, comprising reports, plans, data and declaration form.

1.16.2 Survey Package should be delivered to GACA President containing relevant files listed in Chapter 3 of this section as a new AIP change request.

1.16.3 Aerodrome obstacles and facilities' Digital data set specifications are available in Appendix D.

1.16.4 Obstacle data set will be automatically imported as AIXM 5.1 without making manual amendments to the existing obstacle data.

1.16.5 Aerodrome facilities data will be updated manually. If Data Originators Portal is available, aerodrome facilities data will be entered by the nominated person(s) who is responsible for providing aeronautical data and aeronautical information on behalf of the originator.

1.17 Dominant obstacles

1.17.1 Aeronautical Surveyor should identify the dominant obstacles which will be used in the design of Instrument Flight Procedures (IFP). This data is used by the IFP designer, for example, to adjust the approach and missed approach paths.

1.17.2 Aeronautical Surveyor should provide information and technique used to divide areas into tiles to determine the dominant obstacles.

1.18 Survey Information

1.18.1 Changes to aerodrome/heliport data must be sent by the Aerodrome/Heliport Certificate applicant/ Holders to GACA President.

1.19 Conversion Factors

1.19.1 GACAR Part 2 must be used as the standard for the application of all conversion factors.

CHAPTER 2 – SURVEY PROCEDURES

2.1 General

2.1.1 The accuracy and integrity requirements for the geodetic connection and surveyed data are stated in ICAO DOC 9674-AN/946 and GACAR Part 139.

2.1.2 With the exception of those aerodromes/heliports without Instrument Flight Procedures, those with Survey Classification 2, 3 and 4 must undertake surveys to the accuracy and quality assurance requirements stated in the ICAO DOC 9674-AN/946 (WGS-84Manual).

2.1.3 The Aerodrome/Heliport Certificate applicant/ Holders is responsible for ensuring the accuracy of information required for all survey areas.

2.2 Horizontal Control

2.2.1 Coordinates will be required in WGS-84 format latitude and longitude.

2.2.2 Survey control points must conform to the ICAO DOC 9674-AN/946 (WGS-84Manual).

2.2.3 WGS-84 geodetic control and format requires that the methods applied must prove that the accuracy for the various surveys has been met.

2.2.4 Aeronautical surveyors (Survey teams) undertaking these surveys must be responsible for the accuracy of the control data and any transformation sets used.

2.2.5 An analysis of the accumulated error, evidence confirming the required accuracies have been met and the transformation parameters used must be included in the Survey Report.

2.3 Vertical Control

2.3.1 Orthometric and ellipsoidal elevations are required.

2.3.2 The variable separation between the geoid and the reference ellipsoid may give rise to inaccuracies greater than the allowable specified. For the computation to transform ellipsoidal to orthometric elevations the EGM96 geoid model must beused.

2.3.3 In all cases appropriate survey checks must be applied to prove the quality of vertical control. These checks must be included within the surveyreport.

2.3.4 Standard survey practice must be used to produce the elevation to the required specification accuracy and the integrity of the control points used must beproved.

2.4 Required data

2.4.1 The aerodrome/heliport survey should cover all data items required by GACA Regulations and ICAO Annexes 14 and 15 as well as all the data items necessary to be included on the charts required by GACAR Part 175 and ICAO Annex 4 and relevant for that aerodrome/heliport as follow:

(a) Aerodrome/Heliport Chart

(b) Aerodrome Obstacle Chart Type A or Aerodrome Terrain and Obstacle Chart (electronic).

(c) Precision Approach Terrain Chart (for all precision approach runways II and III) or Aerodrome Terrain and Obstacle Chart (electronic).

(d) Enroute chart (for FIR).

(e) Visual Approach Chart (if established).

(f) Area Chart (where ATS routes or position reporting requirements are complex and cannot be adequately shown on the Enroute Chart).

(g) Standard Departure Chart Instrument — SID (if established).

(h) Standard Arrival Chart Instrument — STAR (if established).

(i) Instrument Approach Chart — IAP (if established).

(j) Aerodrome Ground Movement Chart.

Note: where the detailed information needed for the ground movement of aircraft along taxiways to and from the aircraft stands and the parking and docking of aircraft, cannot be shown with sufficient clarity on the Aerodrome/Heliport Chart.

(k) Aircraft Parking/Docking Chart.

Note: where, due to the complexity of terminal facilities, the information on the ground movement of aircraft between the taxiways and the aircraft stands and the parking/docking of aircraft cannot be shown with sufficient clarity on the Aerodrome/Heliport Chart or on the Aerodrome Ground Movement Chart.

2.4.2 The aerodrome/heliport survey should refer to ICAO Data Catalogue (PANS-AIM Appendix 1) for the applicable data items and numerical requirements.

2.5 Instrumentation

2.5.1All relevant survey equipment must have a current calibration certificate and be able to perform to the accuracy appropriate to the requirements of thesurveys.

2.6 Methodology of obstacle survey

2.6.1 All permanent control points must be “monumented” in accordance with ICAO WGS-84 Manual.

2.6.2 All permanent controls stations that are established must be documented and their coordinates traceable to their source. Aerodrome/Heliport Certificate applicant/ Holders are responsible for keeping the record of control stations.

2.6.3 The use of contour maps may aid in the process of defining the probable extent of the survey and the likely position of obstacles. Local scale factor adjustment to ground distances as well as the effects of curvature and refraction must be considered.

2.6.4 Unvalidated or new obstacle data must be proved by a minimum of two independent and their resultant elevations and positions must satisfy the appropriate survey criteria. The methodology used to ensure reliable coordinates must be documented in the Survey Report along with evidence that the resulting accuracies have met the requirements.

2.6.5 Existing obstacles within a validated data set or obstacles heighted on previous surveys need only to be checked to confirm their height and position without the rigor afforded to unvalidated or new obstacles.

2.6.6 Particular attention should be paid to structures and trees whose height may change. An appreciation of the effects of vertical angles over variable distances is necessary to give good height accuracies.

2.7 Obstacles to be Heighted

2.7.1 Aeronautical Surveyors should take note that when surveying a prescribed area, a situation might arise where the highest obstacle within that area might not necessarily be the dominant obstacle for that particular phase of flight. Therefore, Aeronautical Surveyors should always declare all surveyed obstacles in the Master Obstacle List.

2.7.2 Due consideration must be taken when observing transverse and longitudinal obstacles in close proximity to the runway because their leading edge may have greater significance than the highest point. (It must be appreciated that the highest object might not be the most important for consideration, see Figure2-1).

2.7.3 Fine obstacles such as lightning conductors or aerials that surmount the object may not be visible over a distance. Therefore, care must be taken when observing distant obstacles to ensure that the highest point is heighted.

2.7.4 Height above ground level (AGL) should also be measured where possible or derived by comparison with the terrain data.

2.7.5 Temporary obstacles encountered at the time of survey should be included and identified as temporary. A statement should be included in the Survey Report stating the temporal extent of all such obstacles.

2.7.6 When compiling the data and when submitting the report, the Aeronautical Surveyor should include all features and obstacles surveyed, whether they penetrate the relevant surfaces or not.

2.7.7 The location of the obstacles must be provided as lateral, longitudinal distances along with top elevation with respect the associated runway threshold in a tabular form.

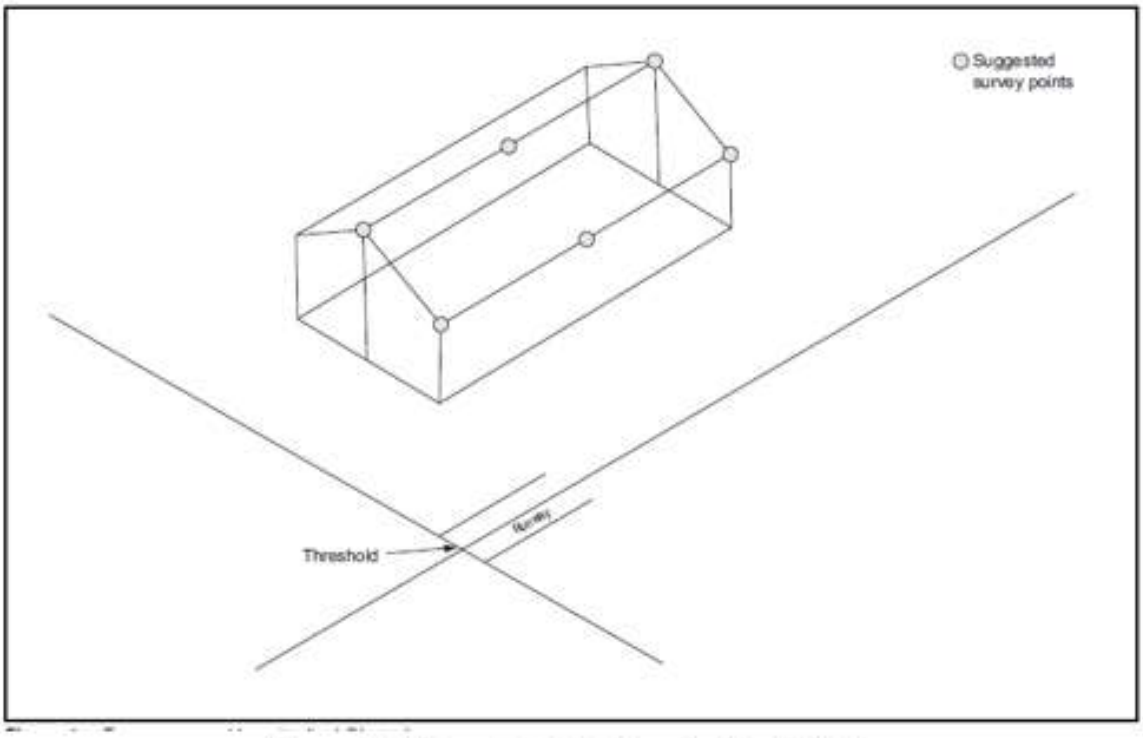


Figure 2-1 Transverse and Longitudinal Objects

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CHAPTER 3 – DELIVERABLE PRESENTATION

3.1Plans

3.1.1PlanFormat

3.1.1.1 The format of the base mapping for the Aerodrome/Heliport Plan or layout/grid map is at the discretion of the Aerodrome/Heliport Certificate applicant/ Holders. Listed below are the acceptable formats:

(a) Digital mapping

(b) Hard copy mapping compilations

3.1.2Aeronautical SurveyorsRequirements

3.1.2.1 Aeronautical Surveyors must ensure th efollowing as minimum:

(a) The most recent mapping must beused.

(b) Geographical reference system must be shown with grid values along the plan edge at convenient intervals.

(c) Data reference source and revision data must be shown on theplan.

3.1.3Plan Content

3.1.3.1 Where multi-sheets are used, full reference must be given to the total number in the series.

3.1.3.2 Each plan must have a title panel. The information shown should consist of thefollowing:

(a) Aerodrome/heliport name.

(b) Drawingtitle.

(c) Drawing number or reference number including current amendment status.

(d) Date and time of survey.

(e) Scale.

(f) Geographical coordinates system used.

(g) Vertical/elevation reference systemused.

(h) Survey company name and address including telephonenumber and email address.

(i) Surveyed by (name and signature).

(j) Checked by (name and signature).

(k) Approved by project manager (name and signature).

(l) Plan number.

(m) Plan layout and diagram, if applicable.

(n) Abbreviations used.

(o) A reference to the appropriate survey report.

3.2 Data description card for each surveyed obstacle

3.2.1 Each surveyed obstacle must have a "data description card". The data description card should consist of thefollowing:

(a) Project reference.

(b) Survey company name and address including telephone number and email address.

(c) Surveyed by (name and signature).

(d) Checked by (name and signature).

(e) Approved by project manager (name and signature).

(f) Site view.

(g) Site photo.

(h) Location plan.

(i) Drawing.

(j) Legend.

(k) Abbreviation used.

(l) Survey report number.

(m) Date and time of the survey.

(n) Metadata (details of each attributes as required).

3.3 Survey package

3.3.1 The Aerodrome/Heliport Certificate applicant/ Holders must provide to GACA President a full and complete survey package as specified in tables 1-2, 1-2a and 1-3 of this section that includes (as a minimum) the following:

(a) Survey Report (Geodetic connection report and/or full survey report and/or check survey and/or eTOD report).

(b) Obstacle data set.

(c) Terrain data set.

(d) Penetrations of the aerodrome/heliport obstacle limitation surfaces.

(e) All features identified as obstacles including dominant obstacles: MASTER OBSTACLES FILE;

(f) Aerodrome/heliport Plan in digital format and Aerodrome/heliport Facilities file with all facilities surveyed for the purposes of the Aerodrome/heliport Plan.

(g) Runway and declared distance file.

(h) A list of the dominant obstacles.

(i) A list of AIP AD 2.10 or AD 3.10 obstacles.

(j) Type A data set - Objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area (take-off flight path obstacle data set)

Note 1: Aerodrome/Heliport Certificate applicant/ Holdersmay indicate in AD 2.10 or AD 3.10 that information on obstacles in Area 3 is not available and the obstacle data are to be provided for:

1) Area 2a
2) Obstacles that penetrate the obstacle limitation surfaces.
3)Obstacles that penetrate the take-off flight path area obstacle identification surface; and
4) Other obstacles assessed as being hazardous to air navigation.

Note 2: Area 3 data sets will be provided for aerodrome CAT I certificated if:

1) There is an assessment presenting evidence as to whether the lack of Area 3 obstacle/terrain data set does compromise safety of operations and it has been accepted by GACA President.
2) There is a plan for providing this data in the future (with a timescale) accepted by GACA President.

(k) Aerodrome Obstacle chart – ICAO Type A (if required).

(l) Aerodrome Precision approach chart (if required).

(m) Visual Approach chart (if required).

(n) Aerodrome/heliport facilities survey data.

(o) eTOD Survey data.

(p) Magnetic Variation and annual change.

(q) Aeronautical study including safety assessment if required.

3.3.2 All files need to be provided with required metadata (as detailed in GACAR Part 175, ICAO Annex15, ICAO PANS-AIM Doc 10066 and ICAO AIS Manual Doc 8126).

3.3.3 The Aerodrome/Heliport Certificate applicant/ Holders should nominate a person(s) who is responsible for providing aeronautical data and aeronautical information as required.

3.3.4 All coordinates must be traceable to their source of production by an unbroken audit trail, as required by GACAR Part 175 and ICAO Annex 15. Therefore, the Survey Report must contain (as a minimum) the elements listed in paragraphs 3.4; 3.5 and 3.6 of this chapter to support the audit trail.

3.4Geodetic Connection Survey Report

3.4.1The Aerodrome/Heliport Certificate applicant/ Holders must provide to GACA President a Geodetic Connection Survey report (if required) as specified in tables 1-2, 1-2a and 1-3 of this section that includes (as a minimum) the following:

3.4.1.1Geodetic connection list covering the following:

(a) Historical data (Date of survey, general purpose of survey, names of aeronautical surveyor, the data originator – Aeronautical Surveyor organization, Name of the persons or organizations that have interacted with the data and when, etc.)

(b) Description of method of survey and equipment used.

(c) Survey station description.

(d) Schedule of points surveyed showing date of monumentation, description and survey.

(e) Equipment calibration information and method of checking the survey.

(f) Evidence that the accuracy requirements have been met including details of the error.

(g) Amendments made to the data.

(h) Details of any validation and verification of the data that has been performed.

(i) Effective start date and time of the data.

(j) The earth reference model used.

(k) The coordinate system used.

(l) The statistical accuracy of the measurement or calculation technique used.

(m) The resolution.

(n) The confidence level as required by the ICAO standards.

(o) Details of any functions applied if data has been subject to conversion/transformation.

(p) Details of any limitations on the use of the data.

3.4.1.2 Quality record and control report.

3.4.1.3 Details of the datum connection of the aerodrome/heliport control network to the geodetic network and the source of the control coordinates.

3.4.1.4 Aerodrome/heliport control network plan.

3.4.1.5 Survey stations descriptions.

3.4.1.6 Transformation parameters.

3.4.1.7 Records of actual observations must be provided in a separate indexed volume. Cross-references to observations must be made in the survey report.

3.4.1.8Survey Declaration Form – Appendix C.

3.5 Full survey report

3.5.1 The Aerodrome/Heliport Certificate applicant/ Holders must provide to GACA President a Mandatory Aerodrome/heliport Survey Areas - Full Survey report as specified in tables 1-2, 1-2a and 1-3 of this section that includes (as a minimum) the following:

3.5.1.1 Full survey list covering the following:

(a) Historical data (Date of survey, general purpose of survey, names of aeronautical surveyor, the data originator – Aeronautical Surveyor organization, Name of the persons or organizations that have interacted with the data and when, etc.)

(b) Description of method of survey and equipment used.

(c) Survey station description.

(d) Schedule of points surveyed showing date of monumentation, description and survey.

(e) Equipment calibration information and method of checking the survey.

(f) Evidence that the accuracy requirements have been met including details of the error.

(g Amendments made to the data.

(h) Details of any validation and verification of the data that has been performed.

(i) Effective start date and time of the data.

(j) The earth reference model used.

(k) The coordinate system used.

(l) The statistical accuracy of the measurement or calculation technique used.

(m) The resolution.

(n) The confidence level as required by the ICAO standards.

(o) Details of any functions applied if data has been subject to conversion/transformation.

(p) Details of any limitations on the use of the data.

(q) Any difference to GACA Regulations.

(r) Schedules listing all obstacles that have been added or deleted since the last survey.

a) Quality record and control report.

b) Survey Declaration Form – Appendix C.

3.6 Check survey report

3.6.1 The Aerodrome/Heliport Certificate applicant/ Holders must provide to GACA President a validation assessment - check survey report as specified in tables 1-2, 1-2a and 1-3 of this section that includes (as a minimum) the following:

(a) Quality Records for all facilities or obstacles added to the surveydata and refer back to the previous full survey with regard to surveying methodology.

(b) Schedules listing all obstacles that have been added or deleted since the last survey (see paragraph 3.6.2 below).
(c) Survey Declaration Form – AppendixC.

3.6.1.1 For traceability purposes the complete documentation must be reissued on every occasion that a Validation Assessment Survey (check survey) amends the preceding full or check survey.

3.6.2 Format of the schedules listing changes must be at the discretion of the Aeronautical Surveyor or as agreed with the Aerodrome/Heliport Certificate applicant/ Holders. It is recommended that schedules are prepared as digital spreadsheets. To enable users to track changes, each data set should be accompanied by an "Additions" and "Deletions" file. Where an obstacle has been given a new feature number the old number must be referenced against it.

3.7 Digital Data

3.7.1 The following master files of all surveyed obstacles and aerodrome/heliport facilities must be created and supplied in Appendix D format:

(a) Master Obstacles File, named appropriately, e.g., OEXX_OBST00 ("OEXX" is the ICAO location indicator code for the surveyed aerodrome/heliport and "00" is the year of the survey). This will include all features identified asobstacles.
(b) Aerodrome/heliport Facilities File, named appropriately OEXX_AD00 ("OEXX" is the ICAO location indicator code for the surveyed aerodrome/heliport and "00" is the year of the survey). This will include all facilities surveyed for the purposes of the Aerodrome/Heliport Plan/layout surveyarea.

3.7.2 The integrity of the survey information supplied in digital format (see Appendix D) must be protected against third party corruption by wrapping with a Cyclic Redundancy Check (CRC). CRC wrapping is mandatory for all survey data submitted as per Appendix D formatfiles.

3.7.3 Terrain and obstacle data sets and aerodrome mapping data sets must be provided by the Aeronautical Surveyors as specified in GACAR Part 175, ICAO Annex 15, ICAO PANS-AIM Doc 10066 and ICAO AIS manual Doc 8126.

3.7.4 Each data set must include the following minimum set of metadata:

(a) The names of the Aeronautical Surveyor providing the data set.
(b) The date and time when the data set was provided.
(c) Period of validity of the data set; and

(d) Any limitations with regard to the use of the data set.

3.7.5 Digital data must be provided in Adobe PDF, CAD, XML, KML formats as appropriate.

CHAPTER 4 QUALITY ASSURANCE

4.1 Quality assurance (QA)

4.1.1 All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (ISO 8402).

4.1.2 QA is the process of ensuring that stated quality specifications are incorporated in the final product, by use of pre-defined methods. Once a method has been proven to produce the required product successfully, a system is required that may assure that the method or methods are followed correctly each time the process is repeated. All activities and functions that affect the level of quality of a product are of concern to QA which is achieved through the use of a quality system.

4.2 Quality Records

4.2.1 All data elements must be traceable to their source of production by an unbroken chain of audit.

4.2.2 The Aeronautical Surveyors' companies must follow the guidance given in the ICAO WGS-84 Manual and must provide information on the source of production in the form of Quality Records.

4.2.3 Quality Records are a documented evidence of tasks carried out which demonstrates that the required results have been achieved and provides sufficient links to other quality records to ensure traceability. It must include as a minimum:

(a) Aeronautical Surveyor (surveying company) reference.

(b) Name of surveyor(s).

(c) Date and purpose of survey.

(d) Method of survey and equipment used.

(e) Equipment calibration information and method of checking the survey; and

(f) Evidence that the accuracy requirements have been met including details of the error budget analysis.

4.3 Methodology

4.3.1 The Aeronautical Surveyor (surveying company) must maintain an effective checking system to ensure that the data collected conforms to the accuracy standard and must present a statement of that conformity within the Survey Report.

CHAPTER5 AERODROME /HELIPORT PLAN SURVEYAREA

5.1 Purpose

5.1.1 The Aerodrome/Heliport Plan is part of the ~~Aerodrome/heliport Manual~~ Aerdrome data under GACAR 139 which Aerodrome/Heliport Certificate applicant/ Holders are required to maintain for Certification and Safeguarding purposes. The Aerodrome/Heliport Plan is a working document that gives an accurate picture of the aerodrome/heliport configuration and integral facilities.

5.1.2 The aerodrome/heliport chart – ICAO must be derived from the Aerodrome/Heliport Plan and provided by the Aerodrome/Heliport Certificate applicant/ Holders as specified in GACAR Part 175, ICAO Annex 4 and ICAO Doc 8697 (aeronautical chart manual).

5.2 Survey Specification

5.2.1 The survey specification for the Aerodrome/heliport facilities that will be included on the Aerodrome/Heliport Plan is covered in ICAO DOC 9674-AN/946 (WGS-84Manual).

5.2.2 The Aerodrome/Heliport Plan and the aerodrome/heliport chart – ICAO must contain the information and feature of eTOD Area 3.

5.2.3 The elevation AMSL, at the start of LDA, start and end of TORA, end of ASDA, end of TODA and RESA must be included in the survey. In addition, elevation at the runway centerline at each end of the runway and at regular intervals (maximum 200m) extending along the runway, stopway, and clearway and at each significant change in slope must also beincluded.

5.2.4 Features listed at Appendix D - Section B – Aerodrome/heliport Facilities File must be shown on theplan.

Note: Some features such as the ARP, ends of TORA/TODA/ASDA/RESA/LDA may be computed points and cannot be surveyed; therefore, it is incorrect to specify that all features in Appendix D must be surveyed. These features must be clearly indicated as calculated and not surveyed.

5.3 Plan Content

5.3.1 The scale should be such that the plan fits onto a single standard ISO sheet (A0 or A1). 1:2500 scale is preferred whenever possible but 1:5000 is acceptable. The accepted format of the plan is covered in Chapter 3 of this section.

5.3.2 The area of the plan must show the limits of the aerodrome/heliport boundary (including fence data) and the locations of installations that are considered integral to the operational procedures of the aerodrome/heliport. Insets may be required to show off-site facilities.

5.3.3 All aerodrome/heliport characteristics must be shown true to scale with the facilities labeled in such a well as to facilitate easy cross-reference to the positional information contained within the schedules.

5.3.4 WGS-84 coordinates with ellipsoidal heights and orthometric elevations (AMSL) and height AGL (where applicable) must be shown on the plan for the features listed in Appendix D – Aerodromes/heliports Digital Data Specification (Section B - Aerodrome FacilitiesFile).

5.3.5 The coordinates and associated data should be in a schedule format within theplan.

5.3.6 The runway threshold must be clearly indicated on the plan. The survey point for the runway threshold must be the geometric center of the runway at the beginning of the paved surface (refer to ICAO WGS Manual for more details).

5.3.7 Additional information may be required in the plan; this must be at the request of the Aerodrome/Heliport Certificate applicant/ Holders and may include the following:

(a) Fire service accommodation.

(b) Emergency access/egress gates and routes.

(c)Emergency water supply tanks.

(d) Facility safeguarding(fences).

(e) Human Observed RVR Conversion Table.

5.4 Digital Data

5.4.1 Surveyed features must form part of the “Aerodrome/heliport Facilities File” depicted in Appendix D – Section B. The Aerodrome/heliport Facilities File represents a base line of aerodrome/heliport features. Additional features that the aerodrome/heliport requires to be surveyed may be added. If the feature is not listed or identified in accordance with the file, then it will be considered an obstacle and added to the “Master ObstacleFile”.

5.4.2 Aerodrome/heliport plan/layout must be provided in CAD, PDF, XML format and on paper format (signed and stamped).

CHAPTER6 OBSTACLE LIMITATION SURFACES (OLS) SURVEYAREA

6.1 Purpose

6.1.1 Obstacle limitation surfaces are a series of imaginary surfaces that define the volume of airspace at and around an aerodrome/heliport to be kept free from obstacles in order to permit the intended aeroplanes operations to be conducted safely and to prevent the aerodrome/heliport from becoming unusable by the growth of obstacles around the aerodrome/heliport.

6.1.2 The purpose of the OLS survey is to identify all obstacles that infringe the prescribed GACAR Part 139 Obstacle Limitation Surfaces' appropriate to the existing or proposed runway coding.

6.1.3 As per GACAR Part 1, obstacle is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

(a) Are located on an area intended for the surface movement of aircraft; or
(b) Extend above a defined surface intended to protect aircraft in flight; or
(c) Stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

6.1.4 The survey data enables the Aerodrome/Heliport Certificate applicant/ Holders to make safety evaluations and assists the GACA President to make assessments for the grant, retention or modification of an Aerodrome/Heliport Certificate applicant/ Holders.

6.1.5 It is the responsibility of the Aerodrome/Heliport Certificate applicant/ Holders to promulgate obstacles in Area 2 and in Area 3 in the KSA AIP AD 2.10 or AD 3.10 according to GACAR Part 175, ICAO Annex 15, ICAO PANS AIM Doc 10066 and ICAO AIS manual Doc 8126 as appropriate (Refer to chapter 3 of this section for the deliverable presentation).

6.1.6 The absence of an Area 2 data set for the aerodrome/heliport is to be clearly stated and obstacle data are to be provided by the Aerodrome/Heliport Certificate applicant/ Holders for:

(a) Obstacles that penetrate the obstacle limitation surfaces.
(b) Obstacles that penetrate the take-off flight path area obstacle identification surface; and
(c) Other obstacles assessed as being hazardous to air navigation.

6.1.7 The Aerodrome/Heliport Certificate applicant/ Holders must ensure that the Aeronautical surveyor identifies all significant obstacles that infringe the surfaces, including extent of infringement. For guidance, identify and report the following:

(a) First obstacles in the Take-Off ClimbSurfaces.

(b) Lines of pylons close to the aerodrome/heliportsurfaces.

(c) High ground that may affect the circuitheight.

(d) Obstacles (chimney, mast, etc.) within the circling area that are significantly higher than the aerodromeelevation.

(e) Lit aerodrome features or large single objects that may not necessarily be infringements.

6.2 Survey Specification

6.2.1 Physical Characteristics are listed below:

(a) Runway Strip

(b) Clearway (when applicable)

(c) Stopway (when applicable)

(d) Runway End Safety Area(RESA)

6.2.2 The Obstacle Limitation Surfaces are listed below:

(a) Inner Transitional Surface

(b) Transitional Surface

(c) Inner Approach Surface

(d) Approach Surface

(e) Inner Horizontal Surface

(f) Conical Surface

(g) Outer Horizontal Surface

(h) Balked Landing Surface

(i) Take-Off Climb Surface

6.2.3 The dimensions and slopes of the various surfaces are defined and illustrated in GACAR Part 139 along with the Runway Classification requirements for each surface.

6.2.4 It should be noted that the obstacle limitation surfaces extend up to 15 km, which is different to Area 2b, whose extension is only 10 km.

6.2.5 The Aerodrome/Heliport Certificate applicant/ Holders, before the start of work, will give the origin of each surface, relative to a particular runway, to the surveyor.

6.2.6 The survey requirement is to height all obstacles within the Obstacle Limitation Surfaces area that infringe the limitation surfaces.

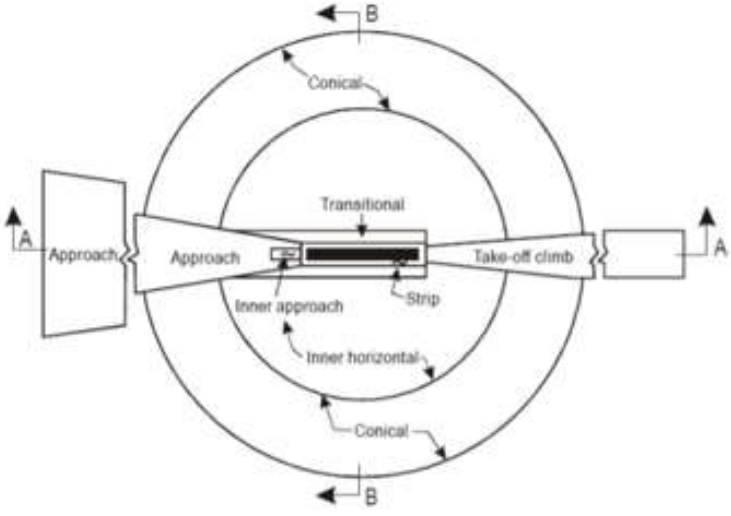
6.2.7 Height above ground level (AGL) should also be measured where possible or derived by comparison with terrain data.

6.2.8 Special care must be exercised in the near environs of the approach and take-off climb area to ensure complete obstacle coverage.

6.2.9 Aerodrome/Heliport Certificate applicant/ Holders are reminded of their accountability for assessing the obstacle data as stated in Chapter1 of this section.

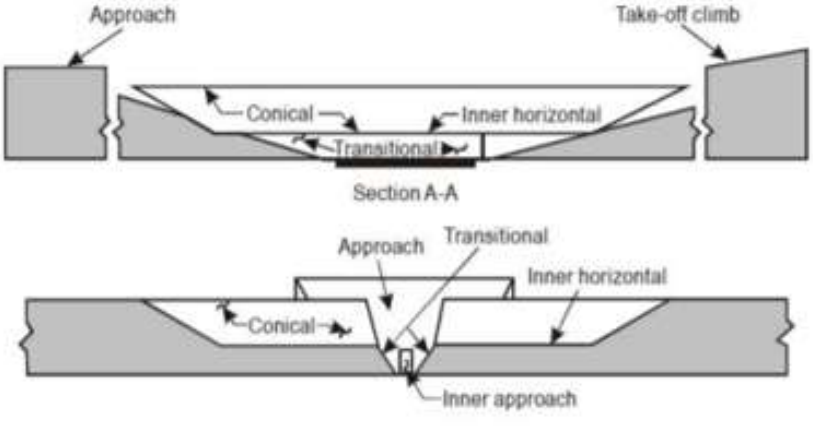
6.3 Digital Data

6.3.1 All surveyed obstacles must form part of the Master Obstacles File depicted in Appendix D.



Obstacle Limitation Surfaces

Plan view



Obstacle Limitation Surfaces

Profile view

CHAPTER7 SPECIFICATIONS FOR TERRAIN & OBSTACLE DATA SURVEYS

7.1 Purpose

7.1.1 Terrain and obstacle data are intended to be used in the following air navigation applications:

(a)ground proximity warning system (GPWS) with Forward Looking Terrain Avoidance (FLTA) function and minimum safe altitude warning (MSAW)system.

(b)determination of contingency procedures for use in the event of an emergency during a missed approach ortake-off.

(c)aircraft operating limitations analysis

(d)instrument procedure design (including circling procedure).

(e)determination of en-route "drift-down" procedure anden-route emergency landing location.

(f)Advanced Surface Movement Guidance and Control System (A-SMGCS);and

(g)aeronautical chart production and on-board databases.

7.1.2 The data may also be used in other applications, such as training/flight simulator and synthetic vision systems and may assist in determining the height restriction or removal of obstacles that pose a hazard to air navigation.

7.1.3 Requirements for terrain and obstacle data collection surfaces are contained in the ICAO PANS-AIM (Doc 10066), Appendix 8.

7.2Terrain and obstacle data sets

7.2.1 Numerical requirements for terrain and obstacle data sets are contained in the ICAO PANS AIM (Doc 10066), Appendices 1 and 8.

7.2.2 Terrain data sets must contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.

7.3Coverage Areas

7.3.1 The coverage areas for sets of electronic terrain and obstacle data must be specified as follow:

(a)**Area 1:** the entire territory of the Kingdom of Saudi Arabia.

(b)**Area 2:** within the vicinity of an aerodrome, sub-divided as follows:

·**Area 2a:** A rectangular area around a runway that comprises the runway strip plus any clearway thatexists. (See GACAR Part 139 and ICAO Annex 14 for dimensions for runway strips).

·**Area 2b:** An area extending from the ends of Area 2a in the direction of departure, with a length of 10km and a splay of 15% to each side.

·**Area 2c:** An area extending outside Area 2a and Area 2b at a distance of not more than 10km from the boundary of Area 2a; and

·**Area 2d: A**n area outside the Areas 2a, 2b and 2c up to a distance of 45km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest.

(c)**Area 3:** The area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centerline and 50 m from the edge of all other parts of the aerodrome movement area.

(d)**Area 4:** The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centerline in the direction of the approach on a precision approach runway, Category II or III.

7.4Terrain Data specifications aspects

7.4.1 The following terrain data numerical requirements must be considered:

	Area 1	**Area 2**	**Area 3**	**Area 4**
Post Spacing	3 arc seconds	1 arc second	0.6 arc seconds	0.3 arc seconds
	(approx. 90m)	(approx. 30m)	(approx. 20m)	(approx. 9m)
Vertical Accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal Accuracy	50 m	5 m	0.5 m	2.5 m

Confidence Level	90%	90%	90%	90%
Integrity Classification	routine	essential	essential	essential
Maintenance Period	as required	as required	as required	as required

7.4.2 The following terrain data type must be considered:

Type **(1)**	**Description** **(2)**	**Data elements** **(3)**
Point	A pair of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of the point on the surface of the Earth.	Latitude Longitude Horizontal reference system Units of measurement Horizontal accuracy achieved
Line	Sequence of Points defining a linear object	Sequence of Points
Polygon	Sequence of Points forming the boundary of the polygon. The first and last Point are identical.	Closed sequence of Points
Height	The vertical distance of a level, point or an object considered as a point, measured from a specific datum.	Numerical value Vertical reference system Units of measurement

		Vertical accuracy achieved
Altitude	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy
Distance	A linear value	Numerical value Units of measurement Accuracy achieved
Angle / Bearing	An angular value	Numerical value Units of measurement Accuracy achieved
Value	Any measured, declared or derived value not listed above.	Numerical Value

		Units of Measurement Accuracy achieved
Date	A calendar date referencing a particular day or month	Text
Schedule	A repetitive time period, composed of one or more intervals or special dates (e.g. holidays) occurring cyclically	Text
Code list	A set of predefined Text strings or values	Text
Text	Free text	String of characters without constraints

7.5 Obstacle Data Specifications aspects7

7.5.1 The following obstacle data numerical requirements must be considered:

Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
			Obstacle: All fixed (whether temporary or permanent) and mobile obstacles or parts thereof.						
Obstacle identifier		Text	Unique identifier of obstacle						
Operator / Owner		Text	Name and Contact information of obstacle operator or owner						
Geometry type		Code list	An indication whether the obstacle is a point, line or polygon.						
Horizontal position		Point Line Polygon	Horizontal position of obstacle		See Note 1)				
Horizontal extent		Distance	Horizontal extent of the obstacle						
Elevation		Elevation	Elevation of the highest		See Note 2)				

			point of the obstacle.						
Height		Height	Height of the obstacle above ground						
Type		Text	Type of obstacle						
Date and time stamp		Date	Date and time the obstacle was created						
Operations		Text	Feature operations of mobile obstacles						
Effectivity		Text	Effectivity of temporary types of obstacles						
Lighting									
	Type	Text	Type of lighting						
	Colour	Text	Colour of the obstacle lighting						
Marking		Text	Type of marking of obstacle						
Material		Text	Predominant surface material of the obstacle						

		Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Note 1)	Obstacles in Area 1	50 m	routine	surveyed	1 sec	as plotted
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 3	0.5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 4	2.5 m	essential	surveyed		
Note 2)	Obstacles in Area 1	30 m	routine	surveyed	1 m or 1 ft	3 m (10 ft)
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	3 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	Obstacles in Area 3	0.5 m	essential	surveyed	0.1 m or 0.1 ft	1m or 1 ft
	Obstacles in Area 4	1 m	essential	surveyed	0.1 m	

7.6 Definitions of data specifications Aspects

(a) Post spacing: Angular or linear distance between two adjacent elevation points (1 Second is approx. 30 m).

(b) Data accuracy: A degree of conformance between the estimated or measured value and the true value.

(c) Data integrity (assurance level): A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

(d) Integrity classification (aeronautical data): Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

(1) Routine data: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

(2) Essential data: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for

catastrophe; and

(3) Critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

(e) Data resolution: A number of units or digits to which a measured or calculated value is expressed and used

(f) Confidence level: The probability that the true value of a parameter is within a certain interval around the estimate of its value.

7.7 Survey Classifications

7.7.1 Refer to Chapter 1 – Table1-1.

7.8 Survey Frequency

7.8.1 Refer to Chapter 1 - Table1-3

7.9 Terrain And Obstacle Attributes Provision Requirements

7.9.1 Terrain attributes

(1) Terrain data sets must contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.

(2) A terrain grid must be angular or linear and must be of regular or irregular shape.

(3) Sets of terrain data must include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, and permanent ice and snow, and exclude obstacles.

(4) In terrain data sets, only one feature type, i.e. terrain, must be provided.

Terrain attribute	**Mandatory/Optional**
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Acquisition method	Mandatory
Post spacing	Mandatory
Horizontal reference system	Mandatory
Horizontal resolution	Mandatory

Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Elevation	Mandatory
Elevation reference	Mandatory
Vertical reference system	Mandatory
Vertical resolution	Mandatory
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Surface type	Optional
Recorded surface	Mandatory
Penetration level	Optional
Known variations	Optional
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory

7.9.2Obstacle attributes

(1) Obstacle data sets must contain the digital representation of the vertical and horizontal extent of obstacles.

(2) Obstacle data elements are features that must be represented in the data sets by points, lines or polygons.

(3) Obstacle data must not be included in terrain data sets.

Obstacle attribute	**Mandatory/Optional**
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Obstacle identifier	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Horizontal resolution	Mandatory
Horizontal extent	Mandatory
Horizontal reference system	Mandatory
Elevation	Mandatory
Height	~~Optional~~ Mandatory
Vertical accuracy	Mandatory

Vertical confidence level	Mandatory
Vertical resolution	Mandatory
Vertical reference system	Mandatory
Obstacle type	Mandatory
Geometry type	Mandatory
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory
Operations	Optional
Effectivity	Optional
Lighting	Mandatory

TERRAIN AND OBSTACLE DATA REQUIREMENTS
(Refer to GACAR Part 175, ICAO Annex 15 and ICAO PANS-AIM Doc 10066)

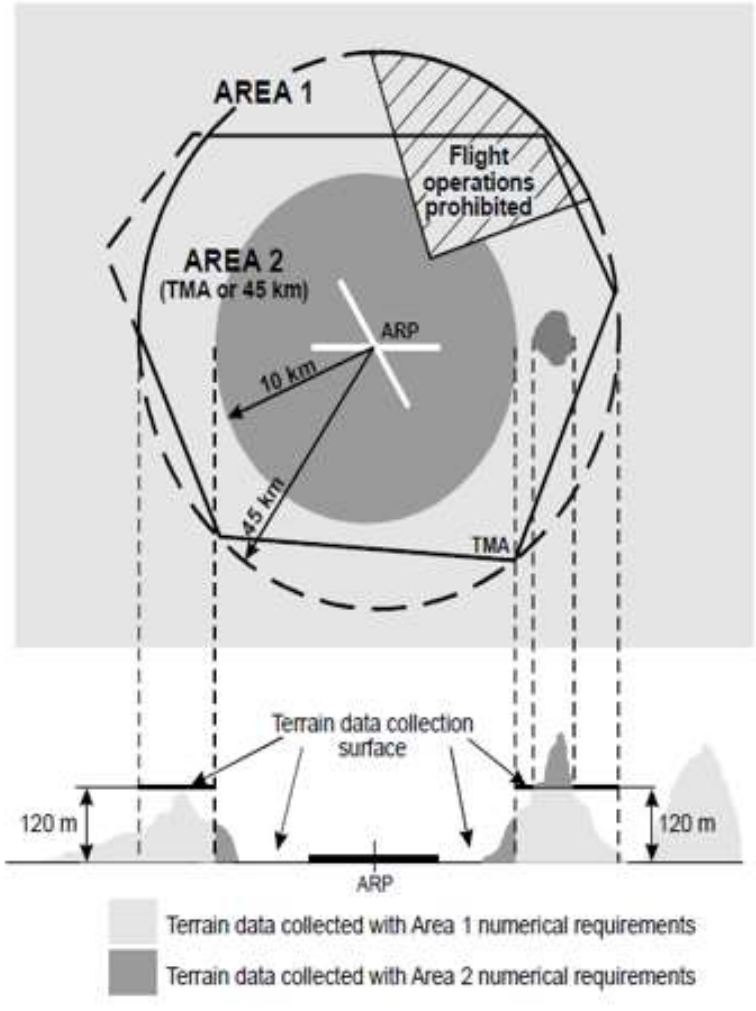


Figure 7-1 Terrain Data Collection Surfaces Area 1 and Area 2

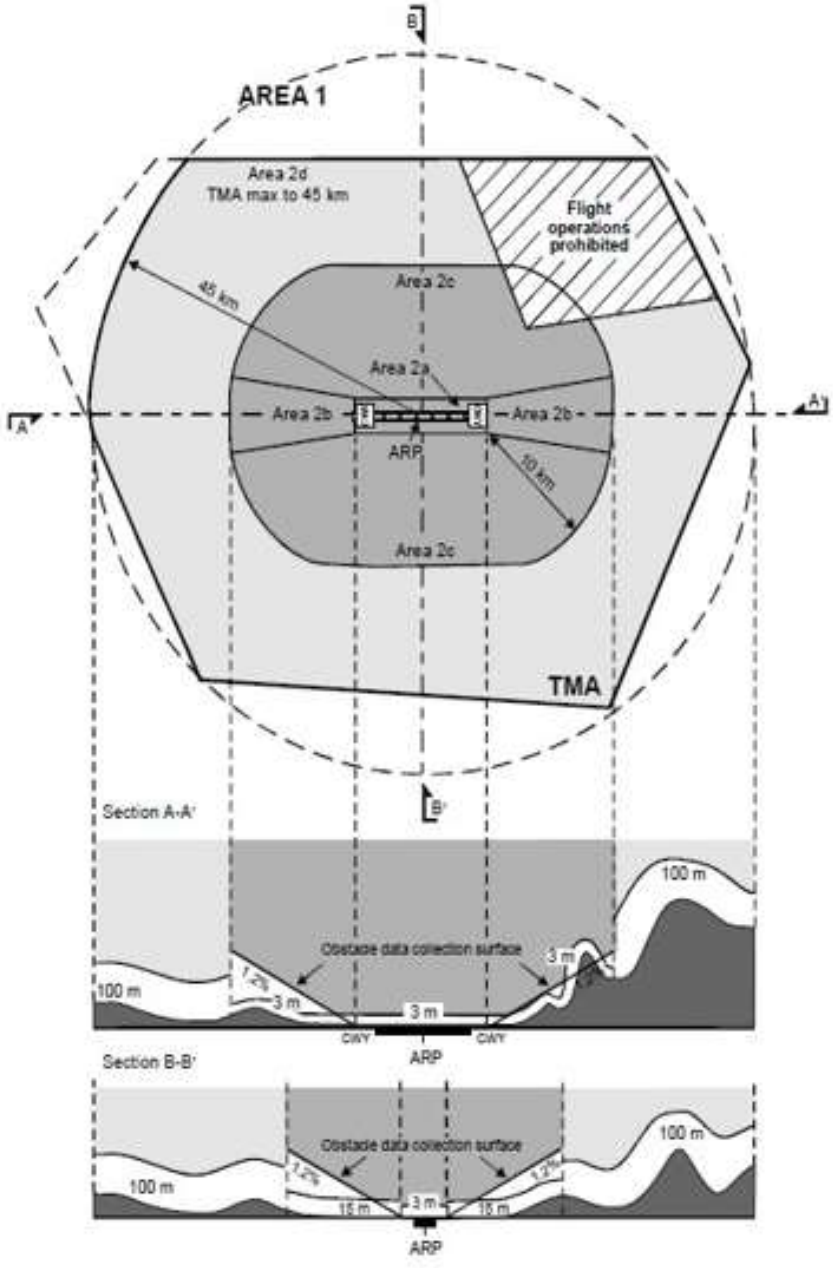


Figure 7-2 Obstacle Data Collection Surfaces Area 1 and Area 2

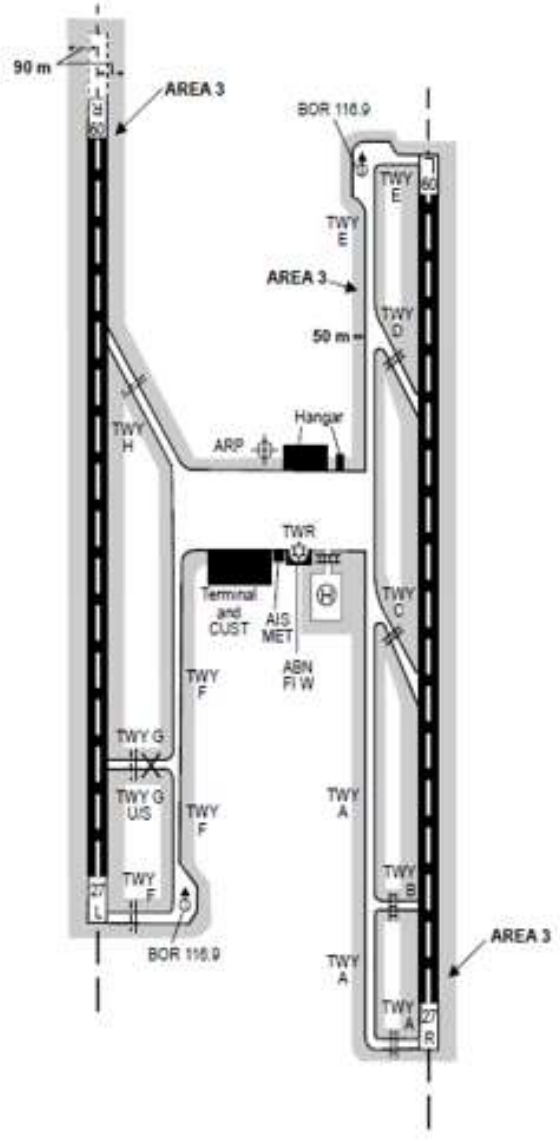


Figure 7-3 Terrain and Obstacle Data Collection Surfaces Area 3

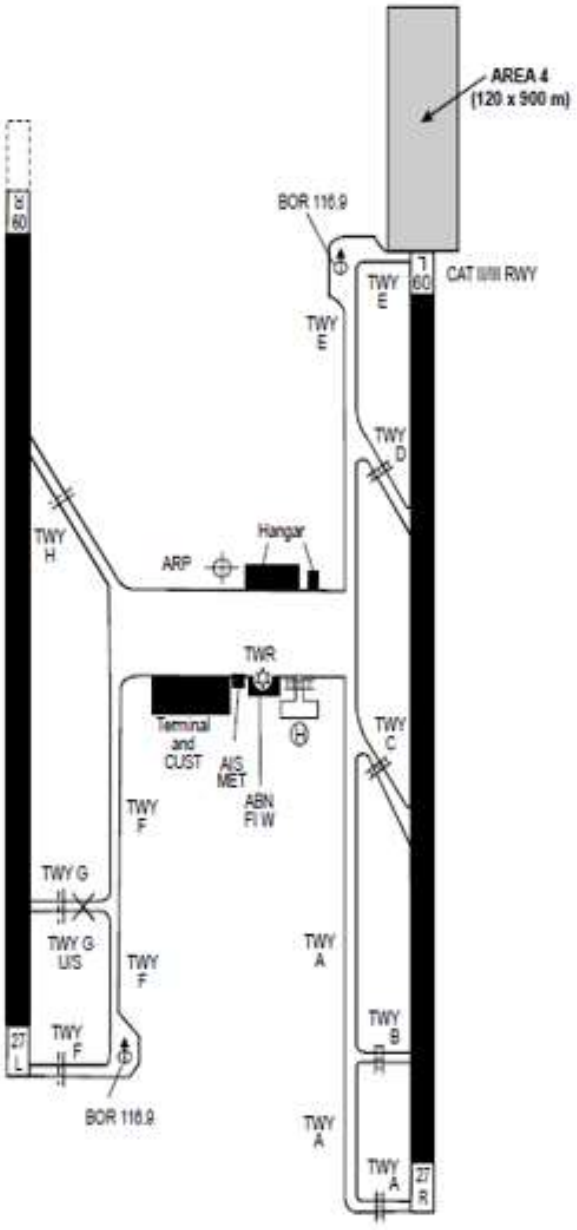


Figure 7-4 Terrain and Obstacle Data Collection Surfaces Area 4

CHAPTER8 AERODROME OBSTACLE CHART -ICAO TYPE A SURVEY AREA

8.1 Function and availability

8.1.1 The Aerodrome Obstacle Chart - ICAO Type A (Operating Limitations), in combination with the relevant information published in the KSA AIP, provides data necessary to enable an operator to comply with the operating limitations of ICAO Annex 6 - Operation ofAircraft.

8.1.2 Aerodrome Obstacle Charts - ICAO Type A (Operating Limitations) must be made available in the manner prescribed in GACAR Part 175 and ICAO Annex 4 for all aerodromes regularly used by international civil aviation, except for those aerodromes where there are no obstacles in the take-off flight path areas or where the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) is provided.

Where a chart is not required because no obstacles exist in the take-off flight path area, a notification to this effect must be published in the KSA AIP.

8.2 Survey Specification

8.2.1 Aerodrome Area

8.2.1.1 The elevation AMSL at the start and end of TORA, end of ASDA, and end of TODA - and at regular intervals (maximum 200 meters) along the runway and clearway centerline - must be provided.

8.2.1.2 The type of clearway and declared distances (TORA, TODA, ASDA and LDA) must be stated in the Survey Report. If these have not already been agreed with GACA Aviation Standards they must be submitted for acceptance before the Survey is started.

8.2.2 Take-Off Flight Path Area

8.2.2.1 The take-off flight path area to be surveyed consists of a quadrilateral area on the surface of the earth lying directly below, and symmetrically disposed about, the take-off flight path. This area has the following characteristics:

(a) it commences at the end of the area declared suitable for take-off (i.e. at the end of the runway or clearway as appropriate).

(b) its width at the point of origin is 180 m and this width increases at the rate of 0.25D to a maximum

of 1 800 m, where D is the distance from the point of origin.

(c) it extends to the point beyond which no obstacles exist or to a distance of 5.4 NM, whichever is the lesser.

8.2.2.2 The take-off flight path area is the area within which obstacles are to be selected and identified. The take-off flight path area commences at the end of the runway or clearway (if there is a clearway). If the runway lies within a strip which extends beyond the runway and which has not been designated as a clearway but conforms to the minimum specifications for a clearway as specified in GACAR Part 139 and ICAO Annex 14, then the take-off flight path area should commence at the end of the strip. The area should have the dimensions indicated in the Figure 8-1

8.2.2.3 For runways serving aircraft having operating limitations which do not preclude the use of a take-off flight path gradient of less than 1.2 per cent, the extent of the take-off flight path area must be increased to not less than 6.5 NM and the slope of the plane surface must be reduced to 1.0 per cent or less. When a 1.0 per cent survey plane touches no obstacles, this plane may be lowered until it touches the first obstacle.

8.2.2.4 A slope of less than 1.0 per cent need be considered only when there are no obstacles penetrating the 1.0 per cent slope. It should be noted that the width of the take-off flight path area remains at a constant 1 800 m if extended beyond 5.4 NM. In the event a chart has been published on the basis of the former more conservative specifications, the only change would be to indicate obstacles which have become significant by a lowering of the survey plane and/or by extending the area beyond the 5.4 NM length. The survey may reveal that no change is necessary except to indicate the overall distance that has been taken into consideration.

8.2.2.5 Curved flight path

When obstacles, including high terrain, exist in the take-off flight path area it may be necessary to prescribe a turn in the take-off procedure. In such a situation the take-off flight path area has to be adjusted so that it is centered on the curved flight path rather than the extended center line of the runway. It is appropriate to indicate the radius of turn and the distance from the beginning of the runway to the center of curvature. The distance from the beginning of the runway to an obstacle, situated within the curved portion of the area, must be measured along the track to its intersection with a perpendicular from the actual obstacle. Obstacles situated outside and near the curved portion of the same area should be indicated (see drafting illustration in the Figure 8-2).

8.2.2.6 Where the take-off flight path area is at an offset angle from the runway extended centerline in order to gain an operational advantage, the area to be surveyed must be determined by consultation between the Aerodrome/Heliport Certificate applicant/ Holders and aircraft operators concerned, and agreed with GACA Aviation Standards and annotated in the survey report.

8.2.3 Obstacles

1.1.1.1

8.2.3.1 All objects and terrain within the take-off flight path area must be comprehensively analyzed. All obstacles that penetrate the take-off flight path surface must be surveyed except where such obstacles are in the shadow of others.

8.2.3.2 Objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area must be regarded as obstacles, except that obstacles lying wholly below the shadow of other obstacles need not be shown. Mobile objects such as boats, trains and trucks, which may project above the 1.2 per cent plane, must be considered obstacles but must not be considered as being capable of creating a shadow.

8.2.3.3 The shadow of an obstacle is considered to be a plane surface originating at a horizontal line passing through the top of the obstacle at right angles to the center line of the take-off flight path area. The plane covers the complete width of the take-off flight path area and extends to the plane or to the next higher obstacle if it occurs first. For the first 300 m of the take-off flight path area, the shadow planes are horizontal and beyond this point such planes have an upward slope of 1.2 per cent.

The illustration in figure 8-3 shows how to determine whether an obstacle lies within the shadow of another and therefore need not be shown on the chart.

8.2.3.4 If the obstacle creating a shadow is likely to be removed, objects that would become obstacles by its removal must be surveyed. If the surveyor is unclear as to which obstacles are dominant, then all obstacles penetrating the surface must be surveyed.

8.3 Digital Data

8.3.1 All surveyed obstacles must form part of the Master Listing depicted in Appendix D. Positional data and associated elevations that determine the extent of the declared distances and runway profile must be included in the Aerodrome Facilities File depicted in AppendixD.

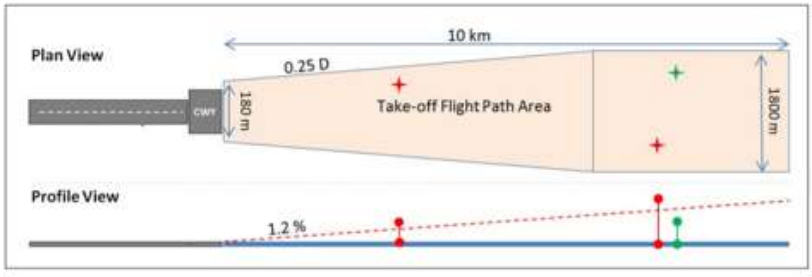
8.4 Published Chart

8.4.1 The survey information must be passed to the Aerodrome/Heliport Certificate applicant/ Holders to take the necessary action and to coordinate with GACA President for approval and publication.

8.4.2 The Aerodrome Obstacle Chart - ICAO Type A must be provided in CAD, PDF, XML, KML format and on paper format (signed and stamped).

8.5 Chart Maintenance

8.5.1 It is the responsibility of the Aerodrome/Heliport Certificate applicant/ Holders to monitor any changes in the Aerodrome Obstacle Chart - ICAO Type A (Operating Limitations) profile. If significant changes occur, the Aerodrome/Heliport Certificate applicant/ Holders must promulgate a NOTAM.



Take-off Flight Path Area (Ref ICAO Annex 4, paragraph 3.8.2

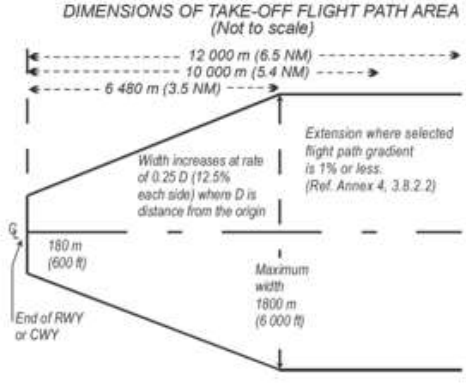


Figure 8-1: Take-off flight path area

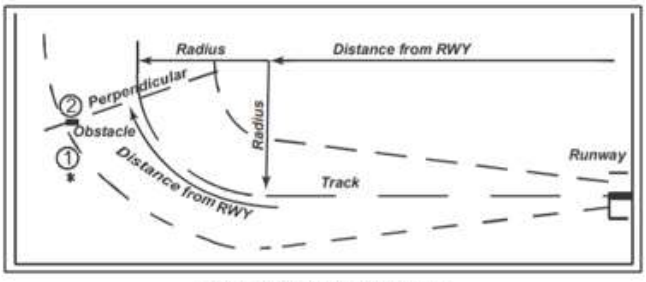


Figure 8-2: Curved flight path

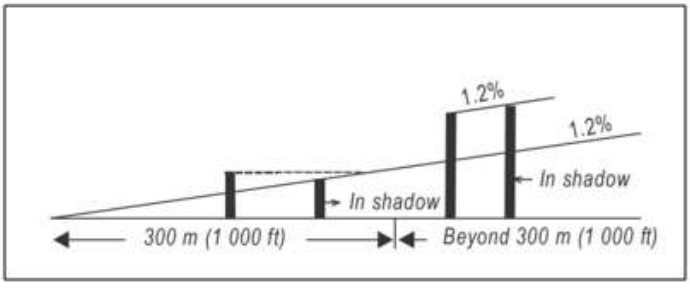


Figure 8-3: shadow of an obstacle

CHAPTER 9 PRECISION APPROACH TERRAIN CHART SURVEY AREA

9.1 Function and availability

9.1.1 The Precision Approach Terrain Chart provides detailed terrain profile information (including natural and man-made objects) within a defined portion of the final approach which will enable aircraft operating agencies to assess the effect of the terrain on decision height determination by the use of radio altimeters.

9.1.2 The Precision Approach Terrain Chart — ICAO must be made available for all precision approach runways Categories II and III at aerodromes used or planned to be used by international civil aviation, except where the requisite information is provided in the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic)

9.1.3 The Precision Approach Terrain Chart — ICAO must be revised whenever any significant change occurs.

9.2 Survey Specification

9.2.1 The area for survey must cover details of the terrain in an area 120 m by 900 m extending from the runway threshold along the extended centerline of the runway.

9.2.2 The Precision Approach Terrain Chart must include the following:

(a) A plan showing contours at 1 m intervals in the area 60 m on either side of the extended centerline of the runway, to the same distance as the profile, the contours to be related to the runway threshold.

(b) An indication where the terrain or any object thereon, within the plan defined in a), differs by ±3 m (10 ft) in height from the centerline profile and is likely to affect a radio altimeter.

(c) A profile of the terrain to a distance of 900 m from the threshold along the extended centerline of the runway.

9.3 Obstacles

9.3.1Moving objects within the defined area such as trains and vehicular traffic should be taken into consideration and labelled as mobile obstacles if they differ by more than ± 3 m (10 ft) in height from the elevation of the centerline profile. All topographical and cultural obstacles not related to the function of the chart are superfluous.

9.3.2The area for survey starts at the runway threshold and extends for a distance of 900m into the approach, 60m either side of the extended runway centerline. A longitudinal extension of this area might be required if the terrain undulates significantly. Any such requirement will be identified by GACA Aviation Standards during the initial approval process for Category II and/or III operations.

9.4 Features to be surveyed:

(a) Runway threshold and elevation.

(b) Extended runway centerline terrain profile.

(c) All features including mobile features that are 3m, or greater, above or below the extended runway centerline terrain level and with a horizontal dimension of more than 15m measured parallel to the runway centerline.

(d) Terrain contours at 1m contour intervals related to the runway threshold height; and

(e) Roads, tracks, river or water features must have sufficient levels to show their surface elevation, (in the case of a body of water subject to tides, high and low tidal variations are required) and the height of the highest mobile feature that could be expected on them.

9.4.1The features must include vegetation, hard, mobile and temporary objects.

9.4.2This Chart may be produced from data captured for eTOD Area 4.

9.5 Survey Chart Presentation

9.5.1 The extent of the chart coverage is given in ICAO Annex 4.

9.5.2 The horizontal scale should be 1:2 500 and the vertical scale 1:500.

9.5.3 When the chart includes a profile of the terrain to a distance greater than 900 m (3 000 ft) from the runway threshold, the horizontal scale should be 1:5 000. The accepted format is listed in Chapter 3 of this section.

9.5.4 The base map must be at a scale of 1:2500 or where the area has been extended it must be at 1:5000. The accepted format is listed in Chapter 3.

9.5.5 The chart will show the survey area in plan view at either of the above scales and in cross section profile at a recommended scale of 1:500. If the area is flat, a larger profile scale may be used.

9.5.6 The chart must reflect the position, height and shape of all features as described in this chapter, ICAO Annex 4 and ICAO Doc 8697.

9.5.7 Terrain data should be made available in a digital format as per GACA Part 175, ICAO Annex 15, ICAO PANS-AIM Doc 10066 and ICAO AIS Manual Doc 8126.

9.6 Published Chart

9.6.1 The survey information must be passed to the Aerodrome/Heliport Certificate applicant/ Holders to take the necessary action and to coordinate with GACA President for approval and publication.

9.6.2 The Precision Approach Terrain Chart — ICAO must be provided in CAD, PDF, and XML format and on paper format (signed and stamped).

9.7 Chart Maintenance

9.7.1 It is the responsibility of the Aerodrome/Heliport Certificate applicant/ Holders to monitor any changes in the approach terrain profile. If significant changes occur the Aerodrome/Heliport Certificate applicant/ Holders must promulgate a NOTAM.

9.7.2 All changes in the profile must be recorded

Note: It is important that both increases and decreases in elevation are significant.

CHAPTER 10 VISUAL APPROACH CHART SURVEY AREA

10.1 Function and availability

The visual approach chart must provide flight crews with information which will enable them to transit from the en-route/descent to approach phases of flight to the runway of intended landing by means of visual reference.

The Visual Approach Chart — ICAO must be made available for all aerodromes used or planned to be used by international civil aviation where:

(a) Only limited navigation facilities are available; or

(b) Radio communication facilities are not available; or

(c) No adequate aeronautical charts of the aerodrome and its surroundings at 1:500 000 or greater scale are available; or

(d) Visual approach procedures have been established.

10.2 Scale, Culture and topography

10.2.1 On the visual flight rules (VFR)-based visual approach chart, relief and obstacles are important elements for navigation and are shown in greater detail related to their value as visual landmarks.

10.2.2 The scale must be sufficiently large to permit depiction of significant features and indication of the aerodrome layout.

10.2.3 The scale should not be smaller than 1:500 000. A scale of 1:250 000 or 1:200 000 is preferred.

10.2.4 Natural and cultural landmarks must be shown (e.g. bluffs, cliffs, sand dunes, cities, towns, roads, railroads, isolated lighthouses).

10.2.5 Shore lines, lakes, rivers and streams must be shown.

10.2.6 Relief must be shown in a manner best suited to the particular elevation and obstacle characteristics of the area covered by the chart.

10.2.7 The figures relating to different reference levels must be clearly differentiated in their presentation.

10.2.8 Significant obstacles must be shown and identified.

10.2.9 The heights of obstacles above the aerodrome elevation should be shown.

10.2.10 When the heights of obstacles are shown, the height datum must be stated in a prominent position on the chart and the heights must be given in parentheses on the chart.

Appendixes

AppendixA

APPLICATION FOR AERONAUTICAL SURVEYOR ACCEPTANCE UNDER GACAR PART 175

Appendix A
APPLICATION FOR AERONAUTICAL SURVEYOR ACCEPTANCE UNDER GACAR PART 175

A. APPLICANT DETAILS			
ORGANIZATION NAME:	ADDRESS:		
	PHONE:	E-MAIL:	
ACCOUNTABLE EXECUTIVE NAME:	ADDRESS (if different)		**SIGNATURE**
E-MAIL:	PHONE:	E-MAIL:	
PROJECT MANAGER (s) NAME(s):	ADDRESS (if different)		
	PHONE:	E-MAIL:	

B. SERVICES TO BE PROVIDED (Please strikethrough as required)	
Survey of eTOD area 1	☐
Survey of eTOD areas 2a, 2b, 2c, 2d, 3 and 4	☐
Aerodrome/heliport Survey	☐
Aerodrome Obstacle Chart Type A Survey	☐
Precision Approach Terrain Chart Survey	☐
Survey of the take-off flight path area	☐
Survey of Obstacle Limitation surfaces (OLS)	☐
Please provide additional information	

C. SUBMISSION OF DOCUMENTATION *(as required)* *The applicant must attach the following documents, and any other documents required under the appropriate GACAR*	
OPERATIONS AND SURVEY MANUAL(S)	☐
METHODOLOGY OF SURVEY	☐
EQUIPMENT LIST	☐
QUALITY CONTROL SYSTEM DOCUMENTATION	☐
List additional documents attached to this application	

D. MANAGEMENT PERSONNEL *The applicant must attach information required including CV, a statement of qualifications, training and experience and a statement of the responsibilities of each manager.*	
IS INFORMATION AND CV CONCERNING MANAGEMENT PERSONNEL ATTACHED?	YES ☐ NO ☐

E. CONTRACTED ACTIVITIES	
DOES THE APPLICANT INTEND TO USE CONTRACTED SERVICES?	YES ☐ NO ☐
If yes, provide information concerning the contracted activities and copies of any approvals held	

F. PROFESSIONALLY QUALIFIED SURVEYORS *The applicant must attach information required including a statement of qualifications, training and experience and a statement of the responsibilities of each manager.*	
IS INFORMATION AND CV CONCERNING PROFESSIONALLY QUALIFIED SURVEYORS ATTACHED?	YES ☐ NO ☐

G. DECLARATION	
DOES THE APPLICANT provided Declaration signed by the Accountable Executive of understanding and knowledge of GACA Regulations, ICAO Annexes 15, 4, 14 and all GACA and ICAO requirements pertaining to aeronautical and eTOD surveys?	YES ☐ NO ☐

Application Form **Edition 1 – April 2021**

Appendix B

Definitions

Refer to GACA Regulation Part 1

Appendix C

SURVEY DECLARATIONFORM

Aerodrome/Heliport				
Survey	☐Geodetic Connection	☐ Mandatory Survey (Full Survey)	☐Validation Assessment (Check survey)	☐eTOD Survey
Aeronautical Surveyor (Surveying Company)				
Aerodrome/heliport Survey Classification		Initial/Last Full Survey Date		../ ../….
Geodetic Connection Date *(if applicable)*	../ ../….	Annual Validation Assessment (Check survey) Date *(if Applicable)*		../ ../….
SURVEY AREA REQUIRED *(Add survey area as per table 1-2 and 1-2a then Check boxes as appropriate)*			No Change to Previous Survey	Change to Previous Survey
	☐		☐	☐
	☐		☐	☐
	☐		☐	☐
	☐		☐	☐

Declaration by Aerodrome/heliport Certificate Holder's Representative:

I certify that the information and data supplied meet the Aerodrome's/heliport's Operational requirements in accordance with GACA Regulations. I also certify that the information and data supplied are complete and conform to GACA Survey Requirements.

Position		
Name		
Signature		Date ../. ./..

Declaration by the Aeronautical Surveyor:

I certify that the information and data supplied are correct, complete and conform to GACA Regulations, eBook V8.3.3 and ICAO requirements.

Position	Project Manager	Accountable Executive	
Name			
Signature			Date ../. ./..

This form must be made available to GACA Inspectors on request.

GACA Survey Declaration Form Edition 1 – April 2020

Appendix D

Digital Data Specification

NOTES:

(a) All data of the catalogue in Appendix 1 of ICAO PANS-AIM Doc 10066 related to aerodrome/heliport, Navaids, geographic information, terrain and obstacle must be provided in addition to the data specified in this appendix.

(b) The fields in the matrix describe the data format layout and should be used as a guideline to reportdata.

(c) Fields not applicable should be leftblank.

(d) Master files of all surveyed facilities and obstacles must be created andsupplied.

(e) Files of survey information must be in the form of a comma delimited ASCII text file containing all fields plus CRC field as listedbelow as well as excel sheet (.XLS), XML, KML and PDF format.

(f) Aerodrome/heliport Facilities File must be named appropriately (e.g.OEJN_AD00)

(g) Obstacle File must be named appropriately (e.g.OEJN_OBST00)

(h) Decimal places must not berounded.

(i) Only decimal places, underscores and forward slashes must be used within fields (no hyphens, word spaces, commas or back slashes, etc.).

(j) All text must be upper case.

(k) All fields must be populated with the exception of the Aerodrome/heliport Facilities File Field 3, Field 4 and Field 10, which must be blank if there is no identification, association or description.

(l) Duplicate data in a record is not acceptable.

COMMON FILE HEADER

Each file of Survey Package must contain metadata and an attribute name as follow:

Row	Attribute Name	Description
1	Data Originator	Name of the person responsible for the submitted version of the file.
2	Data Originator Company (Aeronautical Surveyor)	Name of the Aeronautical Surveyor company responsible for data origination
3	Data Originator Phone	Contact phone number of the Aeronautical Surveyor responsible for data origination
4	Data Originator Address	Address of the Aeronautical Surveyor responsible for data origination
5	Data Originator Electronic Mail Address	e-mail address of the Aeronautical Surveyor company responsible for data origination
6	Aerodrome/heliport	ICAO Aerodrome Location Indicator
7	Survey area	Type of the survey as per table 1-2 and 1-2a
8	Survey revision	A revision number/letter incremented for subsequent submissions of the same survey
9	Survey Process Date	The date on which the submitted version of the file was created.
10	File Creator	Name of the last person who interacted with the data and created the survey file.
11	Earth Gravitational Model	Earth Gravitational Model used.
12	Epoch	Epoch included with any set of absolute station coordinates.
13	Precise worldwide terrestrial coordinate system	Precise worldwide terrestrial coordinate system (International Earth Rotation Service (IERS) and Terrestrial Reference System (ITRS))
14	Coordinate System	Coordinate System used
15	Confidence Level	The probability [%] that the true value of a parameter is within a certain interval around the estimate of its value. This means that for X% of the measured values, their difference to the truth does not exceed the specified accuracy requirement.

Note: the above requirements are given as minimum.

MASTER OBSTACLE FILE

MASTER OBSTACLE FILE (SECTION A)			*Named appropriately OEXX_OBST00 (e.g., OEJN_OBST00).* *"OEXX" is the ICAO Aerodrome Location Indicator for the surveyed aerodrome and "00" is the year of the survey)*
Field 1	Site Name	OEXX	ICAO Aerodrome Location Indicator
Field 2	Type of Feature	For allowable values refer to Section B	
Field 3	Identification	Example CRASH BARRIER 3	A full textual description of the type of obstacle to supplement Field 2
Field 4	Association	For allowable values refer to Section B	
Field 5	Latitude	DDMMSS.ssssN	WGS-84 Latitude in DEG, MIN, SEC, 1/10000's SEC
Field 6	Longitude	DDDMMSS.ssssE	WGS-84 Longitude in DEG, MIN, SEC, 1/10000's SEC
Field 7	Ellipsoidal Height (m)	000.00	Elevation in meters above WGS-84 ellipsoid to 2 decimal places
Field 8	Ellipsoidal Height (ft)	000.00	Elevation in feet above WGS-84 ellipsoid to 2 decimal places
Field 9	LIT or UNLIT	Y/N	Y To be entered if the feature is lit N To be entered if the feature is unlit
Field 10	Lighting Description	FLASHING WHITE	A textual description of the lighting used
Field 11	Mobile	Y/N	Y To be entered if the feature is mobile N To be entered if the feature is not mobile
Field 12	Frangible	Y/N	Y To be entered if the feature is frangible N To be entered if the feature is not frangible
Field 13	Construction Status	IN_CONSTRUCTION COMPLETED DEMOLITION_PLANNED. IN_DEMOLITION	In Construction. Completed. Removal is planned. Work in progress to remove the item.
Field 14	Orthometric Height (m)	0000.00	Elevation in meters AMSL to 2 decimal places

Field 15	Orthometric Height (ft)	0000.00	Elevation in feet AMSL to 2 decimal places
Field 16	Height Above Ground Level (m)	0000.00	Height above ground level in meters to 2 decimal places
Field 17	Height Above Ground Level (ft)	0000.00	Height above ground level in feet to 2 decimal places
Field 18	Aerodrome/heliport Control Network Horizontal	00.000	Horizontal accuracy in meters relative to the datum to 3 decimal places
Field 19	Aerodrome/heliport Control Network Vertical Accuracy (m)	00.000	Vertical accuracy in meters relative to the datum to 3 decimal places
Field 20	Horizontal Extent (m)	000.00	Horizontal extent (radius) of the surveyed entity in meters to 2 decimal places. (Obstacles only)
Field 21	Horizontal Accuracy (m)	00.000	Horizontal Accuracy in meters relative to the Aerodrome/heliport control network to 3 decimal places at a 95% confidence level
Field 22	Vertical Accuracy (m)	00.000	Vertical Accuracy in meters relative to the Aerodrome/heliport control network to 3 decimal places at a 95% confidence level
Field 23	Record Identifier	0000	Unique integer number
Field 24	Record Identifier	0000	Unique integer number
Field 25	Survey Date	dd/mm/yy	Date of field survey of record
Field 26	CRC Value		Example 32 bit CRC-32Q algorithm value (CRCV format = Hexadecimal)

AERODROME/HELIPORT FACILITIES FILE

AERODROME/HELIPORT FACILITIES FILE (SECTION A)			*Named appropriately OEXX_AD00 (e.g., OEJN_AD00).* *"OEXX" is the ICAO Aerodrome Location Indicator for the surveyed aerodrome/heliport and "00" is the year of the survey)*
Field 1	Site Name	OEXX	ICAO Aerodrome Location Indicator
Field 2	Type of Feature	For allowable values refer to Section B	
Field 3	Identification	For allowable values refer to Section B	
Field 4	Association	For allowable values refer to Section B	
Field 5	Latitude	DDMMSS.ssssN	WGS-84 Latitude in DEG,MIN, SEC, 1/10000's SEC
Field 6	Longitude	DDDMMSS.ssssE	WGS-84 Longitude in DEG,MIN, SEC, 1/10000's SEC
Field 7	Ellipsoidal Height (m)	000.00	Elevation in meters above WGS-84 ellipsoid to 2 decimal places
Field 8	Ellipsoidal Height (ft)	000.00	Elevation in feet above WGS-84 ellipsoid to 2 decimal places
Field 9	LIT or UNLIT	Y/N	Y To be entered if the feature is lit N To be entered if the feature is unlit
Field 10	Lighting Description	FLASHING WHITE	A textual description of the lighting used
Field 11	Mobile	Y/N	Y To be entered if the feature is mobile. N To be entered if the feature is not mobile.
Field 12	Frangible	Y/N	Y To be entered if the feature is frangible N To be entered if the feature is not frangible
Field 13	Construction Status	IN_CONSTRUCTION COMPLETED DEMOLITION_PLANNED IN_DEMOLITION	In Construction. Completed. Removal is planned. Work in progress to remove the item.
Field 14	Orthometric Height (m)	0000.00	Elevation in meters AMSL to 2 decimal places
Field 15	Orthometric Height (ft)	0000.00	Elevation in feet AMSL to 2 decimal places

Field 16	Height Above Ground Level (m)	0000.00	Height above ground level in meters to 2 decimal places
Field 17	Height Above Ground Level (ft)	0000.00	Height above ground level in feet to 2 decimal places
Field 18	Aerodrome/heliport Control Network Horizontal	00.000	Horizontal accuracy in meters relative to the datum to 3 decimal places
Field 19	Accuracy (m)	00.000	Vertical accuracy in meters relative to the datum to 3 decimal places
Field 20	Horizontal Extent (m)	000.00	Horizontal extent (radius) of the surveyed entity in meters to 2 decimal places. (Obstacles only)
Field 21	Horizontal Accuracy (m)	00.000	Horizontal Accuracy in meters relative to the aerodrome/heliport control network to 3 decimal places at a 95% confidence level
Field 22	Vertical Accuracy (m)	00.000	Vertical Accuracy in meters relative to the aerodrome/heliport control network to 3 decimal places at a 95% confidence level
Field 23	Record Identifier	0000	Unique integer number
Field 24	Survey Date	dd/mm/yy	Date of field survey of record
Field 25	CRC Value		Example 32 bit CRC-32Q algorithm value (CRCV format = Hexadecimal)

AERODROME FACILITIES FILE (SECTION B)							
Field 2		**Field 3**	**Example**	**Rule**	**Field 4**	**Example**	**Rule**
Type of Feature	**Description**	**Identification**			**Association**		
ARP	Aerodrome Reference Point				For allowable values refer to OBSTACLES FILE SECTION B.		
AEP	Aerodrome Elevation Point (the highest point of the landing area)						
ABN	Aerodrome Beacon						
ANEMOMETER	Anemometer						
ASDA_END	End of ASDA				(RWY DIR)	05	1
ATC	Air Traffic Control Tower				For allowable values refer to OBSTACLES FILE SECTION B.		
CADF	Commutated Aerial Direction Finder						
CENTRE_PT_TWY	Taxiway Centre-line Point	IDENT	ABC	3	(TAXIWAY)	W	5
CHECK_PT_RWY	Runway Check Point	IDENT	ABC	3	(RWY) Alphanumeric	05/23	2
DME	Distance Measuring Equipment	IDENT	ABC	3	For allowable values refer to OBSTACLES FILE SECTION B.		
DME ILS	Instrument Landing System Distance Measuring Equipment	IDENT	ABC	3	(LLZ IDENT)	IABC	3
DME MLS	Microwave Landing System Distance Measuring Equipment	IDENT	ABC	3	(MLS AZM IDENT)	ABC	3
DRDF	Digital Resolution Direction Finder				For allowable values refer to OBSTACLES FILE SECTION B.		
FATO	Final Approach and Take-Off Area				(FATO DIR)	05	1
GP	Instrument Landing System Glide Path	IDENT	IABC	3	(RWY DIR)	05	1
GP_MON	Glide Path Monitor				(RWY DIR)	05	1
HOLD	Taxiway Holding Point	Alphanumeric	123A	4	(TAXIWAY)	W	5
HOLD_STOP_BAR	Taxiway Holding Point	Alphanume	123A	4	(TAXIWAY)	W	5

	Stop Bar Lights	ric					
IBN	Identification Beacon				For allowable values refer to OBSTACLES FILE SECTION B.		
IRVR	Instrument Runway Visual Range						
L	Locator (NDB)	IDENT	ABC	3	For allowable values refer to OBSTACLES FILE SECTION B.		
LDA_END	End of LDA				(RWY DIR)	05	1
LLZ	Instrument Landing System Localizer	IDENT	IABC	3	(RWY DIR)	05	1
LLZ_MON	Instrument Landing System Monitor				(RWY DIR)	05	1
MLS_AZM	Microwave Landing System Azimuth	IDENT	ABC	3	(RWY DIR)	05	1
MLS_ELEV	Microwave Landing System Elevation	IDENT	ABC	3	(RWY DIR)	05	1
MM	Middle Marker	IDENT	-_--	7	For allowable values refer to OBSTACLES FILE SECTION B.		
NDB	Non-Directional Beacon	IDENT	ABC	3			
OM	Outer Marker	IDENT	-_--	7			
PAPI	Precision Approach Path Indicator				(RWY DIR)	05	1
RADAR	Radar				For allowable values refer to OBSTACLES FILE SECTION B.		
RADAR_MSSR	Monopulse Secondary Surveillance Radar						
RADAR_PAR	Precision Approach Radar						
RADAR_SSR	Secondary Surveillance Radar						
RADAR_WATCHMAN	Watchman Radar						
ROP	Runway Observation Post						
STAND	Parking Stand	Alphanumeric	123A	4	(APRON)	MAIN	6
TACAN	Tactical Air Navigation Aid	IDENT	ABC	3	For allowable values refer to OBSTACLES FILE SECTION B.		
TDZE	Touch Down Zone Elevation				(RWY DIR)	05	1

THR	Threshold				(RWY DIR)	05	1
TLOF	Touch Down and Lift off Area	Alphanumeric	123A	4	For allowable values refer to OBSTACLES FILE SECTION B.		
TODA_END	End of TODA				(RWY DIR)	05	1
TORA_END	End of TORA				(RWY DIR)	05	1
TORA_START	Start of TORA				(RWY DIR)	05	1
VDF	Very High Frequency Direction Finding Station						
VHF_RX	Very High Frequency Receiver						
VHF_TX	Very High Frequency Transmitter						
VOR	Very High Frequency Omni-Directional Radio Range	IDENT	ABC	3	For allowable values refer to OBSTACLES FILE SECTION B.		
VOR/DME	Very High Frequency Omni-Directional Range paired with Distance Measuring Equipment	IDENT	ABC	3			
WINDSLEEVE	Windsock						
OTHER (*)	Other Aerodrome Feature						

(*) For all surveyed entities which are not listed in aerodrome facilities file Section B table but are essential for operational reasons to be listed in the Aerodrome facilities file, type OTHER must be used followed by a colon and its description (up to 32 characters).Eg. STOP_LIGHT becomes OTHER: STOP_LIGHT
These entities will be handled as obstacles and therefore require an association with obstacles file Section B Table Field 4.

Rules:

1. The full textual designator of the landing and take-off direction. Must have between 2 and 3 characters, of which the first 2 may be only digits, which indicate an integer value between 01 and 36, inclusive. Examples: 09, 09L, 09R, 09C, 09T, etc.
2. The full textual designator of the runway, used to uniquely identify it at an aerodrome/heliport which has more than one. Must be between 1 and 16 characters in length. Examples 09/27, 02R/20L, RWY 1.
3. The Alphanumeric coded identification of the radio navigation aid. Must be between 1 and 4 characters in length.

4. The textual designator of the gate/stand or hold. Must be between 1 and 16 characters in length. Examples 13, 84A, etc.
5. The textual designator of the taxiway. Must be between 1 and 16 characters in length.
6. The full textual name or designator used to identify an apron. Must be between 1 and 60 characters in length.
7. The coded identification of the marker. The only allowable characters are '.' (#002E) and '-' (#002D). For example, '-.-' meaning 'dash-dot-dash', '-' meaning 'dashes', etc.

OBSTACLES FILE (SECTION B)		
FIELD 2 – TYPE OF FEATURE VALUE (Example)		
AG_EQUIP	FENCE	STACK
ANTENNA	FUEL_SYSTEM	STADIUM
ARCH	GATE	STORM_SYSTEM
BUILDING	HEAT_COOL_SYSTEM	TANK
BRIDGE	MAST	TETHERED_BALLOON
CABLE_CAR	MONUMENT	TOWER
COMPRESSED_AIR_SYSTEM	NATURAL_HIGH_POINT	TRANSMISSION_LINE
CONTROL_MONITORING_SYSTEM	NAVAID	VEGETATION
CONTROL_TOWER	POLE	WALL
COOLING TOWER	POWERPLANT	WASTEWATER_SYSTEM
CRANE	REFINERY	WATER_SYSTEM
DOME	RIG	WIND_FARM
ELECTRICAL_EXIST_LIGHT	SALTWATER_SYSTEM	OTHER
ELECTRICAL_SYSTEM	SIGN	
ELEVATOR	SPIRE	

OBSTACLES FILE (SECTION B)	
FIELD 4 - ASSOCIATION	
Values	**Description**
OLS	ICAO Annex 14 Obstacle Limitation Surfaces
TOFPA	ICAO Take-Off Flight Path Area
AREA 1	ICAO Area 1
AREA 2	ICAO Area 2
AREA 3	ICAO Area 3
AREA 4	ICAO Area 4
OTHER	Other

Appendix E
eTOD Database Specification

1. Aeronautical Surveyor must provide separate obstacle file to be uploaded automatically within GACA eTOD Database.

2. Order of fields are specified as follow:

Field 1	Obstacle identifier For surveyed airports {xx-xxx-xx-xx-xx-x}--> refer to{ 3rd& 4th ICAO letter-Obstacle id-Month of survey-Year of survey-Area of coverage-Geometry type} ex:-{JL-097-08-20-A2-point}
Field 2	Survey Date
Field 3	Latitude
Field 4	Longitude
Field 5	Elevation (ft)
Field 6	Height (ft)
Field 7	Horizontal Extent (m)
Field 8	Area of coverage
Field 9	Geometry type (point or line or polygon)
Field 10	Group of obstacles
Field 11	Type name
Field 12	Status (exp. Planned or completed.)
Field 13	lighting
Field 14	Marking

Field 15	Horizontal statistical deviation
Field 16	Horizontal reference system
Field 17	Horizontal confidence level
Field 18	Horizontal accuracy
Field 19	Vertical statistical deviation
Field 20	Vertical reference system
Field 21	Vertical confidence level
Field 22	Vertical accuracy
Field 23	Integrity
Field 24	additional information

Appendix F

eTOD Area 1 Specification

Area 1

GACAR Part 175 §175.135 Terrain and obstacle data — General requirements

The coverage areas for sets of terrain and obstacle data must be specified as:

Area 1: the entire territory of the Kingdom of Saudi Arabia (KSA);

Refer to GACAR Part 175 §175.137 Terrain data sets must be provided for Area 1

Requirement

- Area 1 data is mainly used for en-route applications.
- Electronic terrain data set must be provided for the entire territory of KSA.
- Area 1 terrain data numerical requirements:
    - o Post spacing: 3 arc seconds
    - o Vertical accuracy: 30 m
    - o Vertical resolution: 1 m
    - o Horizontal accuracy: 50m
    - o Confidence level 90%
    - o Integrity classification: routine
    - o Maintenance period: as required
- if available, Area 1 Terrain data sets may be provided with Area 2 numerical requirements data.
- Obstacle data must be provided for obstacles in Area 1 whose height is 100 m or higher above ground.
- Horizontal position of obstacles in Area 1:
    - o Accuracy: 50 m

- o Integrity: routine
- o Origin type: surveyed
- o Publication resolution: 1 sec
- o Chart resolution: as plotted

·Elevation and height of obstacles in Area 1:

- o Accuracy: 30 m
- o Integrity: routine
- o Origin type: surveyed
- o Publication resolution: 1m or 1ft
- o Chart resolution: 3m (10ft)

·Aeronautical Surveyor must provide a list of obstacles affecting air navigation in Area 1 to be published in AIP ENR 5.4 (Air navigation obstacles) as specified in ICAO PANS-AIM.

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 3. AERONAUTICAL INFORMATION SERVICE PROVIDERS

Section 4. Aeronautical Information Publication – AIP - Content Management

8.3.4.1 General Information

8.3.4.1.1 The specimen AIP described in ICAO AIS Manual Doc 8126 Appendix 2 contains example of AIP pages, tables and charts showing the format and the required structure, division and classification. Appendix 1 provides guidance on the information to be included in the AIP and, where appropriate, on its presentation.

Inspector Guidance:

The format and arrangement of KSA AIP, especially its tabular data, should be as close as possible to the ICAO specimen AIP of Doc 8126.

The system of page numbering is specified in PANS-AIM, 5.2.3.1.9. This system has been used in the specimen AIP and should be followed.

Inspector should check and verify that the following specimens are as per ICAO Doc 8126:

a) Specimen of an AIP amendment cover page.

b) Specimen of an AIRAC AIP amendment cover page.

c) Specimens of an AIP supplement page.

d) Specimen of an AIRAC AIP supplement page.

8.3.4.2 The Inspector must use the following checklist pertaining to AIP structure to check and verify the structure of KSA AIP against ICAO PANS-AIM Doc 10066 and AIS Manual Doc 8126.

AERONAUTICAL INFORMATION SERVICES PROVIDER
AIP STRUCTURE CHECKLIST

ORGANISATION	Add full name of the organization and AISP
DATE OF ASSESSMENT	dd/mm/yyyy
ASSESSMENT REFERENCE NUMBER	nnn/yyyy

This assessment has been completed against the requirements of GACAR Part 175 and ICAO requirements.

(Select (☒):

☐ **Issue of certificate** ☐ **Renew of certificate** ☐ **Amendment of certificate**

☐ **Regulatory oversight** ☐ **On-site Demonstration & Inspection**

	Name	Signature	Date
Team Inspector Leader			
Team member			
Team member			
Team member			

STRUCTURE OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP) CHECKLIST GACA reference (GACAR part 175)				
ICAO reference (PANS-AIM 10066)		KSA eAIP reference		Remarks
Part 1 - General (GEN)		**Compliant**	**Not Compliant**	
GEN 0.1	**Preface**	☐	☐	
	Name of the publishing authority	☐	☐	
	Applicable ICAO documents	☐	☐	
	Publication media (i.e printed, online or other electronic media)	☐	☐	
	AIP structure and established regular amendment interval	☐	☐	
	Copyright policy*	☐	☐	
	Service to contact in case of detected AIP errors or omissions	☐	☐	
GEN 0.2	**Record of AIP Amendments**	☐	☐	
	Amendment number	☐	☐	
	Publication date	☐	☐	
	Date inserted (for the AIRAC AIP Amendments, effective date)	☐	☐	
	Initials of officer who inserted the amendment.	☐	☐	
GEN 0.3	**Record of AIP Supplements**	☐	☐	
	Supplement number	☐	☐	
	Supplement subject	☐	☐	
	AIP section(s) affected	☐	☐	
	Period of validity	☐	☐	
	Cancellation record	☐	☐	
GEN 0.4	**Checklist of AIP pages**	☐	☐	
	Page number/Chart title	☐	☐	
	Publication or effective date (day, month by name and year) of the aeronautical information	☐	☐	
GEN 0.5	**List of hand amendments to the AIP**	☐	☐	
	AIP page(s) affected	☐	☐	
	Amendment text	☐	☐	

	AIP Amendment number by which a hand amendment was introduced	☐	☐	
GEN 0.6	**Table of contents to Part 1**	☐	☐	
GEN 1	**National Regulations and Requirements**	☐	☐	
GEN 1.1	**Designated authorities**	☐	☐	
	Designated authority	☐	☐	
	Name of the authority	☐	☐	
	Postal address	☐	☐	
	Telephone number	☐	☐	
	Telefax number	☐	☐	
	E-mail address	☐	☐	
	Aeronautical fixed service (AFS) address	☐	☐	
	Website address*	☐	☐	
GEN 1.2	**Entry, transit and departure of aircraft**	☐	☐	
GEN 1.3	**Entry, transit and departure of passengers and crew**	☐	☐	
GEN 1.4	**Entry, transit and departure of cargo**	☐	☐	
GEN 1.5	**Aircraft instruments, equipment and flight documents**	☐	☐	
	Instruments, equipment and flight documents	☐	☐	
	Emergency locator transmitter (ELT), signalling devices and life-saving equipment as presented in Annex 6	☐	☐	
GEN 1.6	**Summary of national regulations and international agreements/conventions**	☐	☐	
GEN 1.7	**Differences from ICAO Standards, Recommended Practices and Procedures**	☐	☐	
	Provision affected (Annex and edition number, paragraph)	☐	☐	
	Difference in full text	☐	☐	
GEN 2	**Tables and codes**	☐	☐	
GEN 2.1	**Measuring system, aircraft markings, holidays**	☐	☐	
GEN 2.1.1	Units of measurement	☐	☐	

GEN 2.1.2	Temporal reference system	☐	☐	
GEN 2.1.3	Horizontal reference system	☐	☐	
	1) Name/Designation of the reference system	☐	☐	
	2) Identification and parameters of the projection	☐	☐	
	3) Identification of the ellipsoid used	☐	☐	
	4) Identification of the datum used	☐	☐	
	5) Area(s) of application	☐	☐	
	6) An explanation*	☐	☐	
GEN 2.1.4	Vertical reference system	☐	☐	
	1) Name/designation of the reference system	☐	☐	
	2) Description of the geoid model used including the parameters required for height transformation between the model used and EGM-96	☐	☐	
	3) An explanation*	☐	☐	
GEN 2.1.5	Aircraft nationality and registration marks	☐	☐	
GEN 2.1.6	Public holidays	☐	☐	
GEN 2.2	**Abbreviations used in aeronautical information products**	☐	☐	
GEN 2.3	**Chart symbols**	☐	☐	
GEN 2.4	**Location indicators**	☐	☐	
GEN 2.5	**List of radio navigation aids**	☐	☐	
	1) Identifier	☐	☐	
	2) Name of the station	☐	☐	
	3) Type of facility/aid	☐	☐	
	4) Indication whether aid serves en-route (E), aerodrome (A) or dual (AE) purposes	☐	☐	
GEN 2.6	**Conversion of units of measurement**	☐	☐	
	1) Nautical miles and kilometres and vice versa	☐	☐	
	2) Feet and metres and vice versa	☐	☐	
	3) Decimal minutes of arc and seconds of arc and vice versa	☐	☐	

	4) Other conversions as appropriate	☐	☐	
GEN 2.7	**Sunrise/sunset**	☐	☐	
	1) Station name	☐	☐	
	2) ICAO location indicator	☐	☐	
	3) Geographical coordinates in degrees and minutes	☐	☐	
	4) Date(s) for which times are given	☐	☐	
	5) Time for the beginning of morning civil twilight	☐	☐	
	6)Time for sunrise	☐	☐	
	7) Time for sunset	☐	☐	
	8) Times for the end of evening civil twilight	☐	☐	
GEN 3	**Services**	☐	☐	
GEN 3.1	**Aeronautical information services**	☐	☐	
GEN 3.1.1	Responsible service	☐	☐	
	1) Service/unit name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4) Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
	9) An indication if service is not H24	☐	☐	
GEN 3.1.2	Area of responsibility	☐	☐	
GEN 3.1.3	Aeronautical publications	☐	☐	
	1) AIP and related amendment service	☐	☐	
	2) AIP Supplements	☐	☐	
	3) AIC	☐	☐	
	4) NOTAM and pre-flight information bulletins (PIB)	☐	☐	
	5) Checklists and lists of valid NOTAM	☐	☐	

	6) How they may be obtained	☐	☐	
GEN 3.1.4	AIRAC system	☐	☐	
GEN 3.1.5	Pre-flight information service at aerodromes/heliports	☐	☐	
	1) Elements of the aeronautical information products held	☐	☐	
	2) Maps and charts held	☐	☐	
	3) General area of coverage of such information	☐	☐	
GEN 3.1.6	Digital data sets	☐	☐	
	1) Data set title	☐	☐	
	2) Short description	☐	☐	
	3) Data subjects included	☐	☐	
	4) Geographical scope	☐	☐	
	5) Limitations related to its usage*	☐	☐	
	6) Contact details of how data sets may be obtained, containing:	☐	☐	
	a) Name of the individual, service or organization responsible	☐	☐	
	b) Street address and e-mail address of the individual, service or organization responsible	☐	☐	
	c) Telefax number of the individual, service or organization responsible	☐	☐	
	d) Contact telephone number of the individual, service or organization responsible	☐	☐	
	e) Hours of service (time period including time zone when contact can be made)	☐	☐	
	f) Online information that can be used to contact the individual, service or organization	☐	☐	
	g) Supplemental information, if necessary, on how and when to contact the individual, service or organization	☐	☐	
GEN 3.2	**Aeronautical charts**	☐	☐	
GEN 3.2.1	Responsible service(s)	☐	☐	
	1) Service/unit name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	

	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
	9) An indication if service is not H24	☐	☐	
GEN 3.2.2	Maintenance of charts	☐	☐	
GEN 3.2.3	Purchase arrangements	☐	☐	
	1) Service/sales agency(ies)	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
GEN 3.2.4	Aeronautical chart series available	☐	☐	
GEN 3.2.5	List of aeronautical charts available	☐	☐	
	1) Title of series	☐	☐	
	2) Scale of series	☐	☐	
	3) Name and/or number of each chart or each sheet in a series	☐	☐	
	4) Price per sheet	☐	☐	
	5) Date of latest revision	☐	☐	
GEN 3.2.6	Index to the World Aeronautical Chart (WAC) — ICAO 1:1 000 000	☐	☐	
GEN 3.2.7	Topographical charts	☐	☐	
	1) Name of service/sales agency(ies)	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
GEN 3.2.8	Corrections to charts not contained in the AIP	☐	☐	

GEN 3.3	**Air traffic services**	☐	☐	
GEN 3.3.1	Responsible service	☐	☐	
	1) Service name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
	9) An indication if service is not H24	☐	☐	
GEN 3.3.2	Area of responsibility	☐	☐	
GEN 3.3.3	Types of services	☐	☐	
GEN 3.3.4	Coordination between the operator and ATS	☐	☐	
GEN 3.3.5	Minimum flight altitude	☐	☐	
GEN 3.3.6	ATS units address list	☐	☐	
	1) Unit name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
GEN 3.4	**Communication and navigation services**	☐	☐	
GEN 3.4.1	Responsible service	☐	☐	
	1) Service name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	

	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
	9) An indication if service is not H24	☐	☐	
GEN 3.4.2	Area of responsibility	☐	☐	
GEN 3.4.3	Types of service	☐	☐	
	1) Radio navigation services	☐	☐	
	2) Voice and/or data link services	☐	☐	
	3) Broadcasting service	☐	☐	
	4) Language(s) used	☐	☐	
	5) An indication of where detailed information can be obtained	☐	☐	
GEN 3.4.4	Requirements and conditions	☐	☐	
GEN 3.4.5	Miscellaneous	☐	☐	
GEN 3.5	**Meteorological services**	☐	☐	
GEN 3.5.1	Responsible service	☐	☐	
	1) Service name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
	9) An indication if service is not H24	☐	☐	
GEN 3.5.2	Area of responsibility	☐	☐	
GEN 3.5.3	Meteorological observations and reports	☐	☐	
	1) Name of the station and the ICAO location indicator	☐	☐	
	2) Type and frequency of observation including an	☐	☐	

	indication of automatic observing equipment			
	3) Types of meteorological reports (e.g. METAR) and availability of a trend forecast	☐	☐	
	4) Specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear	☐	☐	
	5) Hours of operation	☐	☐	
	6) Indication of aeronautical climatological information available.	☐	☐	
GEN 3.5.4	Types of services	☐	☐	
GEN 3.5.5	Notification required from operators	☐	☐	
GEN 3.5.6	Aircraft reports	☐	☐	
GEN 3.5.7	VOLMET service	☐	☐	
	1) Name of transmitting station	☐	☐	
	2) Call sign or identification and abbreviation for the radio communication emission	☐	☐	
	3) Frequency or frequencies used for broadcast	☐	☐	
	4) Broadcasting period	☐	☐	
	5) Hours of service	☐	☐	
	6) List of aerodromes/heliports for which reports and/or forecasts are included	☐	☐	
	7) Reports, forecasts and SIGMET information included and remarks	☐	☐	
GEN 3.5.8	SIGMET and AIRMET service	☐	☐	
	1) Name of the meteorological watch office and the ICAO location indicator	☐	☐	
	2) Hours of service	☐	☐	
	3) Flight information region(s) or control area(s) served	☐	☐	
	4) SIGMET validity periods	☐	☐	
	5) Specific procedures applied to SIGMET information	☐	☐	

	6) Procedures applied to AIRMET information	☐	☐	
	7) ATS unit(s) provided with SIGMET and AIRMET information	☐	☐	
	8) Additional information	☐	☐	
GEN 3.5.9	Other automated meteorological services	☐	☐	
	1) Service name	☐	☐	
	2) Information available	☐	☐	
	3) Areas, routes and aerodromes covered	☐	☐	
	4) Telephone and telefax number(s), e-mail address, and, if available, website address*	☐	☐	
GEN 3.6	**Search and rescue**	☐	☐	
GEN 3.6.1	Responsible service(s)	☐	☐	
	1) Service name	☐	☐	
	2) Postal address	☐	☐	
	3) Telephone number	☐	☐	
	4)Telefax number	☐	☐	
	5) E-mail address	☐	☐	
	6) AFS address	☐	☐	
	7) Website address*	☐	☐	
	8) A statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences	☐	☐	
GEN 3.6.2	Area of responsibility	☐	☐	
GEN 3.6.3	Types of service	☐	☐	
GEN 3.6.4	SAR agreements	☐	☐	
GEN 3.6.5	Conditions of availability	☐	☐	
GEN 3.6.6	Procedures and signals used	☐	☐	
GEN 4	**CHARGES FOR AERODROMES/HELIPORTS AND AIR NAVIGATION SERVICES**	☐	☐	
GEN 4.1	**Aerodrome/heliport charges**	☐	☐	
	1) Landing of aircraft	☐	☐	

	2) Parking, hangarage and long-term storage of aircraft	☐	☐	
	3) Passenger service;	☐	☐	
	4) Security	☐	☐	
	5) Noise-related items	☐	☐	
	6) Other (customs, health, immigration, etc.)	☐	☐	
	7) Exemptions/reductions	☐	☐	
	8) Methods of payment	☐	☐	
GEN 4.2	**Air navigation services charges**	☐	☐	
	1) Approach control	☐	☐	
	2) Route air navigation services	☐	☐	
	3) Cost basis for air navigation services and exemptions/reductions	☐	☐	
	4) Methods of payment	☐	☐	
PART 2 — EN-ROUTE (ENR)			☐	
ENR 0.1	**Table of contents to Part 2**	☐	☐	
ENR 1	**GENERAL RULES AND PROCEDURES**	☐	☐	
ENR 1.1	**General rules**	☐	☐	
ENR 1.2	**Visual flight rules**	☐	☐	
ENR 1.3	**Instrument flight rules**	☐	☐	
ENR 1.4	**ATS airspace classification and description**	☐	☐	
ENR 1.4.1	ATS airspace classification	☐	☐	
ENR 1.4.2	ATS airspace description	☐	☐	
ENR 1.5	**Holding, approach and departure procedures**	☐	☐	
ENR 1.5.1	General	☐	☐	
ENR 1.5.2	Arriving flights	☐	☐	
ENR 1.5.3	Departing flights	☐	☐	
ENR 1.5.4	Other relevant information and procedures	☐	☐	
ENR 1.6	**ATS surveillance services and procedures**	☐	☐	
ENR 1.6.1	Primary radar	☐	☐	
	1) Supplementary services	☐	☐	

	2) The application of radar control service	☐	☐	
	3) Radar and air-ground communication failure procedures	☐	☐	
	4) Voice and CPDLC position reporting requirements	☐	☐	
	5) Graphic portrayal of area of radar coverage	☐	☐	
ENR 1.6.2	Secondary surveillance radar (SSR)	☐	☐	
	1) Emergency procedures	☐	☐	
	2) Air-ground communication failure and unlawful interference procedures	☐	☐	
	3) The system of SSR code assignment	☐	☐	
	4) Voice and CPDLC position reporting requirements	☐	☐	
	5) Graphic portrayal of area of SSR coverage	☐	☐	
ENR 1.6.3	Automatic dependent surveillance — broadcast (ADS-B)	☐	☐	
	1) Emergency procedures	☐	☐	
	2) Air-ground communication failure and unlawful interference procedures	☐	☐	
	3) Aircraft identification requirements	☐	☐	
	4) Voice and CPDLC position reporting requirements	☐	☐	
	5) Graphic portrayal of area of ADS-B coverage	☐	☐	
ENR 1.6.4	Other relevant information and procedures	☐	☐	
ENR 1.7	**Altimeter setting procedures**	☐	☐	
	1) Brief introduction with a statement concerning the ICAO documents on which the procedures are based together with differences to ICAO provisions	☐	☐	
	2) Basic altimeter setting procedures	☐	☐	
	3) Description of altimeter setting region(s)	☐	☐	
	4) Procedures applicable to operators (including pilots)	☐	☐	

	5) Table of cruising levels	☐	☐	
ENR 1.8	**Regional supplementary procedures**	☐	☐	
ENR 1.9	**Air traffic flow management and airspace management**	☐	☐	
	1) ATFM structure, service area, service provided, location of unit(s) and hours of operation	☐	☐	
	2) Types of flow messages and descriptions of the formats	☐	☐	
	3) Procedures applicable for departing flights, containing:	☐	☐	
	a) Service responsible for provision of information on applied ATFM measures;	☐	☐	
	b) Flight plan requirements	☐	☐	
	c) Slot allocations.	☐	☐	
	4) Information on overall responsibility regarding airspace management within FIR(s), details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation) and general operating procedures.	☐	☐	
ENR 1.10	**Flight planning**	☐	☐	
	1) Procedures for the submission of a flight plan	☐	☐	
	2) Repetitive flight plan system	☐	☐	
	3) Changes to the submitted flight plan.	☐	☐	
ENR 1.11	**Addressing of flight plan messages**	☐	☐	
	1) Category of flight (IFR, VFR or both)	☐	☐	
	2) Route (into or via FIR and/or TMA)	☐	☐	
	3) Message address.	☐	☐	
ENR 1.12	**Interception of civil aircraft**	☐	☐	
ENR 1.13	**Unlawful interference**	☐	☐	
ENR 1.14	**Air traffic incidents**	☐	☐	
	1) Definition of air traffic incidents	☐	☐	

	2) Use of the "Air Traffic Incident Reporting Form"	☐	☐	
	3) Reporting procedures (including in-flight procedures)	☐	☐	
	4) Purpose of reporting and handling of the form	☐	☐	
ENR 2	**ATS AIRSPACE**	☐	☐	
ENR 2.1	**FIR, UIR, TMA and CTA**	☐	☐	
	1) Name, geographical coordinates in degrees and minutes of the FIR/UIR lateral limits and in degrees, minutes and seconds of the CTA lateral limits, vertical limits and class of airspace;	☐	☐	
	2) Identification of unit providing the service	☐	☐	
	3) Call sign of aeronautical station serving the unit and language(s) used	☐	☐	
	4) Frequencies, and if applicable SATVOICE number	☐	☐	
	5) Remarks.	☐	☐	
ENR 2.2	**Other regulated airspace**	☐	☐	
ENR 3	**ATS ROUTES**	☐	☐	
ENR 3.1	**Lower ATS routes**	☐	☐	
	1) Route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "on-request" reporting points;	☐	☐	
	2) Tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive	☐	☐	

	designated significant point and, in the case of VOR radials, changeover points;			
	3) Upper and lower limits or minimum en-route altitudes, to the nearest higher 50 m or 100 ft, and airspace classification;	☐	☐	
	4) Lateral limits and minimum obstacle clearance altitudes	☐	☐	
	5) Direction of cruising levels	☐	☐	
	6) The navigation accuracy requirement for each PBN (RNAV or RNP) route segment	☐	☐	
	7) Remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.	☐	☐	
ENR 3.2	**Upper ATS routes**	☐	☐	
	1) Route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "on-request" reporting points;	☐	☐	
	2) Tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;	☐	☐	
	3) Upper and lower limits and airspace classification;	☐	☐	
	4) Lateral limits	☐	☐	
	5) Direction of cruising levels	☐	☐	

	6) The navigation accuracy requirement for each PBN (RNAV or RNP) route segment	☐	☐	
	7) Remarks, including an indication of the controlling unit, its operating channel.	☐	☐	
ENR 3.3	**Area navigation routes**	☐	☐	
	1) Route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "on-request" reporting points;	☐	☐	
	2) In respect of waypoints defining an area navigation route, additionally as applicable	☐	☐	
	a) Station identification of the reference VOR/DME	☐	☐	
	b) Bearing to the nearest degree and the distance to the nearest tenth of a kilometre or tenth of a nautical mile from the reference VOR/DME	☐	☐	
	c) Elevation of the transmitting antenna of DME to the nearest 30 m (100 ft)	☐	☐	
	3) Magnetic bearing to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between defined end-points and distance between each successive designated significant point	☐	☐	
	4) Upper and lower limits and airspace classification	☐	☐	
	5) Direction of cruising levels	☐	☐	

	6) The navigation accuracy requirement for each PBN (RNAV or RNP) route segment	☐	☐	
	7) Remarks	☐	☐	
ENR 3.4	**Helicopter routes**	☐	☐	
	1) Route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "on-request" reporting points;	☐	☐	
	2) Tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points	☐	☐	
	3) Upper and lower limits and airspace classification	☐	☐	
	4) Minimum flight altitudes to the nearest higher 50 m or 100 ft;	☐	☐	
	5) The navigation accuracy requirement for each PBN (RNAV or RNP) route segment	☐	☐	
	7) Remarks	☐	☐	
ENR 3.5	**Other routes**	☐	☐	
ENR 3.6	**En-route holding**	☐	☐	
	1) Holding identification (if any) and holding fix (navigation aid) or waypoint with geographical coordinates in degrees, minutes and seconds	☐	☐	
	2) Inbound track	☐	☐	
	3) Direction of the procedure turn	☐	☐	
	4) Maximum indicated airspeed	☐	☐	

	5) Minimum and maximum holding level	☐	☐	
	6) Time/distance outbound	☐	☐	
	7) Indication of the controlling unit and its operating frequency.	☐	☐	
ENR 4	**RADIO NAVIGATION AIDS/SYSTEMS**	☐	☐	
ENR 4.1	**Radio navigation aids — en-route**	☐	☐	
	1) Name of the station and magnetic variation to the nearest degree and for VOR, station declination to the nearest degree used for technical line-up of the aid	☐	☐	
	2) Identification	☐	☐	
	3) Frequency/channel for each element	☐	☐	
	4) Hours of operation;	☐	☐	
	5) Geographical coordinates in degrees, minutes and seconds of the position of the transmitting antenna;	☐	☐	
	6) Elevation of the transmitting antenna of DME to the nearest 30 m (100 ft)	☐	☐	
	7) Remarks.	☐	☐	
ENR 4.2	**Special navigation systems**	☐	☐	
	1) Name of station or chain	☐	☐	
	2) Type of service available (master signal, slave signal, colour)	☐	☐	
	3) Frequency (channel number, basic pulse rate, recurrence rate, as applicable)	☐	☐	
	4) Hours of operation	☐	☐	
	5) Geographical coordinates in degrees, minutes and seconds of the position of the transmitting station	☐	☐	
	6) Remarks	☐	☐	
ENR 4.3	**Global navigation satellite system (GNSS)**	☐	☐	
	1) The name of the GNSS element, (GPS, GLONASS, EGNOS, MSAS, WAAS, etc.)	☐	☐	
	2) Frequency(ies), as appropriate	☐	☐	

	3) Geographical coordinates in degrees, minutes and seconds of the nominal service area and coverage area	☐	☐	
	4) Remarks	☐	☐	
ENR 4.4	**Name-code designators for significant points**	☐	☐	
	1) Name-code designator	☐	☐	
	2) Geographical coordinates in degrees, minutes and seconds of the position	☐	☐	
	3) Reference to ATS or other routes where the point is located	☐	☐	
	4) Remarks, including supplementary definition of positions where required	☐	☐	
ENR 4.5	**Aeronautical ground lights — en-route**	☐	☐	
	1) Name of the city or town or other identification of the beacon	☐	☐	
	2) Type of beacon and intensity of the light in thousands of candelas	☐	☐	
	3) Characteristics of the signal	☐	☐	
	4) Operational hours	☐	☐	
	5) Remarks	☐	☐	
ENR 5	**NAVIGATION WARNINGS**	☐	☐	
ENR 5.1	**Prohibited, restricted and danger areas**	☐	☐	
	1) Identification, name and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;	☐	☐	
	2) Upper and lower limits	☐	☐	
	3) Remarks, including time of activity.	☐	☐	
ENR 5.2	**Military exercise and training areas and air defence identification zone (ADIZ)**	☐	☐	
	1) Geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries	☐	☐	

	2) Upper and lower limits and system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures	☐	☐	
	3) Remarks, including time of activity and risk of interception in the event of penetration of ADIZ.	☐	☐	
ENR 5.3	**Other activities of a dangerous nature and other potential hazards**	☐	☐	
ENR 5.3.1	Other activities of a dangerous nature	☐	☐	
	1) Geographical coordinates in degrees and minutes of centre of area and range of influence;	☐	☐	
	2) Vertical limits	☐	☐	
	3) Advisory measures	☐	☐	
	4) Authority responsible for the provision of information	☐	☐	
	5) remarks, including time of activity.	☐	☐	
ENR 5.3.2	Other potential hazards	☐	☐	
	1) Geographical coordinates in degrees and minutes of location of potential hazard	☐	☐	
	2) Vertical limits	☐	☐	
	3) Advisory measures	☐	☐	
	4) Authority responsible for the provision of information; and	☐	☐	
	5) Remarks.	☐	☐	
ENR 5.4	**Air navigation obstacles**	☐	☐	
	1) Obstacle identification or designation	☐	☐	
	2) Type of obstacle	☐	☐	
	3) Obstacle position, represented by geographical coordinates in degrees, minutes and seconds	☐	☐	
	4) Obstacle elevation and height to the nearest metre or foot	☐	☐	
	5) Type and colour of obstacle lighting (if any)	☐	☐	
ENR 5.5	**Aerial sporting and recreational activities**	☐	☐	

	1) Designation and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries	☐	☐	
	2) Vertical limits	☐	☐	
	3) Operator/user telephone number	☐	☐	
	4) Remarks, including time of activity.	☐	☐	
ENR 5.6	**Bird migration and areas with sensitive fauna**	☐	☐	
ENR 6	**EN-ROUTE CHARTS**	☐	☐	
PART 3 — AERODROMES (AD)			☐	☐
AD 0.1	**Table of contents to Part 3**	☐	☐	
AD 1	**AERODROMES/HELIPORTS — INTRODUCTION**	☐	☐	
AD 1.1	**Aerodrome/heliport availability and conditions of use**	☐	☐	
AD 1.1.1	General conditions	☐	☐	
AD 1.1.2	Use of military air bases	☐	☐	
AD 1.1.3	Low visibility procedures	☐	☐	
AD 1.1.4	Aerodrome operating minima	☐	☐	
AD 1.1.5	Other information	☐	☐	
AD 1.2	**Rescue and firefighting services and snow plan**	☐	☐	
AD 1.2.1	Rescue and firefighting services	☐	☐	
AD 1.2.2	Snow plan	☐	☐	
	1) Organization of the winter service	☐	☐	
	2) Surveillance of movement areas	☐	☐	
	3) Measuring methods and measurements taken	☐	☐	
	4) Actions taken to maintain the usability of movement areas	☐	☐	
	5) System and means of reporting	☐	☐	
	6) The cases of runway closure	☐	☐	

	7) Distribution of information about snow conditions	☐	☐	
AD 1.3	**Index to aerodromes and heliports**	☐	☐	
	1) Aerodrome/heliport name and ICAO location indicator	☐	☐	
	2)Type of traffic permitted to use the aerodrome/heliport (international/national, IFR/VFR, scheduled/non-scheduled,general aviation, military and other)	☐	☐	
	3) Reference to AIP, Part 3 subsection in which aerodrome/heliport details are presented	☐	☐	
AD 1.4	**Grouping of aerodromes/heliports**	☐	☐	
AD 1.5	**Status of certification of aerodromes**	☐	☐	
	1) Aerodrome name and ICAO location indicator	☐	☐	
	2) Date and, if applicable, validity of certification	☐	☐	
	3) Remarks, if any	☐	☐	
AD 2	**AERODROMES**	☐	☐	
AD 2.1	**Aerodrome location indicator and name**	☐	☐	
AD 2.2	**Aerodrome geographical and administrative data**	☐	☐	
	1) Aerodrome reference point (geographical coordinates in degrees, minutes and seconds)	☐	☐	
	2) Direction and distance of aerodrome reference point from centre of the city or town which the aerodrome serves	☐	☐	
	3) Aerodrome elevation to the nearest metre or foot, reference temperature and mean low temperature	☐	☐	
	4) Where appropriate, geoid undulation at the aerodrome elevation position to the nearest metre or foot	☐	☐	
	5) Magnetic variation to the nearest degree, date of information and annual change	☐	☐	

	6) Name of aerodrome operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address	☐	☐	
	7) Types of traffic permitted to use the aerodrome (IFR/VFR)	☐	☐	
	8) Remarks	☐	☐	
AD 2.3	**Operational hours**	☐	☐	
	1) Aerodrome operator	☐	☐	
	2) Customs and immigration	☐	☐	
	3) Health and sanitation	☐	☐	
	4) AIS briefing office	☐	☐	
	5) ATS reporting office (ARO)	☐	☐	
	6) MET briefing office	☐	☐	
	7) Air traffic service	☐	☐	
	8) Fuelling	☐	☐	
	9) Handling	☐	☐	
	10) Security	☐	☐	
	11) De-icing	☐	☐	
	12) Remarks	☐	☐	
AD 2.4	**Handling services and facilities**	☐	☐	
	1) Cargo-handling facilities	☐	☐	
	2) Fuel and oil types	☐	☐	
	3) Fuelling facilities and capacity	☐	☐	
	4) De-icing facilities	☐	☐	
	5) Hangar space for visiting aircraft	☐	☐	
	6) Repair facilities for visiting aircraft	☐	☐	
	7) Remarks	☐	☐	
AD 2.5	**Passenger facilities**	☐	☐	
	2) Hotel(s) at or in the vicinity of aerodrome	☐	☐	
	2) Restaurant(s) at or in the vicinity of aerodrome	☐	☐	
	3) Transportation possibilities	☐	☐	
	4) Medical facilities	☐	☐	
	5) Bank and post office at or in the vicinity of aerodrome	☐	☐	
	6) Tourist office	☐	☐	
	7) Remarks	☐	☐	
AD 2.6	**Rescue and firefighting services**	☐	☐	

	1) Aerodrome category for firefighting	☐	☐	
	2) Rescue equipment	☐	☐	
	3) Capability for removal of disabled aircraft	☐	☐	
	4) Remarks	☐	☐	
AD 2.7	**Seasonal availability — clearing**	☐	☐	
	1) Type(s) of clearing equipment	☐	☐	
	2) Clearance priorities.	☐	☐	
	3) Remarks	☐	☐	
AD 2.8	**Aprons, taxiways and check locations/positions data**	☐	☐	
	1) Designation, surface and strength of aprons	☐	☐	
	2) Designation, width, surface and strength of taxiways	☐	☐	
	3) Location and elevation to the nearest metre or foot of altimeter checkpoints	☐	☐	
	4) Location of VOR checkpoints	☐	☐	
	5) Position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds	☐	☐	
	6) Remarks	☐	☐	
AD 2.9	**Surface movement guidance and control system and markings**	☐	☐	
	1) Use of aircraft stand identification signs, taxiway guide lines and visual docking/parking guidance system at aircraft stands.	☐	☐	
	2) Runway and taxiway markings and lights	☐	☐	
	3) Stop bars and runway guard lights (if any)	☐	☐	
	4) Other runway protection measures	☐	☐	
	5) Remarks	☐	☐	
AD 2.10	**Aerodrome obstacles**	☐	☐	
	1) Obstacles in Area 2	☐	☐	
	a) Obstacle identification or designation	☐	☐	
	b) Type of obstacle	☐	☐	

	c) Obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds	☐	☐	
	d) Obstacle elevation and height to the nearest metre or foot	☐	☐	
	e) Obstacle marking, and type and colour of obstacle lighting (if any)	☐	☐	
	f) NIL indication, if appropriate.	☐	☐	
	2) The absence of an Area 2 data set for the aerodrome is to be clearly stated and obstacle data are to be provided for:	☐	☐	
	a) Obstacles that penetrate the obstacle limitation surfaces	☐	☐	
	b) Obstacles that penetrate the take-off flight path area obstacle identification surface	☐	☐	
	c) Other obstacles assessed as being hazardous to air navigation	☐	☐	
	3) Indication that information on obstacles in Area 3 is not provided, or if provided:	☐	☐	
	a) Obstacle identification or designation	☐	☐	
	b) Type of obstacle	☐	☐	
	c) Obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds	☐	☐	
	d) Obstacle elevation and height to the nearest tenth of a metre or tenth of a foot	☐	☐	
	e) Obstacle marking, and type and colour of obstacle lighting (if any)	☐	☐	
	f) If appropriate, an indication that the list of obstacles is available as a digital data set, and a reference to GEN 3.1.6	☐	☐	
	g) NIL indication*	☐	☐	
AD 2.11	**Meteorological information provided**	☐	☐	
	1) Name of the associated meteorological office	☐	☐	
	2) Hours of service and, where applicable, the designation of the responsible meteorological office outside these hours	☐	☐	

	3) Office responsible for preparation of TAFs and periods of validity and interval of issuance of the forecasts	☐	☐	
	4) Availability of the trend forecasts for the aerodrome, and interval of issuance;	☐	☐	
	5) Information on how briefing and/or consultation is provided	☐	☐	
	6) Types of flight documentation supplied and language(s) used in flight documentation	☐	☐	
	7) Charts and other information displayed or available for briefing or consultation	☐	☐	
	8) Supplementary equipment available for providing information on meteorological conditions	☐	☐	
	9) The air traffic services unit(s) provided with meteorological information	☐	☐	
	10) Additional information (e.g. concerning any limitation of service)	☐	☐	
AD 2.12	**Runway physical characteristics**	☐	☐	
	1) Designations	☐	☐	
	2) True bearings to one-hundredth of a degree	☐	☐	
	3) Dimensions of runways to the nearest metre or foot	☐	☐	
	4) Strength of pavement (PCN and associated data) and surface of each runway and associated stopways	☐	☐	
	5) Geographical coordinates in degrees, minutes, seconds and hundredths of seconds for each threshold:	☐	☐	
	— thresholds of a non-precision approach runway to the nearest metre or foot	☐	☐	
	— thresholds of a precision approach runway to the nearest tenth of a metre or tenth of a foot	☐	☐	
	6) Elevations of:	☐	☐	
	— Thresholds of a non-precision approach runway to the nearest metre or foot	☐	☐	

	— Thresholds and the highest elevation of the touchdown zone of a precision approach runway to the nearest tenth of a metre or tenth of a foot	☐	☐	
	7) Slope of each runway and associated stopways	☐	☐	
	8) Dimensions of stopway (if any) to the nearest metre or foot	☐	☐	
	9) Dimensions of clearway (if any) to the nearest metre or foot	☐	☐	
	10) Dimensions of strips	☐	☐	
	11) Dimensions of runway end safety areas	☐	☐	
	12) Location (which runway end) and description of arresting system (if any)	☐	☐	
	13) The existence of an obstacle-free zone	☐	☐	
	14) Remarks	☐	☐	
AD 2.13	**Declared distances**	☐	☐	
	1) Runway designator	☐	☐	
	2) Take-off run available	☐	☐	
	3) Take-off distance available, and if applicable, alternative reduced declared distances	☐	☐	
	4) Accelerate-stop distance available	☐	☐	
	5) Landing distance available	☐	☐	
	6) Remarks, including runway entry or start point where alternative reduced declared distances have been declared.	☐	☐	
AD 2.14	**Approach and runway lighting**	☐	☐	
	1) Runway designator	☐	☐	
	2) Type, length and intensity of approach lighting system	☐	☐	
	3) Runway threshold lights, colour and wing bars	☐	☐	
	4) Type of visual approach slope indicator system	☐	☐	
	5) Length of runway touchdown zone lights	☐	☐	
	6) Length, spacing, colour and intensity of runway centre line lights	☐	☐	
	7) Length, spacing, colour and intensity of runway edge lights	☐	☐	

	8) Colour of runway end lights and wing bars	☐	☐	
	9) Length and colour of stopway lights	☐	☐	
	10) Remarks.	☐	☐	
AD 2.15	**Other lighting and secondary power supply**	☐	☐	
	1) Location, characteristics and hours of operation of aerodrome beacon/identification beacon (if any)	☐	☐	
	2) Location and lighting (if any) of anemometer/landing direction indicator	☐	☐	
	3) Taxiway edge and taxiway centre line lights	☐	☐	
	4) Secondary power supply including switch-over time	☐	☐	
	5) Remarks	☐	☐	
AD 2.16	**Helicopter landing area**	☐	☐	
	1) Geographical coordinates in degrees, minutes, seconds and hundredths of seconds	☐	☐	
	— For non-precision approaches, to the nearest metre or foot	☐	☐	
	— For precision approaches, to the nearest tenth of a metre or tenth of a foot	☐	☐	
	2) TLOF and/or FATO area elevation:	☐	☐	
	— For non-precision approaches, to the nearest metre or foot	☐	☐	
	— For precision approaches, to the nearest tenth of a metre or tenth of a foot	☐	☐	
	3) TLOF and FATO area dimensions to the nearest metre or foot, surface type, bearing strength and marking	☐	☐	
	4) True bearings to one-hundredth of a degree of FATO	☐	☐	
	5) Declared distances available, to the nearest metre or foot	☐	☐	
	6) Approach and FATO lighting	☐	☐	
	7) Remarks	☐	☐	
AD 2.17	**Air traffic services airspace**	☐	☐	

	1) Airspace designation and geographical coordinates in degrees, minutes and seconds	☐	☐	
	2) Vertical limits	☐	☐	
	3) Airspace classification	☐	☐	
	4) Call sign and language(s) of the ATS unit providing service	☐	☐	
	5) Transition altitude	☐	☐	
	6) Hours of applicability	☐	☐	
	7) Remarks	☐	☐	
AD 2.18	**Air traffic services communication facilities**	☐	☐	
	1) Service designation	☐	☐	
	2) Call sign	☐	☐	
	3) Channel(s)	☐	☐	
	4) SATVOICE number(s), if available*	☐	☐	
	5) Logon address, as appropriate	☐	☐	
	6) Hours of operation	☐	☐	
	7) Remarks	☐	☐	
AD 2.19	**Radio navigation and landing aids**	☐	☐	
	1) Type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS, and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid.	☐	☐	
	2) Identification	☐	☐	
	3) Frequency(ies), channel number(s), service provider and reference path identifier(s) (RPI).	☐	☐	
	4) Hours of operation, as appropriate	☐	☐	
	5) Geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position.	☐	☐	
	6) Elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft); elevation of GBAS reference point to the nearest metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For	☐	☐	

	SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot.			
	7) Service volume radius from the GBAS reference point to the nearest KM or NM	☐	☐	
	8) Remarks	☐	☐	
AD 2.20	**Local aerodrome regulations**	☐	☐	
AD 2.21	**Noise abatement procedures**	☐	☐	
AD 2.22	**Flight procedures**	☐	☐	
	1) Runway(s) and associated equipment authorized for use under low visibility procedures	☐	☐	
	2) Defined meteorological conditions under which initiation be made	☐	☐	
	3) Description of ground marking/lighting for use under low visibility procedures	☐	☐	
AD 2.23	**Additional information**	☐	☐	
AD 2.24	**Charts related to an aerodrome**	☐	☐	
	1) Aerodrome/Heliport Chart — ICAO	☐	☐	
	2) Aircraft Parking/Docking Chart — ICAO	☐	☐	
	3) Aerodrome Ground Movement Chart — ICAO	☐	☐	
	4) Aerodrome Obstacle Chart — ICAO Type A (for each runway)	☐	☐	
	5) Aerodrome Obstacle Chart — ICAO Type B (when available)	☐	☐	
	6) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic)	☐	☐	
	7) Precision Approach Terrain Chart — ICAO (precision approach Cat II and III runways)	☐	☐	
	8) Area Chart — ICAO (departure and transit routes)	☐	☐	
	9) Standard Departure Chart — Instrument — ICAO	☐	☐	

	10) Area Chart — ICAO (arrival and transit routes)	☐	☐	
	11) Standard Arrival Chart — Instrument — ICAO	☐	☐	
	12) ATC Surveillance Minimum Altitude Chart — ICAO	☐	☐	
	13) Instrument Approach Chart — ICAO (for each runway and procedure type)	☐	☐	
	14) Visual Approach Chart — ICAO	☐	☐	
	15) Bird concentrations in the vicinity of the aerodrome	☐	☐	

* Not mandatory.

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CHAPTER 3. AERONAUTICAL INFORMATION SERVICE PROVIDERS

Section 5. Reserved

8.3.5.1 General Information

8.3.5.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 4. SEARCH & RESCUE SERVICE PROVIDERS

Section 1. Certification of Search and Rescue Service Providers

8.4.1.1 General Information

8.4.1.1.1 Reserved

Appendix A

SAR Certification Checklist

SEARCH AND RESCUE SERVICE PROVIDER (PART 177)

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 177.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 4. SEARCH & RESCUE SERVICE PROVIDERS

Section 2. Regulatory Oversight of Search and Rescue Service Providers

8.4.2.1 General Information

8.4.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Search and Rescue (SAR) Service Providers after they have been certified. The audits may also be applied in the re-certification of SAR service providers at or near expiry of their certification period.

8.4.2.1.2 The main reference document for audits of ANS providers including Search and Rescue Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.4.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.4.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.4.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of SAR. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.4.2.1.6 The reason for this is that in order to obtain certification, the SAR Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.4.2.1.7 In order to retain their certification, the SAR Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.4.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance

without looking at every part of the SAR organisation.

8.4.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.4.2.2 Audit Checklist

8.4.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.4.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

SAR Audit Checklist

SEARCH AND RESCUE SERVICE PROVIDER (PART 177)

AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 177.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *IGM/GACAR*
1. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 4. SEARCH & RESCUE SERVICE PROVIDERS

Section 3. Reserved

8.4.3.1 Reserved

8.4.3.1.1 Reserved

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CHAPTER 5. METEOROLOGICAL SERVICE PROVIDERS

Section 1. Certification of Aviation Meteorological Service Providers

8.5.1.1 General Information

8.5.1.1.1 The purpose of this chapter is to provide guidance material for ANS Safety Oversight Inspectors in the management of applications for certification as an Aviation Meteorological Service (MET) provider in KSA under the provisions of GACAR Part 170 and GACAR Part 179.

8.5.1.1.2 Specifically this chapter identifies the regulatory requirements that must be considered, and also provides a set of questions (checklist) regarding those regulatory requirements and additional questions (as required) which will enable an inspector to determine if an applicant can satisfy the regulatory requirements.

Inspector Guidance: *There are two purposes of the checklist questions. The first is to provide evidence that all regulatory requirements have been addressed when considering an application. The second is to allow the inspector to ensure that they have the required competency to provide aviation meteorological services in KSA – aviation meteorological services is a safety critical activity and it is essential that the approved/certified organisation understands its safety obligations and has the right management structures, operational personnel, equipment and procedures to fulfil those obligations.*

8.5.1.2 Regulatory Requirements – Part 170

8.5.1.2.1 The general regulatory requirement for an Aviation Meteorological Services (MET) Provider to obtain certification from GACA, and the requirements relating to that service, are contained in GACAR Part 170. The following extracts are relevant to the initial certification of an MET provider:

a. Applicability

§ 170.1 Applicability.

(c) …

(d) This part does not apply to:

(1) Air navigation services provided exclusively for military flight operations;

(2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or

(3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia

Inspector Guidance: *The provisions at 170.1.(d) seem to indicate that a MET provider involved only in services for military use at military aerodromes may not need to obtain a Part 170/171 certification. Inspectors should exercise caution, as often military aerodromes are used by civil operations.*

b. Certifications, Authorisations, Prohibitions

§ 170.3 Certifications, Authorizations, and Prohibitions.

(d) …

(e) No person may provide an air navigation service under this part without holding appropriate security authorization from the President.

(f) …

Inspector Guidance: *requirements relating to security authorisation are management by the aviation security (AvSec) division of GACA. Inspectors should consult with AvSec to determine the requirements and what advice to provide an applicant.*

c. Safety Management Systems

Not applicable

d. Security Program

Not applicable

e. Qualification to Provide Service

§ 170.23 General Requirements.

A person may not provide an air navigation service unless that person—

(a) Is the Government of the Kingdom of Saudi Arabia; or

(b) Is a person who is to provide an air navigation service:

(1) In cooperation with the Government of the Kingdom of Saudi Arabia; or (2) By arrangement with the Government of the Kingdom of Saudi Arabia; or (c) is a person acceptable to the President; and

(d) Maintains a principal base of operations in the Kingdom of Saudi Arabia; and

(e) Obtains an ANSC.

Inspector Guidance: *for the purposes of interpreting this sub-regulation, GACA is considered to be a government agency, and therefore is in effect operating under the provisions of (a). A sub-contracted agency would qualify under (b). In assessing GACA ANS, inspectors would need to look at the arrangements for separating the provision of ANS by Saudi Air Navigation Services (SANS) and the regulatory function of GACA. It is likely that SANS would not qualify as (a) or (b). Inspectors should therefore consider GACA SANS under provision (c) – i.e., a person acceptable to the President. This provision would also apply to other organisations applying for certification, including organisations proposed by GACA SANS as consultants, contractors or sub-contractors. The assessment of what/who constitutes a 'person acceptable to the President' should be based on an assessment of the organisation's competence and ability to comply with GACARs.*

f. Exemptions Based on Other Approvals

§ 170.26 Exemptions Based on Approval Issued by another State

(a) Where an applicant for approval holds an approval as an ANS provider issued by the regulatory authority of another State acceptable to the President, the applicant may be exempted from certain requirements of this Part. (b) In making a decision regarding exemptions, the President may:

(1) require the applicant to provide evidence of equivalent compliance with the requirements of this Part or any other relevant Part;

(2) contact the regulatory authority of the State that issued the approval to validate equivalent

compliance.

Inspector Guidance: *In general, it is unlikely that an ATS provider certified by another State would seek or be granted exemptions – it is more likely that an applicant to provide ATS in Saudi Arabia would be required to demonstrate full compliance. However, it is possible that they may seek exemptions relating to certain documents or systems – e.g., if they have ISO9000 accreditation for their quality management system, or if they have a particular safety management system in place that is configured differently to the GACAR requirements. In each case, an inspector must balance the safety intent of the GACAR against the cost (time, financial etc.) of absolute compliance with GACAR if they already hold an equivalent approval.*

g. Reasons for Denial

§ 170.29 Issuing or Denying a Certificate.

(a) …

(b) An application for an ANSC may be denied if the President finds that—

(1) …

(2) The applicant previously held an ANSC that was revoked;

(3) The applicant intends to fill or currently fills a key management position listed in GACAR Part 171, 172, 173, 175 or 179, as applicable, with an individual who exercised control over or who held the same or a similar position with a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or

(4) An individual who will have control over or have a substantial ownership interest in the applicant, had the same or similar control or interest in a certificate holder whose certificate was revoked or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process.

Inspector Guidance: *This sub-regulation is self-evident. The intent is to stop an applicant from nominating an unsuitable manager. It is important to note the use of the term 'materially contributed' – an inspector must not arbitrarily deny an application if a nominated manager was employed in another organisation whose certificate was revoked. There needs to be evidence that the nominated person was, in fact (not rumour or speculation) a person that was key to the reason for revocation.*

h. Base of Operations

§ 170.61 Maintaining a Principal Base of Operations; Change of Address

(a) Each certificate holder must maintain a principal base of operations.

(b) …

Inspector Guidance: *The intent of this sub-regulation is to ensure that the organisation is able to be contacted if and as required by the President – e.g., for regular oversight inspections, service of notices, etc.*

8.5.1.3 Regulatory Requirements – Part 5 – Safety Management System

8.5.1.3.1 Not Applicable

8.5.1.4 Regulatory Requirements – Part 179

8.5.1.4.1 The following regulatory requirements of Part 179 must be evaluated as part of the certification audits. As there are a number of technical requirements specifically related to standards for provision of air traffic control and air traffic services, the full regulatory requirement is not copied into this document but reference is made to specific locations in Part 179. This is the same in the audit checklists.

a. General Provisions

§ 179.1 Applicability.

This part prescribes –

(a) Rules governing the provision of meteorological (MET) services for air navigation in the Kingdom of Saudi Arabia (KSA) by the Presidency of Meteorology and Environment (PME) or a MET service provider that holds or is required to hold an Air Navigation Service Certificate (ANSC) under General Authority of Civil Aviation Regulation (GACAR) Part 170; and

(b) Aircraft operators requiring meteorological service or changes in existing meteorological services.

Inspector Guidance: *reserved*

§ 179.3 Restrictions on MET Service Providers.

(a) Except as provided in GACAR § 170.1(d), no person may provide a MET service in the KSA unless the person complies with the provisions of this part and they have been certificated by the President under GACAR Part 170 to provide such service.

(b) Except as provided in GACAR Part 170, each MET service provider must comply with the limitations and provisions of their certificate, operations specifications and their manual prepared under Subpart C.

Inspector Guidance: *reserved*

§ 179.5 Objectives of MET Services for Air Navigation.

(a) The objective of meteorological service for air navigation must be to contribute towards the safety, regularity and efficiency of air navigation.

(b) Each MET service provider must achieve this objective by supplying the following users: operators, flight crew members, air traffic services units, search and rescue services units, aerodrome managements and others concerned with the conduct or development of air navigation, with the meteorological information necessary for the performance of their respective functions.

(c) Close liaison must be maintained between those concerned with the supply and those concerned with the use of meteorological information on matters which affect the provision of meteorological service for international air navigation.

Inspector Guidance: *reserved*

§ 179.7 Notifications Required From Operators.

(a) An operator requiring meteorological service or changes in existing meteorological service must notify, sufficiently in advance, the MET service provider(s) concerned. The minimum amount of advance notice required must be as agreed between MET service provider(s) and the operator.

(b) MET service provider(s) must be notified by the operator requiring service when:

(1) New routes or new types of operations are planned;

(2) Changes of a lasting character are to be made in scheduled operations; and

(3) Other changes, affecting the provision of meteorological service, are planned.

Such information must contain all details necessary for the planning of appropriate arrangements by the MET service provider.

Inspector Guidance: *reserved*

§ 179.9 Coordination Requirements.

Each MET service provider must establish systems and procedures for ensuring coordination between each of the following agencies—

(a) General Authority of Civil Aviation (GACA) Safety Sector;

(b) GACA Domestic Airports Sector;

(c) Reserved;

(d) Any other MET service provider authorized under this part;

(e) Each aeronautical telecommunication service provider operating in accordance with General Authority of Civil Aviation Regulation (GACAR) Part 173;

(f) Each aeronautical information service (AIS) provider operating in accordance with GACAR Part 173;
(g) Each air traffic service provider (ATS) operating in accordance with GACAR Part 171;

(h) Each search and rescue (SAR) authority;

(i) Aircraft operators;

(j) The Saudi Arabian Armed Forces; and

(k) Each domestic and international aerodrome operator in the KSA.

Inspector Guidance: *reserved*

§ 179.11 Regional Air Navigation Agreements.

Each MET service provider must coordinate with the GACA when interacting with foreign States or foreign MET providers and when there are implications for Regional Air Navigation Agreements for which the KSA is a party.

Inspector Guidance: *reserved*

§ 179.13 Applicability of the Standards of the International Civil Aviation Organization and the World Meteorological Organization.

Each MET service provider must provide services in full compliance with the applicable standards of this part and of those of the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO). Specifically, the standards as prescribed in ICAO Annex 3 and WMO Doc. 258 - Guidelines for the education and training of personnel in meteorology and operational hydrology — Volume I: Meteorology, apply to MET service providers under this part. In cases where the ICAO and WMO standards are incompatible with the standards prescribed in this part, this part must prevail.

Inspector Guidance: *reserved*

§ 179.15 Human Factors.

Each MET service provider must ensure that the meteorological information supplied to the users is consistent with Human Factors principles and must be in forms which require a minimum of interpretation by these users.

Inspector Guidance: *reserved*

§179.17 Site Requirements.

Each MET service provider must ensure that:

(a) Each of its aerodrome meteorological offices and facilities is:

(1) Sited and configured in accordance with security measures designed to prevent unlawful or

accidental interference; and

(2) Provided with suitable power supplies and means to ensure appropriate continuity of service.

(b) Each remote weather sensing facility is installed and maintained in a technically appropriate position to ensure that the facility provides an accurate representation of the local meteorological conditions.

Inspector Guidance: *reserved*

§179.19 Verification, Periodic Inspection, Testing and Calibration.

(a) Each MET service provider must establish procedures for:

(1) Their own routine verification of meteorological information obtained and provided by the MET service provider;

(2) Their own periodic inspection of each of their aerodrome meteorological offices; and

(3) Their own periodic inspection, testing and calibration of each of their facilities.

(b) The procedures must ensure that:

(1) The systems required for the routine verification of meteorological information have the capability and integrity necessary for verifying the meteorological information;

(2) Appropriate inspection equipment and systems are available to personnel for the inspection of each aerodrome meteorological office;

(3) Appropriate inspection, measuring and test equipment and systems are available to personnel for the inspection, testing and calibration of each facility;

(4) The inspection, measuring and test equipment and systems have the precision and accuracy necessary for the inspections, measurements and tests being carried out; and

(5) All meteorological sensing facilities are calibrated and configured so that the environmental sensors fitted or incorporated yield, as far as possible, reliable, accurate and representative meteorological information.

Inspector Guidance: *reserved*

§ 179.21 Inspections.

Each MET service provider must allow the President to make any inspections, at any time, in order to allow the President to determine compliance with this part.

a. Personnel

§ 179.21 Personnel Requirements.

Each MET service provider must employ, contract, or otherwise engage—

(a) A senior person, identified for the purposes of this part as the Director of meteorological services, who —

(1) Has the authority within the organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements; and

(2) Is responsible for ensuring that the organization complies with the requirements of this Part.

(b) A senior person or persons responsible to the Director of meteorological services for ensuring that the organization complies with its manual; and

(c) Sufficient technical personnel to inspect, supervise, and maintain the facilities listed in the manual.

Inspector Guidance: *reserved*

§ 179.23 Meteorological Personnel Qualifications.

(a) Each MET service provider must ensure that each person assigned duties as meteorological personnel is competent and holds appropriate qualifications to perform the duties which they are assigned.

(b) Each MET service provider must ensure that each person assigned duties as meteorological personnel has been:

(1) Appropriately trained; and

(2) Assessed as competent through a formal process by a person who is qualified.

(c) Each MET service provider must give each person assigned duties as meteorological personnel a certificate that:

(1) Names the meteorological personnel;

(2) Describes the functions that the person assigned duties as meteorological personnel is authorized to perform; and

(3) States the period during which the certificate is effective and valid.

(d) Each MET service provider must develop a periodic and comprehensive recurrent training program to ensure that each person assigned duties as meteorological personnel maintains the appropriate level of qualification. The established period must not exceed 12 months. (e) Each MET service provider must develop and publish job descriptions for all technical staff assigned to provide MET services.

Inspector Guidance: *reserved*

§ 179.25 Staffing Levels and Training.

Each MET service provider must –

(a) Establish arrangements that define the person responsible and the process to be followed to ensure an adequate number of suitably trained and rated staff are available in respect of MET services.

(b) Define the method by which staffing levels are determined in relation to the MET servicers to be provided.

(c) Establish arrangements that define the management responsibilities and process for ensuring adequate staff supervision. Arrangements must include the mechanisms that ensure only trained and competent staff undertakes the provision of MET services.

Inspector Guidance: *reserved*

§ 179.27 Human Performance.

Each MET service provider must ensure that Human Factors and performance are applied in the provision of MET services. The following activities must be conducted:

(a) Mandating Human Factors input to specific tasks/projects;

(b) Raising awareness of Human Factors and initiating Human Factors training across the all concerned departments in an appropriate manner;

(c) Keeping abreast of developments within Human Factors and applying this knowledge as appropriate.

(d) Considering Human Factors aspects in incident investigation.

Inspector Guidance: *reserved*

b. Manual Requirements

§ 179.31 General.

This subpart prescribes requirements for each MET service provider to prepare and maintain a manual.

Inspector Guidance: *reserved*

§ 179.33 Manual Contents.

(a) Each MET service provider must provide the President with a manual containing—

(1) A statement signed by the Director of meteorological services, on behalf of the organization confirming that— (i) The manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with this Part; and

(ii) The manual, and all associated manuals, operating, and maintenance instructions, must be complied with by the organization’s personnel at all times.

(2) An organization chart showing lines of responsibility of the senior persons;

(3) A summary of the organization's staffing structure at each location listed under paragraph (a)(4); and

(4) A list of each type of MET facility to be operated under the authority of the MET service provider; and

(5) A summary of the scope of activities at each location where the organization's personnel are based for the purpose of providing MET services under paragraph (a)(4); and

(6) The detailed procedures required under GACAR § 179.19 for verification, periodic inspection, testing and calibration, GACAR § 179.185 for users and customer feedback and GACAR § 179.181 regarding the quality assurance system; and

(7) Detailed procedures to control, amend, and distribute the manual.

(b) Each manual, and all of its revisions, must be acceptable to the President. (c) Each MET service provider must—

(1) Ensure that its manual is amended, as required, to remain a current description of the MET service provider's organization, services, and facilities; and

(2) Ensure that any amendments made to its manual meet the applicable requirements of this Part; and

(3) Comply with the manual amendment procedure contained in its manual; and

(4) Provide the President with a copy of each amendment to its manual, immediately after the amendment is incorporated into the manual; and

(5) Make such amendments to its manual as the President may consider necessary in the interests of aviation safety.

Inspector Guidance: *reserved*

c. World Area Forecast System and Meteorological Offices

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 3 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.41 Objective of the World Area Forecast System (WAFS).

The objective of the world area forecast system must be to supply meteorological authorities and other users with global aeronautical meteorological en-route forecasts in digital form. This objective must be achieved through a comprehensive, integrated, worldwide and, as far as practicable, uniform system, and in a cost-effective manner, taking full advantage of evolving technologies.

Inspector Guidance: *reserved*

§ 179.43 World Area Forecast Centers (WAFC).

Authorized MET service provider having accepted the responsibility for providing a WAFC within the framework of the world area forecast system, must arrange -

(a) To prepare for grid points for all required levels global forecasts of:

(1) Upper wind;

(2) Upper-air temperature and humidity;

(3) Geopotential altitude of flight levels;

(4) Flight level and temperature of tropopause;

(5) Direction, speed and flight level of maximum wind;

(6) Cumulonimbus clouds;

(7) Icing; and

(8) Turbulence.

(b) To prepare global forecasts of significant weather (SIGWX) phenomena;

(c) To issue the forecasts referred to in a) and b) in digital form to meteorological authorities and other users.

(d) To receive information concerning the accidental release of radioactive materials into the atmosphere from its associated WMO regional specialized meteorological center (RSMC) for the provision of transport

model products for radiological environmental emergency response, in order to include the information in SIGWX forecasts; and

(e) To establish and maintain contact with VAACs for the exchange of information on volcanic activity in order to coordinate the inclusion of information on volcanic eruptions in SIGWX forecasts.

(f) To ensure, in case of interruption of the operation of a WAFC, its functions are carried out by another WAFC.

Note.— Back-up procedures to be used in case of interruption of the operation of a WAFC are updated by the World Area Forecast System Operations Group (WAFSOPSG) as necessary.

Inspector Guidance: *reserved*

§ 179.45 Aerodrome Meteorological Offices.

(a) Each MET service provider must have aerodrome meteorological offices which must be adequate for the provision of the meteorological service required to satisfy the needs of air navigation.

(b) An aerodrome meteorological office must carry out all or some of the following functions as necessary to meet the needs of flight operations at the aerodrome:

(1) Prepare and/or obtain forecasts and other relevant information for flights with which it is concerned; the extent of its responsibilities to prepare forecasts must be related to the local availability and use of en-route and aerodrome forecast material received from other offices;

(2) Prepare and/or obtain forecasts of local meteorological conditions;

(3) Maintain a continuous survey of meteorological conditions over the aerodromes for which it is designated to prepare forecasts;

(4) Provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;

(5) Supply other meteorological information to aeronautical users;

(6) Display the available meteorological information;

(7) Exchange meteorological information with other aerodrome meteorological offices; and

(8) Supply information received on pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, to its associated air traffic services unit, aeronautical information service unit and meteorological watch office as agreed between the meteorological, aeronautical information service provider and air traffic service provider.

(c) The aerodrome meteorological offices at which flight documentation is required, as well as the areas to be covered, will be determined by regional air navigation agreement.

(d) The aerodromes for which landing forecasts are required will be determined by regional air navigation agreement.

(e) For aerodromes without an aerodrome meteorological office located at the aerodrome:

(1) The MET service provider must designate one or more aerodrome meteorological offices to supply meteorological information as required; and

(2) The MET service provider must establish means by which such information can be supplied to the aerodromes concerned.

Inspector Guidance: *reserved*

§ 179.47 Meteorological Watch Offices.

(a) Each MET service provider must establish one or more meteorological watch offices within the flight information regions or control areas for which they have been assigned MET responsibilities by the President.

(b) Each meteorological watch office must:

(1) Maintain watch over meteorological conditions affecting flight operations within its area of responsibility;

(2) Prepare SIGMET and other information relating to its area of responsibility;

(3) Supply SIGMET information and, as required, other meteorological information to associated air traffic services units;

(4) Disseminate SIGMET information;

(5) When required by regional air navigation agreements:

(i) Prepare AIRMET information related to its area of responsibility;

(ii) Supply AIRMET information to associated air traffic services units; and

(iii) Disseminate AIRMET information;

(c) Supply information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued, to its associated ACC/FIC, as agreed between the MET and the ATS service provider, and to its associated VAAC as determined by regional air navigation agreement; and

(d) Supply information received concerning the release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to its associated ACC/FIC, as agreed between the MET and the ATS service provider, and to the AIS provider, as agreed between the MET and the AIS service provider. The information must comprise location, date and time of the release, and forecast trajectories of the radioactive materials.

(e) Meteorological watch must be maintained continuously; however, in areas with a low density of traffic, the watch may be restricted to the period relevant to expected flight operations.

Inspector Guidance: *reserved*

§ 179.49 Volcanic Ash Advisory Centers (VAAC).

(a) Each MET service provider, having accepted the responsibility for providing a VAAC within the framework of the international airways volcano watch, must arrange to respond to a notification that a volcano has erupted, or is expected to erupt or volcanic ash is reported in its area of responsibility, by arranging to:

(1) Monitor relevant geostationary and polar-orbiting satellite data to detect the existence and extent of volcanic ash in the atmosphere in the area concerned;

(2) Activate the volcanic ash numerical trajectory/dispersion model in order to forecast the movement of any ash—cloud which has been detected or reported;

Note.— The numerical model may be its own or, by agreement, that of another VAAC(3) Issue advisory information regarding the extent and forecast movement of the volcanic ash —cloud to:

(i) Meteorological watch offices, area control centers and flight information centers serving flight informa tion regions in its area of responsibility which may be affected;

(ii) Other VAACs whose areas of responsibility may be affected;

(iii) World area forecast centers, international OPMET databanks, international NOTAM offices, and centers designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems; and

(iv) Airlines requiring the advisory information through the AFTN address provided specifically for this purpose. (4) Issue updated advisory information to the meteorological watch offices, area control centers, flight information centers and VAACs referred to in c), as necessary, but at least every six hours until such time as the volcanic ash—cloud‖ is no longer identifiable from satellite data, no further reports of volcanic ash are received from the area, and no further eruptions of the volcano are reported.

(b) Volcanic ash advisory centers must maintain a 24-hour watch.

(c) In case of interruption of the operation of a VAAC, authorized MET service providers must ensure its functions are carried out by another VAAC or another meteorological center.

Note.— Back-up procedures to be used in case of interruption of the operation of a VAAC are included in the Handbook on the International Airways Volcano Watch (IAVW) (ICAO Doc. 9766).

Inspector Guidance: *reserved*

§ 179.51 Tropical Cyclone Advisory Centers.

Each MET service provider, having accepted the responsibility for providing tropical cyclone advisory centers (TCAC), must arrange to:

(a) Monitor the development of tropical cyclones in its area of responsibility, using geostationary and polar orbiting satellite data, radar data and other meteorological information;

(b) Issue advisory information concerning the position of the cyclone center, its direction and speed of movement, central pressure and maximum surface wind near the center; in abbreviated plain language to:

(1) Meteorological watch offices in its area of responsibility;

(2) Other TCACs whose areas of responsibility may be affected; and

(3) World area forecast centers, international OPMET databanks, and centers designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems.

(c) Issue updated advisory information to meteorological watch offices for each tropical cyclone, as necessary, but at least every six hours.

Inspector Guidance: *reserved*

d. Meteorological Observations and Reports

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 4 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.61 Aeronautical Meteorological Stations and Observations.

(a) Each MET service provider must establish, at aerodromes in the KSA, such aeronautical meteorological stations as it determines to be necessary. An aeronautical meteorological station may be a separate station or may be combined with a synoptic station.

Note.— Aeronautical meteorological stations may include sensors installed outside the aerodrome, where considered justified, by the MET service provider to ensure the compliance of meteorological service for air navigation with the provisions of this part.

(b) Each MET service provider must establish, or arrange for the establishment of, aeronautical meteorological stations on offshore structures or at other points of significance in support of rotorcraft operations to offshore structures, if required by regional air navigation agreement.

(c) Aeronautical meteorological stations must make routine observations at fixed intervals. At aerodromes, the routine observations must be supplemented by special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and/or air temperature.

(d) Each MET service provider must arrange for its aeronautical meteorological stations to be inspected at sufficiently frequent intervals to ensure that a high standard of observation is maintained, that instruments and all their indicators are functioning correctly, and that the exposure of the instruments has not changed significantly. (e) At aerodromes with runways intended for Category II and III instrument approach and landing operati ons, automated equipment for measuring or assessing, as appropriate, and for monitoring

and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure must be installed to support approach and landing and takeoff operations. These devices must be integrated automatic systems for acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and takeoff operations. The design of integrated automatic systems must observe Human Factors principles and include back-up procedures.

(f) Unless otherwise approved by the President, at aerodromes with runways intended for Category I instrument approach and landing operations, automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure must be installed to support approach and landing and takeoff operations.

(g) Where an integrated semi-automatic system is used for the dissemination/display of meteorological information, it must be capable of accepting the manual insertion of data covering those meteorological elements which cannot be observed by automatic means.

(h) The observations must form the basis for the preparation of reports to be disseminated at the aerodrome of origin and of reports to be disseminated beyond the aerodrome of origin.

(i) Owing to the variability of meteorological elements in space and time, to limitations of observing techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a report must be understood by the recipient to be the best approximation to the actual conditions at the time of observation.

Inspector Guidance: *reserved*

§ 179.63 Agreement between the MET Service Provider and the ATS Service Provider.

An agreement between the MET service provider and the ATS service provider must be established to cover, amongst other things:

(a) The provision in air traffic services units of displays related to integrated automatic systems;

(b) The calibration and maintenance of these displays/instruments;

(c) The use to be made of these displays/instruments by air traffic services personnel;

(d) As and where necessary, supplementary visual observations (for example, of meteorological phenomena of operational significance in the climb-out and approach areas) if and when made by air traffic services personnel to update or supplement the information supplied by the meteorological station;

(e) Meteorological information obtained from aircraft taking off or landing (for example, on wind shear); and

(f) If available, meteorological information obtained from ground weather radar.

Note.— Guidance on the subject of coordination between the MET service provider and the ATS service provider is contained in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (ICAO Doc. 9377).

Inspector Guidance: *reserved*

§ 179.65 Routine Observations and Reports.

(a) At aerodromes, routine observations must be made throughout the 24 hours each day, except as otherwise agreed between the MET service provider, the ATS service provider and the operators concerned. Such observations must be made at intervals of one hour or, if so determined by regional air navigation agreement, at intervals of one half-hour. At other aeronautical meteorological stations, such observations must be made as determined by the MET service provider taking into account the requirements of air traffic services units and aircraft operations.

(b) Reports of routine observations must be issued as:

(1) Local routine reports, only for dissemination at the aerodrome of origin, (intended for arriving and departing aircraft); and

(2) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET).

(c) At aerodromes that are not operational throughout 24 hours in accordance with (a), METAR must be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

Inspector Guidance: *reserved*

§ 179.67 Special Observations and Reports.

(a) A list of criteria for special observations must be established by the MET service provider, the ATS service provider, operators and others concerned.

(b) Reports of special observations must be issued as:

(1) Local special reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and

(2) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET) unless METAR are issued at half-hourly intervals.

(c) At aerodromes that are not operational throughout 24 hours, following the resumption of the issuance of METAR, SPECI must be issued, as necessary.

Inspector Guidance: *reserved*

§ 179.69 Contents of Reports.

(a) Local routine and special reports and METAR and SPECI must contain the following elements in the order indicated:

(1) Identification of the type of report;

(2) Location indicator;

(3) Time of the observation;

(4) Identification of an automated or missing report, when applicable;

(5) Surface wind direction and speed;

(6) Visibility;

(7) Runway visual range, when applicable;

(8) Present weather;

(9) Cloud amount, cloud type (only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where measured, vertical visibility;

(10) Air temperature and dew-point temperature; and

(11) QNH and, when applicable, QFE (QFE included only in local routine and special reports).

(b) In addition to elements listed under paragraph (a), local routine and special reports and METAR and SPECI should contain supplementary information to be placed after element (a)(10).

(c) Optional elements included under supplementary information must be included in METAR and SPECI in accordance with regional air navigation agreement.

Inspector Guidance: *reserved*

§ 179.71 Observing and Reporting Meteorological Elements.

(a) Surface wind.

(1) The mean direction and the mean speed of the surface wind must be measured, as well as significant variations of the wind direction and speed, and reported in degrees true and kilometers per hour (or knots), respectively.

(2) When local routine and special reports are used for departing aircraft, the surface wind observations for these reports should be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the surface wind observations for these reports should be representative of the touchdown zone.

(3) For METAR and SPECI, the surface wind observations should be representative of conditions above the whole runway where there is only one runway and the whole runway complex where there is more than one runway.

(b) Visibility.

(1) The visibility must be measured or observed, and reported in meters or kilometers.

(2) When local routine and special reports are used for departing aircraft, the visibility observations for these reports should be representative of conditions along the runway; when

local routine and special reports are used for arriving aircraft, the visibility observations for these reports should be representative of the touchdown zone of the runway.

(3) For METAR and SPECI, the visibility observations should be representative of the aerodrome.

(c) Runway visual range.

(1) Runway visual range as must be assessed on all runways intended for Category II and III instrument approach and landing operations.

(2) Runway visual range must be assessed on all runways intended for use during periods of reduced visibility, including:

(i) Precision approach runways intended for Category I instrument approach and landing operations; and

(ii) Runways used for takeoff and having high-intensity edge lights and/or center line lights.

(3) The runway visual range, assessed in accordance with (c)(2), must be reported in meters throughout periods when either the visibility or the runway visual range is less than 1 500 m.

(4) Runway visual range assessments must be representative of:

(i) The touchdown zone of the runway intended for non-precision or Category I instrument approach and landing operations;

(ii) The touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations; and

(iii) The touchdown zone, the mid-point and stop-end of the runway intended for Category III instrument approach and landing operations.

(5) The units providing air traffic service and aeronautical information service for an aerodrome must be kept informed without delay of changes in the serviceability status of the automated equipment used for assessing runway visual range.

(d) Present weather.

(1) The present weather occurring at the aerodrome and/or its vicinity must be observed and

reported as necessary. The following present weather phenomena must be identified, as a minimum: rain, drizzle, snow and freezing precipitation (including intensity thereof), haze, mist, fog, freezing fog and thunderstorms (including thunderstorms in the vicinity

(2) For local routine and special reports, the present weather information should be representative of conditions at the aerodrome.

(3) For METAR and SPECI, the present weather information should be representative of conditions at the aerodrome and, for certain specified present weather phenomena, in its vicinity.
(e) Clouds.

(e) Clouds.

(1) Cloud amount, cloud type and height of cloud base must be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility must be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility must be reported in meters (or feet).

(2) Cloud observations for local routine and special reports should be representative of the runway threshold(s) in use.

(3) Cloud observations for METAR and SPECI should be representative of the aerodrome and its vicinity.

(f) Air temperature and dew-point temperature.

(1) The air temperature and the dew-point temperature must be measured and reported in degrees Celsius.

(2) Observations of air temperature and dew-point temperature for local routine and special reports and METAR and SPECI should be representative of the whole runway complex.

(g) Atmospheric pressure. The atmospheric pressure must be measured, and QNH and QFE values must be computed and reported in hectopascals.

(h) Supplementary information. Observations made at aerodromes should include the available supplementary information concerning significant meteorological conditions, particularly those in the

approach and climb-out areas. Where practicable, the information should identify the location of the meteorological condition.

Inspector Guidance: *reserved*

§ 179.73 Reporting Meteorological Information from Automatic Observing Systems.

(a) METAR and SPECI from automatic observing systems must be used, to the maximum extent practicable, during non-operational hours of the aerodrome, and during operational hours of the aerodrome. METAR and SPECI from automatic observing systems must be approved by the President.

Note.— Guidance on the use of automatic meteorological observing systems is given in the Manual on Automatic Meteorological Observing Systems at Aerodromes (ICAO Doc. 9837)

(b) METAR and SPECI from automatic observing systems must be identified with the word —AUTO.

Inspector Guidance: *reserved*

§ 179.75 Observations and Reports of Volcanic Activity.

The occurrence of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud must be reported without delay to the associated air traffic services unit, aeronautical information services unit and meteorological watch office. The report must be made in the form of a volcanic activity report comprising the following information in the order indicated:

(a) Message type, VOLCANIC ACTIVITY REPORT;

(b) Station identifier, location indicator or name of station;

(c) Date/time of message;

(d) Location of volcano and name if known; and

(e) Concise description of event including, as appropriate, level of intensity of volcanic activity, occurrence of an eruption and its date and time, and the existence of a volcanic ash cloud in the area together with direction of ash cloud movement and height.

Inspector Guidance: *reserved*

e. Aircraft Observations and Reports

§ 179.81 Relay of Air-Reports by ATS Units.

Each MET service provider must make arrangements with ATS providers to ensure that, on receipt by the ATS units of:

(a) Special air-reports by voice communications, the ATS units relay them without delay to their associated meteorological watch office; and

(b) Routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office and WAFCs.

Inspector Guidance: *reserved*

§ 179.83 Recording and Post-Flight Reporting of Aircraft Observations of Volcanic Activity.

Special aircraft observations of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud must be recorded on the special air-report of volcanic activity form. A copy of the form must be included with the flight documentation provided to flights operating on routes which, in the opinion of the MET service provider, could be affected by volcanic ash clouds.

Inspector Guidance: *reserved*

g. Forecasts

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 5 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.91 Interpretation and Use of Forecasts.

The issue of a new forecast by an aerodrome meteorology office, such as a routine aerodrome forecast, must be understood to cancel automatically any forecast of the same type previously issued for the same place and for the

same period of validity or part thereof.

Inspector Guidance: *reserved*

§ 179.93 Aerodrome Forecasts.

(a) Authorized MET service providers must prepare aerodrome forecasts as prescribed in this subpart.

(b) An aerodrome forecast must be issued at a specified time not earlier than one hour prior to the beginning of its validity period and consist of a concise statement of the expected meteorological conditions at an aerodrome for a specified period.

(c) Aerodrome forecasts and amendments thereto must be issued as TAF and include the following information in the order indicated:

(1) Identification of the type of forecast;

(2) Location indicator;

(3) Time of issue of forecast;

(4) Identification of a missing forecast, when applicable;

(5) Date and period of validity of forecast;

(6) Identification of a cancelled forecast, when applicable;

(7) Surface wind;

(8) Visibility;

(9) Weather;

(10) Cloud; and

(11) Expected significant changes to one or more of these elements during the period of validity. Optional elements must be included in TAF in accordance with regional air navigation agreement.

(d) Authorized MET service providers preparing TAF must keep the forecasts under continuous review

and, when necessary, must issue amendments promptly. The length of the forecast messages and the number of changes indicated in the forecast must be kept to a minimum.

(e) TAF that cannot be kept under continuous review must be cancelled.

(f) The period of validity of a routine TAF should be not less than 6 hours nor more than 30 hours; the period of validity should be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours should be issued every 3 hours and those valid for 12 to 30 hours should be issued every 6 hours.

(g) When issuing TAF, aerodrome meteorological offices must ensure that not more than one TAF is valid at an aerodrome at any given time.

Inspector Guidance: *reserved*

§ 179.95 Landing Forecasts.

(a) Authorized MET service providers must prepare a landing forecast; such forecasts are intended to meet the requirements of local users and of aircraft within about one hour’s flying time from the aerodrome.

(b) Landing forecasts must be prepared in the form of a trend forecast.

(c) A trend forecast must consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine or local special report, or METAR or SPECI. The period of validity of a trend forecast must be 2 hours from the time of the report which forms part of the landing forecast.

Inspector Guidance: *reserved*

§ 179.97 Forecasts for Takeoff.

(a) Authorized MET service providers must prepare a takeoff forecast if required by agreement between the MET service provider and operators.

(b) The forecast for takeoff must refer to a specified period of time and should contain information on

expected conditions over the runway complex in regard to surface wind direction and speed and any variations thereof, temperature, pressure (QNH), and any other elements as agreed locally.

(c) A forecast for takeoff should be supplied to operators and flight crew members on request within the 3 hours before the expected time of departure.

(d) Aerodrome meteorological offices preparing forecasts for takeoff must keep the forecasts under continuous review and, when necessary, issue amendments promptly.

Inspector Guidance: *reserved*

§ 179.99 Area Forecasts for Low-Level Flights.

(a) When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria for amendments thereto must be determined by the MET service provider in consultation with the users.

(b) When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with (a), area forecasts for such operations must be prepared in a format agreed upon between the Meteorological authorities concern. When abbreviated plain language is used, the forecast must be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, the forecast must be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts must be issued to cover the layer between the ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and must contain information on en- route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.

(c) Area forecasts for low-level flights prepared in support of the issuance of AIRMET information must be issued every 6 hours for a period of validity of 6 hours and transmitted to meteorological watch offices and/or aerodrome meteorological offices concerned not later than one hour prior to the beginning of their validity period.

Inspector Guidance: *reserved*

h. SIGMET and AIRMET Information, Aerodrome Warnings and Wind Shear Warnings and Alerts

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 6 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.111 SIGMET Information.

(a) SIGMET information must be issued by meteorological watch office and must give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

(b) SIGMET information must be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

(c) The period of validity of a SIGMET message must be not more than 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the period of validity must be extended up to 6 hours.

(d) SIGMET messages concerning volcanic ash cloud and tropical cyclones must be based on advisory information provided by VAACs and TCACs, respectively.

(e) Each MET service provider must ensure close coordination is maintained between meteorological watch office and the associated area control center/flight information center to ensure that information on volcanic ash included in SIGMET and NOTAM messages is consistent.

(f) SIGMET messages must be issued not more than 4 hours before the commencement of the period of validity. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, these messages must be issued as soon as practicable but not more than 12 hours before the commencement of the period of validity. SIGMET messages for volcanic ash and tropical cyclones must be updated at least every 6 hours.

Inspector Guidance: *reserved*

§ 179.113 AIRMET Information.

(a) AIRMET information must be issued by meteorological watch office in accordance with regional air

navigation agreement, taking into account the density of air traffic operating below flight level 100. AIRMET information must give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which have not been included in Section I of the area forecast for low-level flights issued in accordance with subpart G and which may affect the safety of low- level flights, and of the development of those phenomena in time and space.

(b) AIRMET information must be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

(c) The period of validity of an AIRMET message must be not more than 4 hours.

Inspector Guidance: *reserved*

§ 179.115 Aerodrome Warnings.

(a) Aerodrome warnings must be issued by the aerodrome meteorological office and must give concise information of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services.

(b) Aerodrome warnings must be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

Inspector Guidance: *reserved*

§ 179.117 Wind Shear Warnings and Alerts.

(a) Wind shear warnings must be prepared by the aerodrome meteorological office for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the ATS unit and operators concerned.

(b) Wind shear warnings must give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or takeoff path or during circling approach betwe en runway level and 500 m (1 600 ft) above that level and aircraft on the runway during the landing roll or takeoff run. Where local topography has been shown to produce significant wind shears at heights in excess of 500 m (1600 ft) above runway level, then 500 m (1 600 ft) must not be considered restrictive.

(c) Wind shear warnings for arriving aircraft and/or departing aircraft must be cancelled when aircraft

reports indicate that wind shear no longer exists or, alternatively, after an agreed elapsed time. The criteria for the cancellation of a wind shear warning must be defined locally for each aerodrome, as agreed between the MET service provider, the ATS service provider and the operators concerned.

(d) At aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems must be issued. Wind shear alerts must give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 30 km/h (15 kt) or more which could adversely affect aircraft on the final approach path or initial takeoff path and aircraft on the runway during the landing roll or takeoff run.

Inspector Guidance: *reserved*

i. Aeronautical Climatological Information

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 7 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.121 General.

(a) In cases where it is impracticable to meet the requirements for aeronautical climatological information on a national basis, the collection, processing and storage of observational data may be effected through computer facilities available for international use, and the responsibility for the preparation of the required aeronautical climatological information may be delegated by agreement between the meteorological authorities concerned.

(b) Aeronautical climatological information required for the planning of flight operations must be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information must be supplied to aeronautical users as agreed between the MET service provider and those users.

(c) Aeronautical climatological information must normally be based on observations made over a period of at least five years and the period must be indicated in the information supplied.

Inspector Guidance: *reserved*

§ 179.123 Aerodrome Climatological Tables.

Each MET service provider must make arrangements for collecting and retaining the necessary observational data and have the capability:

(a) To prepare aerodrome climatological tables for each regular and alternate international aerodrome within the KSA; and

(b) To make available such climatological tables to an aeronautical user within a time period as agreed between MET service provider and that user.

Inspector Guidance: *reserved*

§ 179.125 Copies of Meteorological Observational Data.

Each MET service provider, on request and to the extent practicable, must make available to operators and to others concerned with the application of meteorology to air navigation, meteorological observational data required for research, investigation or operational analysis.

Inspector Guidance: *reserved*

j. Service for Operators and Flight Crew Members

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 8 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.131 General.

(a) Each MET service provider must supply meteorological information to operators and flight crew members for:

(1) Pre-flight planning by operators;

(2) In-flight re-planning by operators using centralized operational control of flight operations;

(3) Use by flight crew members before departure; and

(4) Aircraft in flight.

(b) Meteorological information supplied to operators and flight crew members must cover the flight in respect of time, altitude and geographical extent. Accordingly, the information must relate to appropriate fixed times, or periods of time, and must extend to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodrome of intended landing and alternate aerodromes

designated by the operator.

(c) Meteorological information supplied to operators and flight crew members must be up to date and include the following information, as established by the MET service provider in consultation with operators concerned:

(1) Forecasts of-

(i) Upper wind and upper-air temperature;

(ii) Upper-air humidity;

(iii) Geopotential altitude of flight levels;

(iv) Flight level and temperature of tropopause;

(v) Direction, speed and flight level of maximum wind; and

(vi) SIGWX phenomena;

Note.— Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed.

(2) METAR or SPECI (including trend forecasts as issued in accordance with regional air navigation agreement) for the aerodromes of departure and intended landing, and for takeoff, en-route and destination alternate aerodromes;

(3) TAF or amended TAF for the aerodromes of departure and intended landing, and for takeoff, en -route and destination alternate aerodromes;

(4) Forecasts for takeoff;

(5) SIGMET information and appropriate special air-reports relevant to the whole route;

Note.— Appropriate special air-reports will be those not already used in the preparation of SIGMET.

(6) Volcanic ash and tropical cyclone advisory information relevant to the whole route;

(7) Subject to regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low- level flights relevant to the whole route;

(8) Aerodrome warnings for the local aerodrome;

(9) Meteorological satellite images; and

(10) Ground-based weather radar information.

(d) Forecasts listed under (c)(1) must be generated from the digital forecasts provided by the WAFCs whenever these forecasts cover the intended flight path in respect of time, altitude and geographical extent, unless otherwise agreed between the MET service provider and the operator concerned.

(e) When forecasts are identified as being originated by the WAFCs, no modifications must be made to their meteorological content.

(f) Charts generated from the digital forecasts provided by the WAFCs must be made available, as required by operators, for fixed areas of coverage as shown in Appendix 8 of Annex 3 to the Convention of International Civil Aviation, Figures A8-1, A8-2 and A8-3.

(g) When forecasts of upper wind and upper-air temperature listed under (c)(1)(i) are supplied in chart form, they must be fixed time prognostic charts for flight levels as specified in Appendix 2 of Annex 3 to the Convention of International Civil Aviation, paragraph 1.2.2 a). When forecasts of SIGWX phenomena

listed under (c)(1)(vi) are supplied in chart form, they must be fixed time prognostic charts for an atmospheric layer limited by flight levels as specified in Appendix 2 of Annex 3 to the Convention of International Civil Aviation, paragraph 1.3.2 and Appendix 5 of Annex 3 to the Convention of International Civil Aviation, paragraph 4.3.2.

(h) The forecasts of upper wind and upper-air temperature and of SIGWX phenomena above flight level 100 requested for pre-flight planning and in-flight re-planning by the operator must be supplied as soon as they become available, but not later than 3 hours before departure. Other meteorological information requested for preflight planning and in-flight re-planning by the operator must be supplied as soon as is practicable.

(i) When necessary, each MET service provider providing service for operators and flight crew members must initiate coordinating action with the meteorological authorities of other States with a view to obtaining from them the reports and/or forecasts required.

(j) Meteorological information must be supplied to operators and flight crew members at the location to be determined by the MET service provider after consultation with the operators and at the time to be agreed upon between the aerodrome meteorological office and the operator concerned. The service for pre-flight planning must be confined to flights originating within the territory of the KSA. At an aerodrome without an aerodrome meteorological office, arrangements for the supply of meteorological information must be as agreed upon between the MET service provider and the operator concerned.

Inspector Guidance: *reserved*

§ 179.133 Briefing, Consultation and Display.

Note.— The requirements for the use of automated pre-flight information systems in providing briefing, consultation and display are given in GACAR § 179.137.

(a) Briefing and/or consultation must be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose must be to supply the latest available information on existing and expected meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodromes and other aerodromes as relevant, either to explain and amplify the information contained in the flight documentation or, if so agreed between the MET service provider and the operator, in lieu of flight documentation.

(b) Meteorological information used for briefing, consultation and display must include any or all of the

information listed in GACAR § 179.131(c).

(c) If the aerodrome meteorological office expresses an opinion on the development of the meteorological conditions at an aerodrome which differs appreciably from the aerodrome forecast included in the flight documentation, the attention of flight crew members must be drawn to the divergence. The portion of the briefing dealing with the divergence must be recorded at the time of briefing and this record must be made available to the operator.

(d) The required briefing, consultation, display and/or flight documentation must normally be provided by the aerodrome meteorological office associated with the aerodrome of departure. At an aerodrome where these services are not available, arrangements to meet the requirements of flight crew members must be as agreed upon between the MET service provider and the operator concerned. In exceptional circumstances, such as an undue delay, the aerodrome meteorological office associated with the aerodrome must provide or, if that is not practicable, arrange for the provision of a new briefing, consultation and/or flight documentation as necessary.

Inspector Guidance: *reserved*

§ 179.135 Flight Documentation.

Note.— The requirements for the use of automated pre-flight information systems in providing flight documentation are given in GACAR § 179.137.

(a) Flight documentation to be made available must comprise information listed under GACAR § 179.131(c)(I and vi), (c)(2), (c)(3), (c)(5) and, if appropriate, (c)(6). However, when agreed between the MET service provider and operator concerned, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, must be limited to the information operationally needed, but in all cases the flight documentation must at least comprise information on GACAR § 179.131(c)(2), (c)(3), (c)(5) and, if appropriate, (c)(6).

(b) Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning and in-flight re-planning, the operator must be advised immediately and, if practicable, be supplied with the revised information as agreed between the operator and the aerodrome meteorological office concerned.

(c) In cases where a need for amendment arises after the flight documentation has been supplied, and before takeoff of the aircraft, the aerodrome meteorological office must issue the necessary amendment or updated

information to the operator or to the local air traffic services unit, for transmission to the aircraft.

Inspector Guidance: *reserved*

§ 179.137 Automated Pre-Flight Information Systems for Briefing, Consultation, Flight Planning and Flight Documentation.

(a) Where the MET service provider uses automated pre-flight information systems to supply and display meteorological information to operators and flight crew members for self-briefing, flight planning and flight documentation purposes, the information supplied and displayed must comply with the relevant provisions in GACAR §§ 179.131 to 179.135 inclusive.

(b) Where automated pre-flight information systems are used to provide for a harmonized, common point of access to meteorological information and aeronautical information services information by operators, flight crew members and other aeronautical personnel concerned, the MET service provider must remain responsible for the quality control and quality management of meteorological information provided by means of such systems. Note.— The responsibilities relating to aeronautical information services information is addressed under GACAR Part 175.

Inspector Guidance: *reserved*

§ 179.139 Information for Aircraft in Flight.

(a) Meteorological information for use by aircraft in flight must be supplied by an aerodrome meteorological office or meteorological watch office to its associated air traffic services unit and through D-VOLMET or VOLMET broadcasts as determined by regional air navigation agreement. Meteorological information for planning by the operator for aircraft in flight must be supplied on request, as agreed between the MET service provider and the operator concerned.

(b) Meteorological information for use by aircraft in flight must be supplied to air traffic services units in accordance with the specifications of Subpart K.

(c) Meteorological information must be supplied through D-VOLMET or VOLMET broadcasts in accordance with the specifications of Subpart L.

Inspector Guidance: *reserved*

k. Information for Air Traffic Services, Search and Rescue Services and Aeronautical Information Services

§ 179.151 Information for ATS Units.

(a) Each MET service provider must designate an aerodrome meteorological office or meteorological watch office to be associated with each air traffic services unit. The associated aerodrome meteorological office or meteorological watch office must, after coordination with the air traffic services unit, supply, or arrange for the supply of, up-to-date meteorological information to the unit as necessary for the conduct of its functions.

(b) The associated meteorological office for an aerodrome control tower or approach control unit must be an aerodrome meteorological office.

(c) The associated meteorological office for a flight information center or an area control center must be a meteorological watch office.

(d) Where, owing to local circumstances, it is convenient for the duties of an associated aerodrome meteorological office or meteorological watch office to be shared between two or more aerodrome meteorological offices or meteorological watch offices, the division of responsibility must be determined by the MET service provider in consultation with the ATS provider.

(e) Any meteorological information requested by an air traffic services unit in connection with an aircraft emergency must be supplied as rapidly as possible.

Inspector Guidance: *reserved*

§ 179.153 Information for SAR Units.

Each MET service provider must supply SAR services units with the meteorological information they require in a form established by mutual agreement. For that purpose, each MET service provider must maintain liaison with the search and rescue services units throughout a search and rescue operation.

Inspector Guidance: *reserved*

§ 179.155 Information for AIS Units.

Each MET service provider must supply up- to-date meteorological information to relevant AIS units, as necessary, for the conduct of their functions.

l. Requirements For and Use of Communications

Inspector Guidance: *Technical specifications and detailed criteria related to this subpart are contained in Appendix 10 of Annex 3 to the Convention of International Civil Aviation.*

§ 179.161 Requirements for Communications.

(a) Suitable telecommunications facilities must be made available to permit aerodrome meteorological offices and, as necessary, aeronautical meteorological stations to supply the required meteorological information to air traffic services units on the aerodromes for which those offices and stations are responsible, and in particular to aerodrome control towers, approach control units and the aeronautical telecommunications stations serving these aerodromes.

(b) Suitable telecommunications facilities must be made available to permit meteorological watch offices to supply the required meteorological information to air traffic services and search and rescue services units in respect of the flight information regions, control areas and search and rescue regions for which those offices are responsible, and in particular to flight information centers, area control centers and rescue coordination centers and the associated aeronautical telecommunications stations.

(c) Suitable telecommunications facilities must be made available to permit world area forecast centers to supply the required world area forecast system products to the MET service provider and other users.

(d) Telecommunications facilities between aerodrome meteorological offices and, as necessary, aeronautical meteorological stations and aerodrome control towers or approach control units must permit communications by direct speech, the speed with which the communications can be established being such that the required points may normally be contacted within approximately 15 seconds.

(e) Suitable telecommunications facilities must be made available to permit aerodrome meteorological offices to exchange operational meteorological information with other aerodrome meteorological offices.

Inspector Guidance: *Reserved*

§ 179.163 Use of Aeronautical Fixed Service Communications – Meteorological Bulletins in Alphanumeric Format.

Meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service must be originated by the appropriate aerodrome meteorological office or aeronautical meteorological station.

Inspector Guidance: *Reserved*

§ 179.165 Use of Aeronautical Fixed Service Communications – WAFS Products.

World area forecast system products in digital form must be transmitted as determined by regional air navigation agreement.

Inspector Guidance: *Reserved*

§ 179.167 Use of Aeronautical Mobile Service Communications.

The content and format of meteorological information transmitted to aircraft and by aircraft must be consistent with the provisions of this part.

Inspector Guidance: *Reserved*

§ 179.169 Use of Aeronautical Data Link Service – Contents of D-VOLMET.

D-VOLMET must contain current METAR and SPECI, together with trend forecasts where available, TAF and SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET.

Inspector Guidance: *Reserved*

§ 179.171 Use of Aeronautical Broadcasting Service – Contents of VOLMET Broadcasts.

(a) Continuous VOLMET broadcasts, normally on very high frequencies (VHF), must contain current METAR and SPECI, together with trend forecasts where available.

(b) Scheduled VOLMET broadcasts, normally on high frequencies (HF), must contain current METAR and

SPECI, together with trend forecasts where available and, where so determined by regional air navigation agreement, TAF and SIGMET.

Inspector Guidance: *Reserved*

m. Quality Assurance

Inspector Guidance: *Technical guidance criteria related to this subpart are contained in ICAO Doc. 9873, Manual on the Quality Management System for the Provision of Meteorological Service for International Air Navigation.*

§ 179.181 Quality Assurance System.

(a) Each MET service provider must establish and maintain a properly organized quality assurance system containing procedures, processes and resources necessary to implement quality management for all MET services provided under this part.

(b) The quality system must be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards, and certified by an approved organization.

(c) Within the context of the MET service provider’s quality system, the skills and knowledge required for each function must be identified and personnel assigned to perform those functions must be appropriately trained.

(d) Each MET service provider must ensure that personnel possess the skills and competencies required to perform specific assigned functions, and appropriate records must be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments must be established that require personnel to demonstrate the required skills and competencies. Periodic assessments of personnel must be used as a means to detect and correct shortfalls.

(e) The quality system must provide the users with assurance that the meteorological information supplied complies with the stated requirements in terms of the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity, as well as the accuracy of measurements, observations and forecasts. When the quality system indicates that meteorological information to be supplied to the users does not comply with the stated requirements, and automatic error correction procedures are not appropriate, such information must not be supplied to the users unless it is validated with the originator.

(f) In regard to the exchange of meteorological information for operational purposes, the quality system must include verification and validation procedures and resources for monitoring adherence to the prescribed transmission schedules for individual messages and/or bulletins required to be exchanged, and the times of their filing for transmission. The quality system must be capable of detecting excessive transit times of messages and bulletins received.

(g) Demonstration of compliance of the quality system applied must be by audit. If nonconformity of the system is identified, action should be initiated to determine and correct the cause. All audit observations must be evidenced and properly documented.

(h) Within the quality assurance system, if nonconformity is identified, initiating action to correct its cause must be determined and taken as follows -

(1) The procedure required for corrective action must specify how—

(i) To correct an existing quality problem; and

(ii) To follow up a corrective action to ensure the action is effective; and

(iii) To amend any procedure required under this Part as a result of a corrective action; and

(iv) Management will measure the effectiveness of any corrective action taken.

(2) The procedure required for preventive action must specify how—

(i) To correct a potential quality problem; and

(ii) To follow-up a preventive action to ensure the action is effective; and

(iii) To amend any procedure required under this Part as a result of a preventive action; and

(iv) Management will measure the effectiveness of any preventive action taken.

Note.— The International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance program. Guidance on the establishment and implementation of a quality system is given in the Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation (ICAO Doc. 9873).

Inspector Guidance: *Reserved*

§ 179.183 Customer Forum.

Each MET service provider must hold an annual forum, consultation or survey with its customers in order to determine the quality of the service provided and to ascertain whether or not it meets their requirements. The GACA S&AT must be informed, in advance, and may attend any meetings as an observer.

Inspector Guidance: *Reserved*

§ 179.185 Users and Customer Feedback.

Each MET service provider must address and respond to all customer feedback. Customers will have the right to address feedback to the President on issues when an issue raised remains open or not resolved.

Inspector Guidance: *Reserved*

§ 179.187 Meteorological Information Check after Aircraft Accident or Serious Incident.

(a) Each MET service provider must establish procedures for checking the adequacy, accuracy and timeliness of any of their meteorological information that may have been used by an aircraft or an air traffic service involved in an aircraft accident or serious incident.

(b) The procedures must ensure that:

(1) The checks are carried out as soon as practicable after notification to the MET service provider’s organization of such an aircraft accident or serious incident; and

(2) Copies of the meteorological information are kept in a secure place for possible use by any subsequent investigation.

Inspector Guidance: *Reserved*

§ 179.189 Malfunctions and Erroneous Information.

Each MET service provider must:

(a) Identify, record, investigate and rectify any report of erroneous meteorological information;

(b) Identify, record, notify, investigate and rectify any detected malfunction in the facilities and meteorological services that may result in the supply of erroneous meteorological information;

(c) Notify without delay all users that have received the erroneous meteorological information; and

(d) Submit reports to the President as prescribed under GACAR § 179.193; and

(e) Notify the President, within 12 hours, of those facility malfunctions that cannot be remedied within 72 hours.

Inspector Guidance: *Reserved*

n. Records and Reports

§ 179.191 Document Retention.

(a) Each MET service provider must retain information supplied to flight crew members, either as printed copies or in computer files, for a period of at least 30 days from the date of issue. This information must be made available to the President and the SAAIB, on request, for inquiries or investigations and, for these purposes, must be retained until the inquiry or investigation is completed.

(b) Each MET service provider must retain qualification and training records for at least the last three years for all active meteorological personnel qualified and trained under Subpart B.

(c) Each MET service provider must retain the records or erroneous meteorological information required under GACAR §179.189 for at least the last one year unless a longer period is prescribed by the President.

Inspector Guidance: *Reserved*

§ 179.193 Promulgated Information Incident Reports.

(a) Each MET service provider must submit a promulgated information incident report to the President within 24 hours of the promulgated information incident.

(b) The report must include the following information:

(1) Date and time of the incident;

(2) Brief description of events;

(3) Details to identify the meteorological information that was promulgated;

(4) Details relating to the meteorological information that gave rise to the incident; (5) Name, organization, and contact details of the person notifying the incident.

Inspector Guidance: *Reserved*

Appendix A

Aviation Meteorology Certification Checklist

AVIATION METEOROLOGY SERVICE PROVIDER (PART 179)

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 179.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements – Part 170					
	General Requirements				
1.1	Is the application related specifically and only to: (1) Air navigation services (MET) provided exclusively for military flight operations; (2) A person who is providing air navigation services (MET) to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or (3) Any air navigation services (MET) provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia	☐	☐	☐	8.5.1.2.1.a § 170.1
1.2	Does the applicant hold an appropriate security authorisation from the President?	☐	☐	☐	8.5.1.2.1.b § 170.3
	Comments				
1.3	Does the applicant qualify as a person able to provide an air navigation service under the provisions of GACAR Part 170.23?	☐	☐	☐	8.5.1.2.1.d § 170.23
1.4	Is the applicant seeking exemptions based on an approval issued by another State?	☐	☐	☐	8.5.1.2.1.e § 170.26
	Comments				
1.5	Is there any evidence that the applicant has nominated or is planning to nominate a person to fill a key management position that has previously have materially contributed to the revocation of a certificate?	☐	☐	☐	8.5.1.2.1.f § 170.23
1.6	Does the applicant maintain a principal base of operations?	☐	☐	☐	8.5.1.2.1.g § 170.61
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2. MET Specific Requirements – Part 179					
	a. General Requirements				
2.1	Has the applicant clearly defined in its manual the objectives of the MET services it provides for air navigation as specified in GACAR 179.5?	☐	☐	☐	8.5.1.4.1.a § 179.5
2.2	Has the applicant established and implemented procedures relating to receiving notifications required from operators, as specified in GACAR 179.7, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.7
2.3	Has the applicant established and implemented procedures and systems relating to coordination requirements, as specified in GACAR 179.9, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.9
2.4	Has the applicant established and implemented procedures relating to coordination with SS&AT about interactions with foreign States or MET providers when there are implications for regional air navigation agreements, as specified in GACAR 179.11, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.11
2.5	Has the applicant established and implemented procedures to ensure that MET services in KSA are fully compliant with the relevant standards of ICAO and WMO, as specified in GACAR 179.13, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.13
2.6	Has the applicant established and implemented procedures relating to human factors, as specified in GACAR 179.15, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.15
2.7	Has the applicant established and implemented procedures relating to site requirements, as specified in GACAR 179.17, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.17
2.8	Has the applicant established and implemented procedures relating to verification, periodic inspection, testing and calibration, as specified in GACAR 179.19, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.a § 179.19
2.9	Has the applicant established procedures to allow the President to make any inspections, at any time, in order to allow the President to determine compliance with Part 179?	☐	☐	☐	8.5.1.4.1.a § 179.20

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				
	b. Personnel				
2.10	Has the applicant employed, contracted, or otherwise engaged a senior person, identified for the purposes of this part as the Director of meteorological services, who has the authority within the organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements and is responsible for ensuring that the organization complies with the requirements of Part 179?	☐	☐	☐	8.5.1.4.1.b § 179.21(a)
2.11	Has the applicant employed, contracted, or otherwise engaged a senior person or persons responsible to the Director of meteorological services for ensuring that the organization complies with its manual?	☐	☐	☐	8.5.1.4.1.b § 179.21(b)
2.12	Has the applicant employed, contracted, or otherwise engaged sufficient technical personnel to inspect, supervise, and maintain the facilities listed in the manual?	☐	☐	☐	8.5.1.4.1.b § 179.21(c)
2.13	Has the applicant established and implemented procedures to ensure that each person assigned duties as meteorological personnel is competent and holds appropriate qualifications to perform the duties which they are assigned?	☐	☐	☐	8.5.1.4.1.b § 179.23(a)
2.14	Has the applicant established and implemented procedures to ensure that each person assigned duties as meteorological personnel has been appropriately trained and assessed as competent through a formal process by a person who is qualified?	☐	☐	☐	8.5.1.4.1.b § 179.23(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.15	Has the applicant established and implemented procedures to ensure that each person assigned duties as meteorological personnel is issued a certificate that names the meteorological personnel, describes the functions that the person assigned duties as meteorological personnel is authorized to perform, and states the period during which the certificate is effective and valid?	☐	☐	☐	8.5.1.4.1.b § 179.23(c)
2.16	(1). Has the applicant developed and implemented a periodic and comprehensive recurrent training program to ensure that each person assigned duties as meteorological personnel maintains the appropriate level of qualification? (2). Is the established period 12 months or less?	(1) ☐ (2) ☐	(1) ☐ (2) ☐	(1) ☐ (2) ☐	8.5.1.4.1.b § 179.23(d)
2.17	Has the applicant developed and published job descriptions for **all** technical staff assigned to provide MET services?	☐	☐	☐	8.5.1.4.1.b § 179.23(e)
2.18	Has the applicant established arrangements that define the person responsible and the process to be followed to ensure an adequate number of suitably trained and rated staff are available in respect of MET services?	☐	☐	☐	8.5.1.4.1.b § 179.25(a)
2.19	Has the applicant defined a method by which staffing levels are determined in relation to the MET servicers to be provided?	☐	☐	☐	8.5.1.4.1.b § 179.25(b)
2.20	Has the applicant established arrangements that define the management responsibilities and process for ensuring adequate staff supervision? *Arrangements must include the mechanisms that ensure only trained and competent staff undertakes the provision of MET services.*	☐	☐	☐	8.5.1.4.1.b § 179.25(c)
2.21	Has the applicant established and implemented procedures relating to human performance, as specified in GACAR 179.27, and have those procedures been published in their manual? *Refer also response to question 2.6 (GACAR 179.15)*	☐	☐	☐	8.5.1.4.1.b § 179.27
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	c. Manual Requirements				
2.22	Has the applicant developed, and does the applicant maintain, a Manual as specified in GACAR 179.33?	☐	☐	☐	8.5.1.4.1.c § 179.33(a)
2.23	Does the applicants manual contain, as a minimum: (1) A statement signed by the Director of meteorological services, on behalf of the organization confirming that the manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with Part 179 and that the manual, and all associated manuals, and operating and maintenance instructions, must be complied with by the organization's personnel at all times? (2) An organization chart showing lines of responsibility of the senior persons? (3) A summary of the organization's staffing structure at each location listed under paragraph 179.33(a)(4)? (4) A list of each type of MET facility to be operated under the authority of the MET service provider? (5) A summary of the scope of activities at each location where the organization's personnel are based for the purpose of providing MET services under paragraph 179.33(a)(4)? (6) The detailed procedures required under GACAR § 179.19 for verification, periodic inspection, testing and calibration, GACAR § 179.185 for users and customer feedback and GACAR § 179.181 regarding the quality assurance system? (7) Detailed procedures to control, amend, and distribute the manual?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐	8.5.1.4.1.c § 179.33(a)
2.24	Has the applicant established and implemented procedures and practices to: (1) Ensure that its manual is amended, as required, to remain a current description of the MET service provider's organization, services, and facilities? (2) Ensure that any amendments made to its manual meet the applicable requirements of this Part? (3) Comply with the manual amendment procedure contained in its manual? (4) Provide the President with a copy of each amendment to its manual, immediately after the amendment is incorporated into the manual? (5) Make such amendments to its manual as the President may consider necessary in the interests of aviation safety?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	8.5.1.4.1.c § 179.33(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				
	d. World Area Forecast System and Meteorological Offices				
2.25	Has the applicant accepted the responsibility for providing a WAFC within the framework of the world area forecast system?	☐	☐	☐	8.5.1.4.1.d § 179.43
2.26	Has the applicant established and implemented procedures relating to its responsibilities for providing a WAFC within the framework of the world area forecast system, as specified in GACAR 179.43, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.d § 179.43
2.27	Has the applicant established and implemented procedures relating to its responsibilities for aerodrome meteorological offices, as specified in GACAR 179.45, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.d § 179.45
2.28	Has the applicant established and implemented procedures relating to its responsibilities for meteorological watch offices, as specified in GACAR 179.47, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.d § 179.47
2.29	Has the applicant accepted or been assigned responsibility for providing a volcanic ash advisory centre?	☐	☐	☐	8.5.1.4.1.d § 179.49

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.30	Has the applicant established and implemented procedures relating to its responsibilities for providing a volcanic ash advisory centre, as specified in GACAR 179.49, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.d § 179.49
2.31	Has the applicant accepted or been assigned responsibility for providing a tropical cyclone advisory centre?	☐	☐	☐	8.5.1.4.1.d § 179.51
2.32	Has the applicant established and implemented procedures relating to its responsibilities for providing a tropical cyclone advisory centre, as specified in GACAR 179.51, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.d § 179.51
	Comments/Evidence				
	e. Meteorological Observations and Reports				
2.33	Has the applicant established and implemented procedures relating to its responsibilities for aeronautical meteorological stations and observations, as specified in GACAR 179.61, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.61
2.34	Has the applicant established and implemented procedures relating to its responsibilities to establish an agreement with ATS service providers, as specified in GACAR 179.61, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.63
2.35	Has the applicant established and implemented procedures relating to routine observations and reports, as specified in GACAR 179.65, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.65

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.36	Has the applicant established and implemented procedures relating to special observations and reports, as specified in GACAR 179.67, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.67
2.37	Has the applicant established and implemented procedures relating to the content of local routine and special reports and METAR and SPECI, as specified in GACAR 179.69, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.69
2.38	Has the applicant established and implemented procedures relating to observing and reporting meteorological elements, as specified in GACAR 179.71, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.71
2.39	Has the applicant established and implemented procedures relating to reporting meteorological information from automatic observing systems, as specified in GACAR 179.73, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.73
2.40	Has the applicant established and implemented procedures relating to observations and reports of volcanic activity, as specified in GACAR 179.75, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.e § 179.75
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	f. Aircraft Observations and Reports				
2.41	Has the applicant established and implemented procedures relating to relay of air reports by ATS units, as specified in GACAR 179.81, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.f § 179.81
2.42	Has the applicant established and implemented procedures relating to recording and post-flight reporting of aircraft observations of volcanic activity, as specified in GACAR 179.83, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.f § 179.83
	Comments/Evidence				
	g. Forecasts				
2.43	Has the applicant established and implemented procedures relating to interpretation and use of forecasts, as specified in GACAR 179.91, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.g § 179.91
2.44	Has the applicant established and implemented procedures relating to aerodrome forecasts, as specified in GACAR 179.93, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.g § 179.93
2.45	Has the applicant established and implemented procedures relating to landing forecasts, as specified in GACAR 179.95, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.g § 179.95
2.46	Has the applicant established and implemented procedures relating to forecasts for take-off, as specified in GACAR 179.97, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.g § 179.97

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.47	Has the applicant established and implemented procedures relating to area forecasts for low-level flights, as specified in GACAR 179.99, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 g § 179.99
	Comments/Evidence				
	h. SIGMET and AIRMET Information, Aerodrome Warnings and Wind Shear Warnings and Alerts				
2.48	Has the applicant established and implemented procedures relating to SIGMET information, as specified in GACAR 179.111, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 h § 179.111
2.49	Has the applicant established and implemented procedures relating to AIRMET information, as specified in GACAR 179.113, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 h § 179.113
2.50	Has the applicant established and implemented procedures relating to aerodrome warnings, as specified in GACAR 179.115, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 h § 179.115
2.51	Has the applicant established and implemented procedures relating to aerodrome warnings, as specified in GACAR 179.117, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 h § 179.117
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	i. Aeronautical Climatological Information				
2.52	Has the applicant established and implemented procedures relating to aeronautical climatological information, in general, as specified in GACAR 179.121, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.i § 179.121
2.53	Has the applicant established and implemented procedures relating to aeronautical climatological tables, as specified in GACAR 179.123, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.i § 179.123
2.54	Has the applicant established and implemented procedures relating to copies of meteorological observational data, as specified in GACAR 179.125, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.i § 179.125
	Comments/Evidence				
	j. Service for Operators and Flight Crew Members				
2.55	Has the applicant established and implemented procedures relating to supply of meteorological information to operators and flight crew members, in general, as specified in GACAR 179.131, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.j § 179.131
2.56	Has the applicant established and implemented procedures relating to briefing, consultation and display, as specified in GACAR 179.133, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.j § 179.133
2.57	Has the applicant established and implemented procedures relating to supply of meteorological flight documentation as specified in GACAR 179.135, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.j § 179.135

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.58	Has the applicant established and implemented procedures relating to supply of meteorological information to operators and flight crew members, in general, as specified in GACAR 179.137, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.j § 179.137
2.59	Has the applicant established and implemented procedures relating to supply of information for aircraft in flight, as specified in GACAR 179.139, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.j § 179.139
	Comments/Evidence				
	k. Information for Air Traffic Services, Search and Rescue Services and Aeronautical Information Services				
2.60	Has the applicant established and implemented procedures relating to supply of information for air traffic service (ATS) units, as specified in GACAR 179.151, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.k § 179.151
2.61	Has the applicant established and implemented procedures relating to supply of information for search and rescue (SAR) units, as specified in GACAR 179.153, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.k § 179.153
2.62	Has the applicant established and implemented procedures relating to supply of information for aeronautical information services (AIS) units, as specified in GACAR 179.155, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.k § 179.155
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	1. Requirements For and Use of Communications				
2.63	Has the applicant established and implemented procedures relating to requirements for communication, as specified in GACAR 179.161, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.161
2.64	Has the applicant established and implemented procedures relating to the use of aeronautical fixed service communications – meteorological bulletins in alphanumeric format, as specified in GACAR 179.163, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.163
2.65	Has the applicant established and implemented procedures relating to the use of aeronautical fixed service communications – WAFS products, as specified in GACAR 179.165, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.165
2.66	Has the applicant established and implemented procedures relating to the use of aeronautical mobile service communications, as specified in GACAR 179.167, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.167
2.67	Has the applicant established and implemented procedures relating to the use of aeronautical Data Link service – contents of D-VOLMET, as specified in GACAR 179.169, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.169
2.68	Has the applicant established and implemented procedures relating to the use of aeronautical broadcasting service – contents of VOLMET broadcasts, as specified in GACAR 179.171, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.1 § 179.171
	Comments/Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	m. Quality Assurance				
2.69	Has the applicant established and does the applicant maintain a properly organized quality assurance system containing procedures, processes and resources necessary to implement quality management for all MET services provided under Part 179?	☐	☐	☐	8.5.1.4.1 m § 179.181(a)
2.70	Is the applicant's quality system in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards, and has it been certified (accredited) by an approved organization?	☐	☐	☐	8.5.1.4.1 m § 179.181(b)
2.71	Has the applicant established and implemented procedures to ensure that within the context of the MET service provider's quality system, the skills and knowledge required for each function must be identified and personnel assigned to perform those functions must be appropriately trained?	☐	☐	☐	8.5.1.4.1 m § 179.181(c)
2.72	Has the applicant established and implemented procedures to ensure that personnel possess the skills and competencies required to perform specific assigned functions, and appropriate records are maintained so that the qualifications of personnel can be confirmed?	☐	☐	☐	8.5.1.4.1 m § 179.181(d)
2.73	Has the applicant established procedures to ensure that initial and periodic assessments have been established that require personnel to demonstrate the required skills and competencies? *Periodic assessments of personnel must be used as a means to detect and correct shortfalls.*	☐	☐	☐	8.5.1.4.1 m § 179.181(d)
2.74	Has the applicant established and implemented procedures so that the applicant's quality system will provide the users with assurance that the meteorological information supplied complies with the stated requirements in terms of the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity, as well as the accuracy of measurements, observations and forecasts?	☐	☐	☐	8.5.1.4.1 m § 179.181(e)
2.75	Has the applicant established and implemented procedures so that when the quality system indicates that meteorological information to be supplied to the users does not comply with the stated requirements, and automatic error correction procedures are not appropriate, such information will not be supplied to the users unless it is validated with the originator?	☐	☐	☐	8.5.1.4.1 m § 179.181(e)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.76	In regard to the exchange of meteorological information for operational purposes, has the applicant provided evidence that the quality system will include verification and validation procedures and resources for monitoring adherence to the prescribed transmission schedules for individual messages and/or bulletins required to be exchanged, and the times of their filing for transmission?	☐	☐	☐	8.5.1.4.1.m § 179.181(f)
2.77	Is the applicant's quality system capable of detecting excessive transit times of messages and bulletins received?	☐	☐	☐	8.5.1.4.1.m § 179.181(f)
2.78	Has the applicant provided evidence that demonstration of compliance of their quality system applied is achieved by audit? *If nonconformity of the system is identified, action should be initiated to determine and correct the cause. All audit observations must be evidenced and properly documented.*	☐	☐	☐	8.5.1.4.1.m § 179.181(g)
2.79	Has the applicant established procedures and practices so that within its quality assurance system, if nonconformity is identified, initiating action to correct its cause must be determined and taken as specified in GACAR 179.181(h)?	☐	☐	☐	8.5.1.4.1.m § 179.181(h)
2.80	Has the applicant established a program for an annual forum, consultation or survey with its customers in order to determine the quality of the service provided and to ascertain whether or not it meets their requirements?	☐	☐	☐	8.5.1.4.1.m § 179.183
2.81	Has the applicant established procedures for addressing and responding to all customer feedback?	☐	☐	☐	8.5.1.4.1.m § 179.185
2.82	Has the applicant established and implemented procedures relating to meteorological information checks after aircraft accidents or serious incidents, as specified in GACAR 179.187, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.m § 179.187
2.83	Has the applicant established and implemented procedures relating to malfunctions or erroneous information, as specified in GACAR 179.189, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1.m § 179.189

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments/Evidence				
	n. Records and Reports				
2.84	Has the applicant established and implemented procedures relating to document retention, as specified in GACAR 179.191, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 m § 179.191
2.85	Has the applicant established and implemented procedures relating to promulgated information incident reports, as specified in GACAR 179.193, and have those procedures been published in their manual?	☐	☐	☐	8.5.1.4.1 m § 179.193
	Comments/Evidence				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

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CHAPTER 5. METEOROLOGICAL SERVICE PROVIDERS

Section 2. Regulatory Oversight of Meteorological Service Providers

8.5.2.1 General Information

8.5.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Aviation Meteorology (MET) Service Providers after they have been certified. The audits may also be applied in the re-certification of MET service providers at or near expiry of their certification period.

8.5.2.1.2 The main reference document for audits of ANS providers including Aviation Meteorology Service providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.5.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.5.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.5.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of MET. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.5.2.1.6 The reason for this is that in order to obtain certification, the MET Provider was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.5.2.1.7 In order to retain their certification, the MET Provider needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.5.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance

without looking at every part of the MET organisation.

8.5.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.5.2.2 Audit Checklist

8.5.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.5.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

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CHAPTER 5. METEOROLOGICAL SERVICE PROVIDERS

Section 3. Approval of Meteorological Instrumentation and Equipment

8.5.3.1 General Information

8.5.3.1.1 reserved

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CHAPTER 5. METEOROLOGICAL SERVICE PROVIDERS

Section 4. Reserved

8.5.4.1 General Information

8.5.4.1.1 Reserved

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CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 1. Certification of Instrument Flight Procedure Service Provider

8.6.1.1 General Information

8.6.1.1.1 The purpose of this chapter is to provide guidance material for ANS Safety Oversight Inspectors in the management of applications for certification as an Instrument Flight Procedure (IFP) Design Service provider in KSA under the provisions of GACAR Part 170 and GACAR Part 172.

8.6.1.1.2 Specifically this chapter identifies the regulatory requirements that must be considered, and also provides a set of questions (checklist) regarding those regulatory requirements and additional questions (as required) which will enable an inspector to determine if an applicant can satisfy the regulatory requirements.

Inspector Guidance: *There are two purposes for the checklist questions. The first is to provide evidence that all regulatory requirements have been addressed when considering an application. The second is to allow the inspector to ensure that the applicant has the required competency to provide IFP design services in KSA – IFP design services is a safety critical activity and it is essential that the approved/certified organisation understands its safety obligations and has the right management structures, operational personnel, equipment and procedures to fulfil those obligations.*

8.6.1.2 Regulatory Requirements – Part 170

8.6.1.2.1 The general regulatory requirement for an Instrument Flight Procedure (IFP) design organisation to obtain certification from GACA, and the requirements relating to that service, are contained in GACAR Part 170. The following extracts are relevant to the initial certification of an IFP design organisation:

a. Applicability

§ 170.1 Applicability.

(c) …

(d) This part does not apply to:

(1) Air navigation services provided exclusively for military flight operations;

(2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or

(3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia

Inspector Guidance: *The provisions at 170.1.(d) seem to indicate that a design organisation involved only in procedures for military use at military aerodromes may not need to obtain a Part 170/172 certification. Inspectors should exercise caution, as often procedures at military aerodromes are used by civil operations. One key test may be to determine if the procedures will be published in the AIP.*

a. Certifications, Authorisations, Prohibitions

§ 170.3 Certifications, Authorizations, and Prohibitions.

(d) …

(e) No person may provide an air navigation service under this part without holding appropriate security authorization from the President.

(f) …

Inspector Guidance: *aa*

b. Safety Management Systems

§ 170.7 Safety Management Systems.

(a) Certificate holders authorized to conduct operations under GACAR Part 171, 172, 173 or 175 must have a Safety Management System (SMS) that meets the requirements of GACAR Part 5 and is acceptable to the President.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171, 172, 173 or 175 must demonstrate, as part of the application process under GACAR § 170.25, that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President.

Inspector Guidance:<u>*GENERAL*</u> *Requirements relating to Safety Management Systems are at GACAR Part 5. GACAR Part 199 (Transition) allows existing IFP organisations a period of 21 months from 1 March 2016 to become fully compliant with SMS requirements of GACAR Part 5. GACA ANS IFP office is considered an existing IFP organisation.*

New applicants will need to demonstrate compliance with Part 5 prior to certification – however, inspectors may consider an application for exemption (i.e., conditional approval) if the applicant is able to meet all other requirements – AND is able to demonstrate that they will be fully compliant with SMS in a reasonable time – e-Book Volume 2 provides guidance.

Guidance material for evaluating SMS is at e-Book Volume 2 – Safety Management Systems. In particular, Inspectors should review Chapters 3, 4 and 5 of Volume 2.

Specific checklists for assessing an applicant's compliance with GACA Part 5 requirements are at Chapter 11 Section 1 (ANS Safety Management System Evaluation Guidelines) of this document.

IFP SPECIFIC: A Safety Management System for a relatively small organisation like an IFP design office does not need to be complex, and it should be relatively straightforward for an IFP designer to comply with the SMS requirements. Inspectors should be mindful of the scope of operations if an IFP design office, and the regulatory requirement and quality management system requirements for certification, which should significantly mitigate safety matters which would be addressed under SMS. Inspectors should use as a reference the difference between an SMS for a large air carrier like Saudi Airlines, and a small charter operator with one or two aircraft.

If the IFP is being covered under the provisions of a 'parent organisation' – e.g., if the GACA ANS IFP office is covered under an ANS-wide SMS, inspectors should ensure that particular attention is paid in the parent SMS to the specific safety issues within the IFP office, and should ensure that the IFP office is specifically represented on any SMS management structures, etc.

c. Security Program

§ 170.9 Security Program.

(a) Certificate holders authorized to conduct operations under GACAR Part 171 or 173 must have, and put into effect, a security program that is acceptable to the President and that sets out the procedures designed to protect its personnel, and any facility and equipment that it uses, in providing any of its services.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171 or 173 must demonstrate, as part of the application process under GACAR § 170.25, that it has a security program that is acceptable to the President.

Inspector Guidance: *Guidance on assessment of a security program, with checklists, can be found at Chapter* 12, Section 4, of this document. There is NO specific requirement for a Part 172 certificate holder to develop or implement a security program as part of its certification and inspectors must not refuse an application on this basis.

However, an IFP organisation should be aware of the reasons for the implementation of security programs in other ANS areas (ATS and ATEL) and if they decide to implement complementary programs, inspectors should provide assistance and guidance.

d. Qualification to Provide Service

§ 170.23 General Requirements.

A person may not provide an air navigation service unless that person—

(a) Is the Government of the Kingdom of Saudi Arabia; or

(b) Is a person who is to provide an air navigation service:

(1) In cooperation with the Government of the Kingdom of Saudi Arabia; or (2) By arrangement with the Government of the Kingdom of Saudi Arabia; or (c) is a person acceptable to the President; and

(d) Maintains a principal base of operations in the Kingdom of Saudi Arabia; and

(e) Obtains an ANSC.

Inspector Guidance: *for the purposes of interpreting this sub-regulation, GACA is considered to be a government agency, and therefore is in effect operating under the provisions of (a). A sub-contracted agency would qualify under (b). In assessing GACA ANS, inspectors would need to look at the arrangements for separating the provision of ANS by Saudi Air Navigation Services (SANS) and the regulatory function of GACA. It is likely that SANS would not qualify as (a) or (b). Inspectors should therefore consider GACA SANS under provision (c) – i.e., a person acceptable to the President. This provision would also apply to other organisations applying for certification, including organisations proposed by GACA SANS as consultants, contractors or sub-contractors. The assessment of what/who constitutes a 'person acceptable to the President' should be based on an assessment of the organisation's competence and ability to comply with GACARs.*

e. Exemptions Based on Other Approvals

§ 170.26 Exemptions Based on Approval Issued by another State

(a) Where an applicant for approval holds an approval as an ANS provider issued by the regulatory authority of another State acceptable to the President, the applicant may be exempted from certain requirements of this Part.

(b) In making a decision regarding exemptions, the President may:

(1) require the applicant to provide evidence of equivalent compliance with the requirements of this Part or any other relevant Part;

(2) contact the regulatory authority of the State that issued the approval to validate equivalent compliance.

Inspector Guidance: *Guidance relating to IFP organisations seeking exemptions from some or all of the requirements of Part 170/172 are covered in Chapter 8.6.2 of this document.*

f. Reasons for Denial

§ 170.29 Issuing or Denying a Certificate.

(a) …

(b) An application for an ANSC may be denied if the President finds that—

(1) …

(2) The applicant previously held an ANSC that was revoked;

(3) The applicant intends to fill or currently fills a key management position listed in GACAR Part 171, 172, 173, 175 or 179, as applicable, with an individual who exercised control over or who held the same or a similar position with a certificate holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or

(4) An individual who will have control over or have a substantial ownership interest in the applicant, had the same or similar control or interest in a certificate holder whose certificate was revoked or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process.

Inspector Guidance: *This sub-regulation is self-evident. The intent is to stop an applicant from nominating an unsuitable manager. It is important to note the use of the term 'materially contributed' – an inspector must not arbitrarily deny an application if a nominated manager was employed in another organisation whose certificate was revoked. There needs to be evidence that the nominated person was, in fact (not rumour or speculation) a person that was key to the reason for revocation.*

g. Base of Operations

§ 170.61 Maintaining a Principal Base of Operations; Change of Address

(a) Each certificate holder must maintain a principal base of operations.

(b) …

Inspector Guidance: *The intent of this sub-regulation is to ensure that the organisation is able to be contacted if and as required by the President – e.g., for regular oversight inspections, service of notices, etc.*

8.6.1.3 Regulatory Requirements – Part 5 – Safety Management System

8.6.1.3.1 The general regulatory requirement for an Instrument Flight Procedure (IFP) design organisation to have in place a Safety Management System (SMS) are in GACAR Part 5, and GACAR Part 170. The requirements

relating to that SMS, are contained in GACAR Part 5.

8.6.1.3.2 As a matter of policy, an IFP design organisation may implement a stand-alone SMS for its organisation – or, if it is part of a larger ANS entity, it may be covered under the broad SMS of the ANS entity.

Inspector Guidance: *A Safety Management System for a relatively small organisation like an IFP design office does not need to be complex, and it should be relatively straightforward for an IFP designer to comply with the SMS requirements. Inspectors should be mindful of the scope of operations if an IFP design office, and the regulatory requirement and quality management system requirements for certification, which should significantly mitigate safety matters which would be addressed under SMS. Inspectors should use as a reference the difference between an SMS for a large air carrier like Saudi Airlines, and a small charter operator with one or two aircraft. If the IFP is being covered under the provisions of a 'parent organisation' – e.g., if the GACA ANS IFP office is covered under an ANS-wide SMS, inspectors should ensure that particular attention is paid in the parent SMS to the specific safety issues within the IFP office, and should ensure that the IFP office is specifically represented on any SMS management structures, etc.*

8.6.1.4 Regulatory Requirements – Part 172

8.6.1.4.1 The following specific regulatory requirements apply for Part 172 Instrument Flight Procedure Design Organisations:

a. Applicability

§ 172.3 Applicability.

(b) This part does not apply to IFPS providers who are developing and maintaining IFP exclusively for military flight operations.

Inspector Guidance: *reserved*

b. Requirement for a Custodian and Restrictions on IFPS Providers

§ 172.5 Requirement for a Custodian and Restrictions on IFPS Providers.

(a) Each IFP intended for use by aircraft operating under instrument flight rules within the territorial limits of the KSA must have a custodian who –

(1) Meets the applicable requirements of this part; and

(2) Is certificated by the President under GACAR Part 170 to be an IFPS provider.

(b) No person may provide an instrument flight procedure service in the Kingdom of Saudi Arabia unless

the person complies with the provisions of this part and they have been certificated by the President under GACAR Part 170 to provide such service.

(c) Except as provided in GACAR Part 170, each IFPS provider must comply with the limitations and provisions of their certificate, operations specifications and their manual prepared under Subpart C to this part.

Inspector Guidance: *reserved*

c. Resource Requirements

§ 172.7 Resource Requirements. Each IFPS provider must—

(a) Have available equipment that is appropriate for the design, design verification, flight validation, declaration, and maintenance of the types of IFP that they wish to manage;

(b) Have access to relevant and current data including, but not limited to, aeronautical data, land contour data, and obstacle data for the design, design verification, flight validation, and maintenance of their IFP; and

(c) Hold or have ready access to copies of relevant documentation comprising technical standards, practices, and instructions, and any other documentation that may be necessary for the design, design verification, flight validation, declaration, and maintenance of the types of IFP they wish to manage

Inspector Guidance: *reserved*

d. Aeronautical Data Integrity

§ 172.9 Aeronautical Data Integrity.

(a) Determination and reporting of aeronautical data must be in accordance with the accuracy and integrity requirements prescribed in GACAR Part 171 and GACAR Part 139. Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level, and in that respect, three types of positional data must be identified: surveyed points (e.g. navigation aids positions), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points.

(b) Each AIS provider must ensure that integrity of aeronautical data is maintained throughout the data process from survey/origin to the next intended user. The integrity classification related to aeronautical data shall be as provided in Tables A7-1 to A7-5 of Appendix 7 of ICAO Annex 15. Aeronautical data integrity requirements must be based upon the potential risk resulting from the corruption of data and upon the use to which the data item is put. Based on the applicable integrity classification, the validation

and verification procedures shall:

(1) for routine data: avoid corruption throughout the processing of the data;

(2) for essential data: assure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

(3) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

(c) Protection of electronic aeronautical data while stored or in transit must be totally monitored by the cyclic redundancy check (CRC). To achieve protection of the integrity a 32-bit CRC algorithm must apply.

(e) Geographical coordinates indicating latitude and longitude must be determined and reported to the aeronautical information services provider in terms of the World Geodetic System — 1984 (WGS 84) geodetic reference datum, identifying those geographical coordinates which have been transformed into WGS 84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in GACAR Part 171 and GACAR Part 139.

(f) The order of accuracy of the field work and determinations and calculations derived therefrom must be such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in the GACAR Part 171 and GACAR Part 139. For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies.

Inspector Guidance: *reserved*

e. Personnel Requirements

§ 172.21 Personnel Requirements.

(a) Each IFPS provider must employ, contract, or otherwise engage—

(1) A person, identified for the purposes of this part as the Director of instrument flight procedure services, or equivalent, who must—

(i) Have the authority within the custodian’s organization to ensure that the organization’s IFPS provider services can be financed and provided in accordance with the requirements and standards prescribed by this Part; and (ii) Be responsible for ensuring that the organization complies with the requirements of this Part.

(2) A Chief Designer, acceptable to the President, responsible for—

(i) Ensuring that the custodian's organization complies with the organization's procedures for developing and validating IFP; and

(ii) Making the declaration of compliance required for every IFP provided by the custodian's organization for publication in the KSA AIP and otherwise made available for publication and operational use.

(3) Sufficient personnel to plan, design, verify, and maintain the IFP provided by the custodian's organization. (b) Each IFPS provider must establish a procedure for initially assessing, training, and maintaining, the competence of those personnel involved in the planning, design, verification, and maintenance of IFP . These procedures must comply with GACAR § 172.25.

Inspector Guidance: *reserved*

f. Declarations Concerning Instrument Flight Procedures

§ 172.23 Declarations Concerning Instrument Flight Procedures.

Each IFPS provider must establish a procedure for the Chief Designer to declare that an IFP has been designed in accordance with and meets every applicable standard and requirement prescribed by this Part.

Inspector Guidance: *reserved*

g. Procedure Designer Qualification and Training

§ 172.25 Procedure Designer Qualification and Training.

(a) Each IFPS provider must ensure that IFP designers have acquired and maintain the necessary competency level through training and supervised on-the-job training (OJT).

(b) Training for IFP designers must include initial training and recurrent training at periodic intervals not to exceed 3 years.

(c) Initial training must ensure that the IFP designer is able to demonstrate a basic level of competency that includes at least the following elements:

(1) Knowledge of information contained in the IFP design criteria prescribed in Subpart D to this part; and

(2) Skills in the design of procedures.

(d) Recurrent training must ensure that the IFP designer is able to demonstrate a basic level of competency that includes at least the following elements:

(1) Knowledge about updates in ICAO provisions and other provisions pertaining to IFP design; and

(2) Maintenance and enhancement of knowledge and skills in the design of IFP.

(e) Each IFPS provider must ensure that flight procedure designers have undergone an adequate, supervised OJT.

Inspector Guidance: *reserved*

h. Manual Requirements

§ 172.31 General.

(a) This subpart prescribes requirements for each IFPS provider to prepare and maintain a manual.

(b) Each manual, and all of its revisions, must be acceptable to the President.

(c) Each IFPS provider must—

(1) Ensure that its manual is amended, as required, to remain a current description of the IFPS provider's organization, personnel and procedures;

(2) Ensure that any amendments made to its manual meet the applicable requirements of this part;

(3) Comply with the manual amendment procedure contained in its manual;

(4) Provide the President with a copy of each amendment to its manual, immediately after the amendment is incorporated into the manual; and

(5) Make such amendments to its manual as the President may consider necessary in the interests of aviation safety.

Inspector Guidance: *reserved*

§ 172.33 Manual Contents.

(a) Each IFPS provider must provide the President with a manual containing—

(1) A statement signed by the Director of instrument flight procedure services, on behalf of the

organization, confirming that—

(i) The manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with this Part; and

(ii) The manual, and all associated manuals, operating, and maintenance instructions, must be complied with by the organization's personnel at all times.

(2) The titles and names of the Chief Designer required under GACAR § 172.21(a)(2) and all qualified designers;

(3) The duties and responsibilities of the Chief Designer in paragraph (a)(2) and all qualified designers;

(4) An organization chart showing lines of responsibility of the senior persons in paragraph (a)(2); and

(5) A summary of the organization's staffing structure; and

(6) The detailed procedures required under Subpart D regarding IFP development;

(7) The detailed procedures required under Subpart E regarding IFP validation;

(8) The detailed procedures required under Subpart F regarding IFP design submissions and declarations;

(9) The detailed procedures required under Subpart G regarding IFP promulgation;

(10) The detailed procedures required under Subpart H regarding IFP maintenance;

(11) The IFP register required under GACAR § 172.105; and

(12) The detailed procedures required under Subpart I regarding quality assurance; and

(13) The detailed procedures, or an outline of the procedures including information that identifies the documentation that contains the detailed procedures, that are required under

(i) GACAR § 172.9 regarding data integrity;

(ii) GACAR § 172.57(a) regarding the control, calibration, and maintenance of inspection, measuring, and test equipment; and

(iii) GACAR § 172.141 regarding the identification, collection, indexing, storage,

maintenance, and disposal of records.

(14) Detailed procedures to control, amend, and distribute the manual.

(b) The policies and procedures contained in the manual must not be contrary to any applicable GACAR.

Inspector Guidance: *reserved*

i. Development of Instrument Flight Procedures

§ 172.41 General.

(a) In the interest of efficiency, regularity, environmental considerations and economy, every effort must be made to ensure that instrument approach procedures (IAP) are evolved so as to keep to the minimum consistent with safety, both the time taken in executing an instrument approach, the environmental effect and the airspace necessary for the associated maneuvers.

(b) Except as provided in (c), only one IAP may be promulgated for each type of radio aid in relation to a particular runway.

(c) More than one IAP may be promulgated for each type of radio aid in relation to a particular runway if authorized by the President and only after joint consideration by the operators concerned.

(d) IFPS providers must take steps during the development of IFP to minimize the disturbance to the local population caused by aircraft noise. When directed by the President, IFPS providers must consult local noise abatement committees or similar bodies representing the populace of local communities/towns, local authorities, aerodrome and aerodrome and airspace users. The President may prescribe other requirements addressing how local noise abatement committees are included in the planning and introduction of new departure routes.

(e) The specifications contained in this subpart are based on conventional navigation equipment and operating practices and have been formulated with a view to achieving a reasonable degree of standardization. Exceptions are permitted only after joint consideration by the President and the operators concerned.

Inspector Guidance: *reserved*

§ 172.43 Design of Instrument Flight Procedures.

(a) Each IFPS provider must establish detailed procedures for ensuring that every IFP developed is—

(1) Designed or amended by a qualified designer, or an unqualified designer under supervision of

a qualified designer, using methods ensuring that the procedure meets the applicable design criteria prescribed in GACAR § 172.45;

(2) Independently verified by a qualified designer who is independent of the person directly responsible for the design; and

(3) Validated as prescribed in Subpart E.

(b) Each IFPS provider must establish detailed procedures for ensuring that during the processes of design, maintenance, or transfer of data of an IFP—

(1) The applicable aeronautical data and aeronautical information complies with the standards specified in RTCA Inc. document number RTCA/DO-201A Standards for Aeronautical Information;

(2) Manipulation or processing of aeronautical data complies with the standards specified in RTCA Inc. document number RTCA/DO-200A Standards for Processing Aeronautical Data; and

(3) Any transfer of aeronautical information within the custodian's organization, or to or from external entities, complies with the standards specified in the Aeronautical Information Transfer Model (AIXM-5).

Inspector Guidance: *reserved*

§ 172.45 Design Criteria.

(a) Every IFP must be designed in accordance with the appropriate design processes, standards, guidelines, and aeronautical data quality requirements contained in the following:

(1) ICAO Documents—

(i) Doc. 8168, Procedures for Air Navigation Services – Aircraft Operations — Volume I Flight Procedures, and Volume II, Construction of Visual and Instrument Flight Procedures;

(ii) Doc. 8697, Aeronautical Chart Manual;

(iii) Doc. 9365, Manual of All-Weather Operations;

(iv) Doc. 9613 Performance Based Navigation Manual — Volume I Concept and Implementation Guidance, and Volume II Implementing RNAV and RNP;

(v) Doc. 9905 Required Navigation Performance Authorization Required (RNP AR)

Procedure Design Manual; (vi) Doc. 9881, Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information; and

(vii) Doc. 9906, Quality Assurance Manual for Flight Procedure Design.

(2) Any other guideline or standard that is applicable to a particular type of instrument flight procedure and that is acceptable to the President.

(b) For the purposes of paragraph (a), if there is a conflicting difference between any of the applicable design processes, standards, guidelines, or aeronautical data quality requirements, the particular design process, standard or guideline to be used must be acceptable to, or specified by, the President.

(c) The design of an IFP must—

(1) Be coordinated with all appropriate air traffic service (ATS) providers; and

(2) Be compatible with any air traffic service and associated procedure that is provided within the area or areas of airspace where the IFP is intended to be established; and

(3) Take into account—

(i) Any special air traffic rules prescribed by GACAR Part 93;

(ii) Any other regulation restricting aircraft operations;

(iii) The classification and any associated designation of the airspace in which the IFP is to be established and any adjacent airspace that may be affected by the procedure; and

(iv)The effect that the proposed IFP may have on any other IFP established in the airspace.

(d) An IFP must not be designed for an aerodrome (including heliports) unless the operator of the aerodrome agrees in writing that the aerodrome may be used for IFR operations using the intended IFP procedure.

(e) An IFP must not be designed on or use a ground based aeronautical facility unless—

(1) The aeronautical facility is operated under the authority of an aeronautical telecommu nication service operated in accordance with GACAR Part 173; and

(2) The holder of the aeronautical telecommunication service agrees in writing that the aeronautical facility can be used for the intended IFP.

Inspector Guidance: *reserved*

§ 172.47 Terrain data to be used in instrument flight procedures design

(a) Terrain data and associated criteria relating to electronic terrain, obstacle and aerodrome mapping information must comply with the guidelines provide in ICAO Doc 9881 – Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information, and documents referenced by ICAO Doc 9881.

(b) When designing Instrument Flight Procedures, a certificated design organisation may:

(1) Utilise Shuttle Radar Terrain Model (SRTM) digital elevation data provided the data meet applicable accuracy and resolution requirements;

(2) Apply such vertical and horizontal tolerances as are required based on the accuracy of available obstacle data, provide the tolerances applied are not less than any published ICAO tolerances for that obstacle type. All such added tolerances, and their sources, must be clearly identified in the design submission.

Inspector Guidance: *reserved*

§ 172.48 Determination of visibility minima required to be published in instrument flight procedure design

(a) Each IFPS provider must establish and publish visibility minima for each instrument approach procedure and circling procedure in accordance with the criteria in documents identified in § 172.45(a)(1), or other criteria approved by the President.

Inspector Guidance: *reserved*

§ 172.49 Use of Design Automation Tools.

(a) Each IFPS provider must utilize design automation tools to the maximum extent practicable in the design of each IFP in order to minimize the potential for design errors.

(b) Each IFPS provider must ensure all design automation tools are validated prior to use using a tool validation methodology acceptable to the President.

Inspector Guidance: *reserved*

j. Validation of Instrument Flight Procedures

§ 172.53 Validation Package.

(a) Each IFPS provider must compile an IFP validation package for use in the ground/flight validation process. Each validation package must include the following:

(1) A plan view of the final approach obstacle evaluation template, drawn on an appropriate topographical map of scale 1:50,000 to safely accommodate use for navigation, elevated terrain analysis, obstacles and obstructions evaluation;

(2) Completed documents that identify associated terrain, obstacles and obstructions as applicable to the procedure. The controlling terrain/obstacle must be identified and highlighted on the appropriate chart;

(3) Minimum altitudes determined to be applicable from map studies and database information for each segment of the procedure;

(4) A narrative description of the IFP;

(5) Plan and profile pictorial views of the IFP;

(6) Documented data as applicable for each fix, intersection, and/or holding pattern; and

(7) The output from the NAVAID coverage analysis together with any supporting data and design assumptions. (b) Each IFPS provider is responsible for all elements of the validation and must document their proposed validation activities in a plan and submit as early as possible to GACA for acceptance.

Inspector Guidance: *reserved*

§ 172.55 Ground Validation.

(a) Each IFPS provider must establish detailed procedures for conducting the ground validation of an IFP.
… … …

(b) Ground validation must comprises the following elements:

(1) Aerodrome assessment - Verification that the infrastructure required for the provision of an instrument runway as required by GACAR Part 139 is in place;

(2) Navigational aid coverage – Verification that the navigational aid coverage infrastructure required for the IFP as required by GACAR Part 173 and ICAO Doc. 8071 is in place;

(3) Obstacle clearance review – A review conducted by an authorized designer not involved in the design of the considered IFP for each route segment;

(4) Coding review – A review of the coding of RNAV IFP conducted by an authorized designer not involved in the design; and

(5) Flyability assessment – Verification that the IFP can actually be flown. The use of software tools is preferred, (e.g. PC-based to full flight simulator), in order to evaluate a range of aircraft types in various weight, speed and center of gravity configurations, and in various weather conditions (temperature, wind effects and visibility).

(c) Where a flyability assessment is conducted using a full flight simulator the following elements must be evaluated:

(1) All segments of the IFP must be assessed;

(2) In the case of SIDs and PDRs, all segments of the procedure from the departure end of the runway (DER) to joining the en-route structure or termination point must be assessed; and

(3) In the case of IAPs all segments of the procedure from the Arrival/ Initial Fix through to the Missed Approach must be assessed.

(d) Where procedures share the same segment of flight (e.g. initial), the shared segment needs only to be validated once.

(e) In the case of RNAV IFP a test database for the full flight simulator produced by an appropriate navigation data provider for use in the flight management system (FMS) must be used.

(f) Where a ground validation cannot fully verify the accuracy and completeness of all obstacle and navigation data considered in the procedure design or the flyability of the IFP, a flight validation must be conducted. In determining whether a flight validation is required the custodian must consider a number of factors. These include, but are not limited to the following:

Inspector Guidance: *reserved*

§ 172.57 Flight Validation.

(a) Each IFPS provider must establish detailed procedures for conducting the flight validation of an IFP as required by this section. The flight validation procedures must include the use of equipment that—… … .

(b) Except as provided in paragraph (c), each IFP must be flight validated in accordance with the procedures required under paragraph (a) to ensure that—… … …

(c) The following IFP procedures do not require flight validation if it can be shown that current obstacle data meets the design requirements of the IFP: … … …

(d) Where a flight validation is conducted the following elements must be evaluated: … … …

(e) Where procedures share the same segment of flight (e.g. initial), the shared segment needs only to be

validated once.

(f) In the case of RNAV IFP a test database produced by an appropriate navigation data-coding provider for use in the RNAV system must be used.

(g) In the case of RNAV (GNSS) IAPs of a T- or Y- bar design, manual entry of the procedure into the RNAV system in use is acceptable. In this case the validating pilot will need to manually activate the Course Deviation Indicator (CDI) scaling changes during the different phases of the flight.

(h) Each custodian of the IFP must establish procedures for justifying the application of paragraph (c) to an instrument flight procedure.

(i) Unless it is not practical to do so, the IFP designer must participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure's design from the flight validation pilot.

Inspector Guidance: *reserved*

k. Approval of Instrument Flight Procedures

172.85 Design Submission: General.

(a) The IFPS provider must prepare and submit to the President a design submission for each IFP for which approval is sought. The submission must conform to the design submission template prescribed in GACAR § 172.87 and Appendix C to this part.

(b) Each IFPS provider must establish detailed procedures for preparing IFP design submissions as required by this section.

Inspector Guidance: *reserved*

§ 172.87 Design Submission Format and Content.

Each IFP design submission must include the following items in the prescribed format-

(a) Procedure Designator.....

(b) Data and Information.....

(c) Drawings.....

(d) Calculations.....

(e) Narratives. ……..

(f) Charts. ……..

(g) Design Reports. ……..

(h) Validation Reports. ……..

(i) Declarations. ……..

….A person who is authorized in accordance with GACAR § 172.23 to make declarations concerning an IFP mus not make declarations concerning an IFP that the person has designed unless the checks required under GACAR

§ 172.89 have been verified by a qualified designer in the custodian's organisation that has not been involved in the design.

Inspector Guidance: *reserved*

§ 172.89 Declaration of Compliance of Instrument Flight Procedures.

(a) Each IFPS provider must establish a detailed procedure for the making of a declaration of compliance of every IFP that the custodian's organization proposes to promulgate.

(b) The procedure required by paragraph (a) must include details of the checks to be carried out by the Chief Designer concerning the particular type of IFP, to ensure that the IFP meets the applicable requirements and standards prescribed by this part.

Inspector Guidance: *reserved*

§ 172.91 Approval of Instrument Flight Procedures.

(a) Before approving an IFP, the President must be satisfied that—

(1) The IFP has been developed and validated in compliance with the applicable requirements and standards of this Part; or

(2) The flight procedure has been developed and validated by a flight procedure design organisation approved by, and in compliance with regulations and standards of, another State acceptable to the President; and

(3) The IFPS provider has made a valid declaration of compliance as required under § 172.89; and

(4) The IFP is safe and in the public interest; and

(5) The IFP will be maintained by an authorized IFPS provider.

(b) The President will indicate approval of each IFP in writing.

Inspector Guidance: *reserved*

l. Promulgation of Instrument Flight Procedures

§ 172.101 General.

(a) .....

(b) Each IFPS provider must establish detailed procedures for promulgating and withdrawing IFP as required by this section.

Inspector Guidance: *reserved*

§ 172.105 Instrument Flight Procedure Register.

(a) Each IFPS provider must establish and maintains an IFP register.

(b) The custodian must ensure that each IFP that is approved by the President in accordance with Subpart F will be entered into the IFP register. The register must contain the following information:

(1) .....

(c) Each custodian must notify the GACA and each AIS provider authorized under GACAR Part 175 of each amendment to the IFP register. When authorized by the President, approved IFP intended for private use only need not be published in the KSA AIP.

(d) Each custodian must ensure that any transfer of aeronautical data associated with an IFP, from or to the IFP register complies with the standards specified in the Aeronautical Information Transfer Model (AIXM-5) document or other standards accepted by the President as an equivalent.

(e) When requested, the President may authorize the IFPS provider to integrate the IFP register into the air navigation register that is required to be established and maintained under GACAR § 171.113.

Inspector Guidance: *reserved*

§ 172.107 Withdrawal of Instrument Flight Procedure From Use.

(a) The President must approve, in advance, all withdrawals of an IFP from the IFP register.

(b) Except as provided in (d), each custodian must apply to the President for a withdrawal of an IFP from the IFP register at least 90 days before the intended withdrawal.

(c) If the President approves the withdrawal, the custodian of the IFP must withdraw the IFP from use by—

(1) Issuing a notice to each AIS provider authorized under GACAR Part 175 and any other AIS provider publishing the IFP which will identify the IFP and specify the date that the procedure is to be withdrawn from use;

(2) For private use only IFP, issuing a notice to each authorized user of the IFP which will identify the IFP and specify the date that the procedure is to be withdrawn from use;

(3) On the date of withdrawal, remove the details of the IFP from the IFP register;

(4) Notify the President that the IFP has been withdrawn.

(d) Notwithstanding (b), the President may, by the most appropriate means, withdraw an IFP from use if the President has reasonable grounds to believe that—

(1) The IFP may be unsafe for use by aircraft operating under IFR; or

(2) The IFP is not being maintained in accordance with the applicable requirements of Subpart G.

(e) If the President approves the withdrawal of an IFP from use under paragraphs (c), the President will—

(1) Confirm in writing the withdrawal of the IFP with the custodian of the IFP; and

(2) Take appropriate action to ensure that the IFP is removed from the KSA AIP and from operational use.

Inspector Guidance: *reserved*

m. Maintenance of Instrument Flight Procedures

§ 172.113 Maintenance of Instrument Flight Procedures.

(a) Each IFPS provider must establish detailed procedures for maintaining every IFP that, in accordance with the statement required under GACAR § 172.87(h)(2), is maintained under the authority of the custodian.

(b) The procedure required by paragraph (a) must include details for every IFP to be reviewed, and flight validated if necessary, —

(1) On a periodic basis, not to exceed five years, ensuring that the IFP continues to meet the applicable standards and requirements of this Part; and

(2) If there is a change in any of the data referred to in GACAR § 172.7(b) that may affect the integrity of the IFP.

(c) The procedure required under paragraph (a) must include and document the grounds and criteria for establishing or changing the interval between the periodic maintenance reviews for each IFP.

Inspector Guidance: *reserved*

§ 172.115 Errors in Published Instrument Flight Procedures.

(a) Each IFPS provider must establish a procedure for recording, investigating, correcting, and reporting to the President any identified error, and any identified nonconformance or suspected nonconformance with the standards and requirements of this part, in an IFP that is maintained under the authority of the custodian. (b) The procedure required by paragraph (a) must require that—

(1) .....

Inspector Guidance: *reserved*

§ 172.117 Cessation of Maintenance of an Instrument Flight Procedure.

If the IFPS provider proposes to discontinue the maintenance of an IFP as required by this subpart, the custodian must comply with the requirements prescribed in GACAR § 172.107.

Inspector Guidance: *reserved*

n. Quality Assurance

§ 172.131 Quality Assurance.

(a) Each IFPS provider must establish a quality assurance system to ensure compliance with, and the adequacy of, the procedures required under this part.

(b) The quality system must incorporate the elements of a flight procedure design quality assurance system as described in ICAO Doc. 9906 and be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards, and accredited by an organization

acceptable to the President.

(c) The quality assurance system must include—.....

(d) The procedure required under paragraph (c)(3) for corrective action must specify how—.....

(e) The procedure required under paragraph (c)(4) for preventive action must specify how—.....

(f) The internal audit program required under paragraph (c)(5) must—.....

(g) The procedure for management review required under paragraph (c)(6) must—.....

(h) The senior person responsible for the quality assurance system must—.....

Inspector Guidance: *reserved*

o. Records and Reports

§ 172.141 Management of Records.

(a) Each IFPS provider must establish a procedure for the management of records that are required for the custodian organization's functions relating to the design, verification, declaration, registration and maintenance of IFP.

(b) The management of records under paragraph (a) includes the identification, collection, indexing, storage, safekeeping, accessibility, maintenance and disposal of records.

(c) The procedure required by paragraph (a) must provide for the following to be recorded for every IFP that is developed in accordance with Subpart D, validated in accordance with Subpart E, registered in accordance with Subpart G and every instrument flight procedure that is maintained in accordance with Subpart H —

(1) The details required by GACAR § 172.105 for the IFP; and

(2) Details of each IFP design carried out in accordance including but not limited to design verification, amendment, validation, justification for not validating, and declaration activities; and

(3) Details of the promulgation and checking activities; and

(4) Details of any actions taken under GACAR § 172.115 regarding errors and non-conformances in an IFP; and (5) Details of every maintenance review and flight validation carried out, in accordance with the procedures required by GACAR § 172.113.

(d) The procedure required by paragraph (a) must also provide for the following—

(1) A record, that includes details of the qualifications, experience, training, assessments, and authorizations if applicable, for—

(i) The Chief Designer and every qualified designer required by GACAR § 172.21(a)(2);

(ii) Flight validation pilots required by GACAR § 172.59; and

(iii) Personnel required by GACAR § 172.21(a)(3).

(2) The records required by paragraphs (c) and (d) to be legible, accurate, permanent, and retrievable in a legible format; and

(3) The records required by paragraph (c) must be retained for at least 1 year after the associated IFP is withdrawn from use.

Inspector Guidance: *reserved*

§ 172.143 Promulgated Information Incident Reports.

(a) Each IFPS provider must submit a promulgated information incident report to the President within 24 hours of the promulgated information incident.

(b) The report must include the following information:

(1) Date and time of the incident;

(2) Brief description of events;

(3) Details to identify the publication, map, chart, or other means by which the information or aeronautical data was promulgated;

(4) Details relating to the information or aeronautical data that gave rise to the incident; (5) Name, organization, and contact details of the person notifying the incident.

Inspector Guidance: *reserved*

h. Qualification and Experience Requirements

APPENDIX A TO GACAR PART 172 - QUALIFICATION AND EXPERIENCE REQUIREMENTS

(a) Chief Designer … … .

(b) Qualified Designers … … .

(c) Apprentice Designers … …

(d) Minimum Design Experience …..

(e) Approvals …..

i. Requirements for Flight Validation Pilots

APPENDIX B TO GACAR PART 172 – REQUIREMENTS FOR FLIGHT VALIDATION PILOTS

Inspector Guidance: *Refer TGM Chapter 8.6.5*

j. Design Submission Template

APPENDIX C TO GACAR PART 172 – DESIGN SUBMISSION TEMPLATE

I. The following template prescribes the minimum content of an IFP design submission. The President may specify additional or alternative requirements.

(a) General Section - Common to all IFPs……

(b) General Section - Relating to specific IFPs: …..

(c) In addition to the general requirements prescribed in (a) and (b), the individual requirements for each segment and specific type of flight procedures are listed in the following paragraphs……

Inspector Guidance: *reserved*

Appendix A

IFP Design Organisation Certification Checklist

INSTRUMENT FLIGHT PROCEDURE DESIGN ORGANISATION (PART 172) (IFP) ASSESSMENT

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 172.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.	**General Requirements – GACAR Part 170**				
	General Requirements				
1.1	Is the application related specifically and only to: (1) Air navigation services provided exclusively for military flight operations; (2) A person who is providing air navigation services to military aircraft in the course of his duties for the Armed Forces of the Kingdom of Saudi Arabia; or (3) Any air navigation services provided to military aircraft by the Armed Forces of the Kingdom of Saudi Arabia	☐	☐	☐	8.6.1.2.1.a § 170.1
1.2	Does the applicant hold an appropriate security authorisation from the President?	☐	☐	☐	8.6.1.2.1.b § 170.3
	Comments				
1.3	Can the applicant demonstrate that it has an SMS that meets the standards set forth in GACAR Part 5 and is acceptable to the President? *(see TGM Volume 8 Chapter 11 Section 1 for SMS checklist questions)*	☐	☐	☐	8.6.1.2.1.c 8.11.1 § 170.7
1.4	Has the applicant satisfied the SMS checklist requirements at TGM Volume 8 Chapter 11 Section 1? *(Attach completed Checklist)*				8.11.1 § 170.7
	Comments				
1.5	Can the applicant demonstrate that it has a Security Program that is acceptable to the President? *(see TGM Volume 8 Chapter 12 Section 4 for SMS checklist questions)*	☐	☐	☐	8.6.1.2.1.d 8.12.4 § 170.9
1.6	Has the applicant satisfied the Security Program checklist requirements at TGM Volume 8 Chapter 12 Section 4? *(Attach completed Checklist)*	☐	☐	☐	8.6.1.2.1.d 8.12.4 § 170.9
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1.7	Does the applicant qualify as a person able to provide an air navigation service under the provisions of GACAR Part 170.23?	☐	☐	☐	8.6.1.2.1.d § 170.23
1.8	Is the applicant seeking exemptions based on an approval issued by another State?	☐	☐	☐	8.6.1.2.1.e § 170.26
	Comments				
1.9	Is there any evidence that the applicant has nominated or is planning to nominate a person to fill a key management position that has previously have materially contributed to the revocation of a certificate?	☐	☐	☐	8.6.1.2.1.f § 170.23
1.10	Does the applicant maintain a principal base of operations?	☐	☐	☐	8.6.1.2.1.g § 170.61
	Comments				
2. Specific Requirements – GACAR Part 172					
	a. Applicability				
2.1	Is the applicant intending to design and/or maintain instrument flight procedures exclusively for military flight operations?	☐	☐	☐	8.6.1.4.1.a § 172.3(b)
	If the answer to 2.1 is YES then the IFP designer does not need to be certified under Part 172				
	b. Requirement for a Custodian and Restrictions on IFPS Providers				
2.2	Has the applicant provided evidence of their understanding of the role of a custodian and have they established procedures for custodianship of instrument flight procedures under their responsibility – either as a result of design by the organisation, or as a result of accepting a handover of custodian responsibility from another design organisation?	☐	☐	☐	8.6.1.4.1.b § 172.5(a)
2.3	Has the applicant acknowledged in their submissions their understanding of the requirement to hold a valid certification under Part 172 prior to providing an instrument flight procedure service in the Kingdom of Saudi Arabia?	☐	☐	☐	8.6.1.4.1.b § 172.5(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.4	Has the applicant acknowledged in their submissions their commitment to comply with the limitations and provisions of their certificate, operations specifications and their manual prepared under Subpart C of Part 172?	☐	☐	☐	8.6.1.4.1.b § 172.5(c)
	Evidence / Comments				
	c. **Resource Requirements**				
2.5	Does the applicant have available equipment that is appropriate for the design, design verification, flight validation, declaration, and maintenance of the types of IFP that they wish to manage?	☐	☐	☐	8.6.1.4.1.c § 172.7(a)
2.6	Does the applicant have access to relevant and current data including, but not limited to, aeronautical data, land contour data, and obstacle data for the design, design verification, flight validation, and maintenance of their IFP?	☐	☐	☐	8.6.1.4.1.c § 172.7(b)
2.7	Does the applicant hold or have ready access to copies of relevant documentation comprising technical standards, practices, and instructions, and any other documentation that may be necessary for the design, design verification, flight validation, declaration, and maintenance of the types of IFP they wish to manage?	☐	☐	☐	8.6.1.4.1.c § 172.7(c)
	Evidence / Comments				
	d. **Aeronautical Data Integrity**				
2.8	Has the applicant established procedures to ensure that the determination and reporting of aeronautical data will be in accordance with the accuracy and integrity requirements prescribed in GACAR Part 171 and GACAR Part 139?	☐	☐	☐	8.6.1.4.1.d § 172.9(a)
2.9	Has the applicant established procedures to ensure integrity of aeronautical data used for IFP design is maintained throughout the data process from survey/origin to the next intended user?	☐	☐	☐	8.6.1.4.1.d § 172.9(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.10	Has the applicant established procedures and systems to ensure the integrity classification related to aeronautical data used in IFP design will be as provided in Tables A7-1 to A7-5 of Appendix 7 of ICAO Annex 15?	☐	☐	☐	8.6.1.4.1.d § 172.9(b)
2.11	Has the applicant established procedures and systems to ensure protection of electronic aeronautical data while stored or in transit will be totally monitored by the cyclic redundancy check (CRC)? *To achieve protection of the integrity a 32-bit CRC algorithm must apply.*	☐	☐	☐	8.6.1.4.1.d § 172.9(c)
2.12	Has the applicant established procedures and systems to ensure that geographical coordinates used in IFP design indicating latitude and longitude have been determined and reported to the aeronautical information services provider in terms of the World Geodetic System — 1984 (WGS 84) geodetic reference datum?	☐	☐	☐	8.6.1.4.1.d § 172.9(e)
2.13	Has the applicant established procedures and systems to ensure that the order of accuracy of the field work and determinations and calculations derived therefrom are such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in the GACAR Part 171 and GACAR Part 139? *For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies.*	☐	☐	☐	8.6.1.4.1.d § 172.9(f)
	Evidence / Comments				
	e. **Personnel Requirements**				
2.14	Has the applicant employed, contracted, or otherwise engaged a person as Director of instrument flight procedure services, or equivalent?	☐	☐	☐	8.6.1.4.1.e § 172.21(a)(1)
2.15	Does the Director of IFP services have the authority within the custodian's organization to ensure that the organization's IFPS provider services can be financed and provided in accordance with the requirements and standards prescribed by Part 172?	☐	☐	☐	8.6.1.4.1.e § 172.21(a)(1)(i)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.16	Is the Director of IFP services clearly responsible for ensuring that the organization complies with the requirements of Part 172?	☐	☐	☐	8.6.1.4.1.e §172.21(a)(1)(ii)
	Evidence / Comments				
2.17	Has the applicant employed, contracted, or otherwise engaged a Chief Designer, acceptable to the President?	☐	☐	☐	8.6.1.4.1.e §172.21(a)(2)
	Inspector should attach the Chief Designer Acceptability Checklist and Recommendation and add comments below				
2.18	Has the Chief Designer be provided authority to ensure that the custodian's organization complies with the organization's procedures for developing and validating IFP?	☐	☐	☐	8.6.1.4.1.e §172.21(a)(2)(1)
2.19	Has the applicant established procedures for the Chief Designer to make the declaration of compliance required for every IFP provided by the custodian's organization for publication in the KSA AIP and otherwise made available for publication and operational use?	☐	☐	☐	8.6.1.4.1.e §172.21(a)(2)(ii)
	Evidence / Comments				
2.20	Has the applicant employed, contracted, or otherwise engaged sufficient personnel to plan, design, verify, and maintain the IFP provided by the custodian's organization?	☐	☐	☐	8.6.1.4.1.e §172.21(a)(3)
	Evidence / Comments – *including information about how the number of required staff was determined.*				
2.21	Has the applicant established procedures for initially assessing, training, and maintaining, the competence of those personnel involved in the planning, design, verification, and maintenance of IFP?	☐	☐	☐	8.6.1.4.1.e §172.21(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.22	Do these assessment and training procedures comply with GACAR § 172.25?	☐	☐	☐	8.6.1.4.1.e §172.21(b)
	Evidence / Comments				
	f. Declarations Concerning Instrument Flight Procedures				
2.23	Has the applicant established procedures for the Chief Designer to declare that an IFP has been designed in accordance with and meets every applicable standard and requirement prescribed by Part 172? *(refer also Question 2.19)*	☐	☐	☐	8.6.1.4.1.f § 172.23
	Evidence / Comments				
	g. Procedure Designer Qualification and Training				
2.24	Has the applicant developed policy and procedures to ensure that IFP designers have acquired and maintain the necessary competency level through training and supervised on-the-job training (OJT)?	☐	☐	☐	8.6.1.4.1.g § 172.25(a)
2.25	Has the applicant developed policy and procedures to ensure that training for IFP designers includes initial training and recurrent training at periodic intervals not to exceed 3 years?	☐	☐	☐	8.6.1.4.1.g § 172.25(b)
2.26	Has the applicant established procedures to ensure that after initial training the IFP designer is able to demonstrate a basic level of competency that includes at least the following elements: (1) Knowledge of information contained in the IFP design criteria prescribed in Subpart D of Part 172; and (2) Skills in the design of procedures?	☐	☐	☐	8.6.1.4.1.g § 172.25(c)
2.27	Has the applicant developed policy and procedures to ensure that recurrent training will enable the IFP designer to demonstrate a basic level of competency that includes at least the following elements: (1) Knowledge about updates in ICAO provisions and other provisions pertaining to IFP design; and (2) Maintenance and enhancement of knowledge and skills in the design of IFP?	☐	☐	☐	8.6.1.4.1.g § 172.25(d)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.28	Does the applicant have procedures to ensure, and can the applicant demonstrate, that flight procedure designers have undergone an adequate, supervised OJT?	☐	☐	☐	8.6.1.4.1.g § 172.25(e)
	Evidence / Comments				
	h. Manual Requirements				
2.29	Is the applicant's manual, and all of its revisions, acceptable to the President? *Complete this question after the following questions*	☐	☐	☐	8.6.1.4.1.h § 172.31(b)
2.30	Has the applicant established procedures to ensure that its manual is amended, as required, to remain a current description of the IFPS provider's organization, personnel and procedures?	☐	☐	☐	8.6.1.4.1.h § 172.31(c)(1)
2.31	Has the applicant established procedures to ensure that any amendments made to its manual meet the applicable requirements of Part 172?	☐	☐	☐	8.6.1.4.1.h § 172.31(c)(2)
2.32	Has the applicant established procedures to ensure compliance with the manual amendment procedure contained in its manual?	☐	☐	☐	8.6.1.4.1.h § 172.31(c)(3)
2.33	Has the applicant established procedures to provide the President with a copy of each amendment to its manual, immediately after the amendment is incorporated into the manual?	☐	☐	☐	8.6.1.4.1.h § 172.31(c)(4)
2.34	Has the applicant established procedures to ensure make such amendments to its manual as the President may consider necessary in the interests of aviation safety?	☐	☐	☐	8.6.1.4.1.h § 172.31(c)(5)
	Evidence / Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.35	Does the applicant's Manual contain: (1) A statement signed by the Director of instrument flight procedure services, on behalf of the organization, confirming that— (i) The manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with this Part; and (ii) The manual, and all associated manuals, operating, and maintenance instructions, must be complied with by the organization's personnel at all times? (2) The titles and names of the Chief Designer required under GACAR § 172.21(a)(2) and all qualified designers? (3) The duties and responsibilities of the Chief Designer in paragraph (a)(2) and all qualified designers? (4) An organization chart showing lines of responsibility of the senior person in paragraph (a)(2)? (5) A summary of the organization's staffing structure? (6) The detailed procedures required under Subpart D regarding IFP development? (7) The detailed procedures required under Subpart E regarding IFP validation? (8) The detailed procedures required under Subpart F regarding IFP design submissions and declarations? (9) The detailed procedures required under Subpart G regarding IFP promulgation? (10) The detailed procedures required under Subpart H regarding IFP maintenance? (11) The IFP register required under GACAR § 172.105? (12) The detailed procedures required under Subpart I regarding quality assurance? (13) The detailed procedures, or an outline of the procedures including information that identifies the documentation that contains the detailed procedures, that are required under— (i) GACAR § 172.9 regarding data integrity; (ii) GACAR § 172.57(a) regarding the control, calibration, and maintenance of inspection, measuring, and test equipment; and (iii) GACAR § 172.141 regarding the identification, collection, indexing, storage, maintenance, and disposal of records? (14) Detailed procedures to control, amend, and distribute the manual?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐	1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐	1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐ (9)☐ (10)☐ (11)☐ (12)☐ (13)☐ (14)☐	8.6.1.4.1.h § 172.33(a)
2.36	Has the applicant demonstrated that the policies and procedures contained in the Manual are <u>not</u> contrary to any applicable GACAR?	☐	☐	☐	8.6.1.4.1.h § 172.33(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Evidence / Comments				
	i. Development of Instrument Flight Procedures				
2.37	Has the applicant established procedures to ensure that in the interest of efficiency, regularity, environmental considerations and economy, every effort is made to ensure that instrument approach procedures (IAP) are evolved so as to keep to the minimum consistent with safety, both the time taken in executing an instrument approach, the environmental effect and the airspace necessary for the associated manoeuvres?	☐	☐	☐	8.6.1.4.1.i § 172.41(a)
2.38	Has the applicant established procedures relating to the determination of the number of procedures for each radio aid in relation to a particular runway – and specifically the process for consultation where additional procedures are proposed?	☐	☐	☐	8.6.1.4.1.i § 172.41(b, c)
2.39	Has the applicant established procedures to minimize the disturbance to the local population caused by aircraft noise during the development of IFP?	☐	☐	☐	8.6.1.4.1.i § 172.41(d)
	Evidence / Comments				
2.40	Has the applicant established detailed procedures for ensuring that every IFP developed is— (1) Designed or amended by a qualified designer, or an apprentice designer under supervision of a qualified designer, using methods ensuring that the procedure meets the applicable design criteria prescribed in GACAR § 172.45? (2) Independently verified by a qualified designer who is independent of the person directly responsible for the design? and (3) Validated as prescribed in Subpart E of Part 172?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.i § 172.43(a)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.41	Has the applicant established detailed procedures for ensuring that during the processes of design, maintenance, or transfer of data of an IFP— (1) The applicable aeronautical data and aeronautical information complies with the standards specified in RTCA Inc. document number RTCA/DO-201A Standards for Aeronautical Information? (2) Manipulation or processing of aeronautical data complies with the standards specified in RTCA Inc. document number RTCA/DO-200A Standards for Processing Aeronautical Data? (3) Any transfer of aeronautical information within the custodian's organization, or to or from external entities, complies with the standards specified in the Aeronautical Information Transfer Model (AIXM-5)?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.i § 172.43(a)
	Evidence / Comments				
2.42	Has the applicant provided evidence that every IFP will be designed in accordance with the appropriate design processes, standards, guidelines, and aeronautical data quality requirements contained in the ICAO documents listed in 172.45 and other relevant documents?	☐	☐	☐	8.6.1.4.1.i § 172.45(a)
2.43	Has the applicant established acceptable procedures for resolution of any conflicting difference between any of the applicable design processes, standards, guidelines, or aeronautical data quality requirements in the documents listed in 172.45(a)?	☐	☐	☐	8.6.1.4.1.i § 172.45(b)
2.44	Has the applicant established procedures to ensure that the design of any IFP is: (1) Coordinated with all appropriate ATS providers? (2) Compatible with any air traffic service and associated procedure that is provided within the area or areas of airspace where the IFP is intended to be established? (3) Takes into account: (i) Any special air traffic rules prescribed by Part 93; (ii) Any other regulation restricting aircraft operations; (iii) The classification and any associated designation of the airspace in which the IFP is to be established and any adjacent airspace that may be affected by the procedure; (iv)The effect that the proposed IFP may have on any other IFP established in the airspace?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.i § 172.45(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.45	Has the applicant established procedures to ensure that an IFP will not be designed for an aerodrome (including heliports) unless the operator of the aerodrome agrees in writing that the aerodrome may be used for IFR operations using the intended IFP procedure?	☐	☐	☐	8.6.1.4.1.i § 172.45(d)
2.46	Has the applicant established procedures to ensure that an IFP will not be designed on or use a ground based aeronautical facility unless: (1) The aeronautical facility is operated under the authority of an aeronautical telecommunication service operated in accordance with GACAR Part 173? (2) The holder of the aeronautical telecommunication service agrees in writing that the aeronautical facility can be used for the intended IFP?	(1)☐ (2)☐	(1)☐ (2)☐	(1)☐ (2)☐	8.6.1.4.1.i § 172.45(e)
	Evidence / Comments				
2.47	1. Has the applicant established procedures for obtaining, managing and using terrain data and associated criteria relating to electronic terrain, obstacle and aerodrome mapping information? 2. Does it comply with the guidelines provide in ICAO Doc 9881 – *Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information*, and documents referenced by ICAO Doc 9881?	(1)☐ (2)☐	(1)☐ (2)☐	(1)☐ (2)☐	8.6.1.4.1.i § 172.47(a)
2.48	1. Has the applicant established procedures relating to digital elevation? 2. Does the applicant intend to utilise Shuttle Radar Terrain Model (SRTM) digital elevation data provided the data meet applicable accuracy and resolution requirements? 3. Do the applicant's procedures allow the application of such vertical and horizontal tolerances as are required based on the accuracy of available obstacle data, provide the tolerances applied are not less than any published ICAO tolerances for that obstacle type, and that all such added tolerances, and their sources, are clearly identified in the design submission?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.i § 172.47(b)
	Evidence / Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.49	Has the applicant established procedures to publish visibility minima for each instrument approach procedure and circling procedure in accordance with the criteria in documents identified in § 172.45(a)(1), or other criteria approved by the President?	☐	☐	☐	8.6.1.4.1.i § 172.48
	Evidence / Comments *(if 'other criteria' are used, show evidence that they are approved by the President)*				
2.50	Does the applicant use, or are they planning to use, design automation tools to the maximum extent practicable in the design of each IFP in order to minimize the potential for design errors?	☐	☐	☐	8.6.1.4.1.i § 172.49(a)
2.51	Has the applicant developed procedures to ensure that all design automation tools are validated prior to use, and is the tool validation methodology acceptable to the President?	☐	☐	☐	8.6.1.4.1.i § 172.49(b)
	Evidence / Comments • *List the tools proposed to be used.* • *Show the tool validation methodology and how it is acceptable to the President*				
	j. Validation of Instrument Flight Procedures				
2.52	Has the applicant developed procedures to ensure that a validation package for use in the ground/flight validation process is compiled for each IFP that it designs, and that the validation package includes, at least, the information specified in GACAR 172.53(a)?	☐	☐	☐	8.6.1.4.1.j § 172.53(a)
2.53	Has the applicant established procedures acknowledging that they are responsible for all elements of the validation and for documenting their proposed validation activities in a plan to be submitted as early as possible to GACA SS&AT for acceptance?	☐	☐	☐	8.6.1.4.1.j § 172.53(b)
	Evidence / Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.54	Has the applicant established detailed procedures for conducting the ground validation of an IFP?	☐	☐	☐	8.6.1.4.1.j § 172.55(a)
2.55	Do those ground validation must comprise at least the following elements in accordance with GACAR 172.55(b): (1) Aerodrome assessment? (2) Navigational aid coverage? (3) Obstacle clearance review? (4) Coding review? (5) Flyability?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	8.6.1.4.1.j § 172.55(b)
2.56	Has the applicant established procedures so that if a flyability assessment is conducted using a full flight simulator the elements in GACAR 172.55(c, d), as a minimum, will be evaluated?	☐	☐	☐	8.6.1.4.1.j § 172.55(c, d)
2.57	Has the applicant established procedures so that in the case of RNAV IFP a test database for the full flight simulator produced by an appropriate navigation data provider for use in the flight management system (FMS) is used?	☐	☐	☐	8.6.1.4.1.j § 172.55(e)
2.58	Has the applicant developed and established procedures to determine when a flight validation must be conducted?	☐	☐	☐	8.6.1.4.1.j § 172.55(f)
	Evidence / Comments				
2.59	Has the applicant established detailed procedures for conducting the flight validation of an IFP as required by GACAR 172.57?	☐	☐	☐	8.6.1.4.1.j § 172.57(a)
2.60	Do the applicant's procedures meet the requirements of GACAR 172.57(a) and (c)?	☐	☐	☐	8.6.1.4.1.j § 172.57(b)
2.61	Has the applicant developed procedures to identify IFP procedures that do not require flight validation because it can be shown that current obstacle data meets the design requirements of the IFP?	☐	☐	☐	8.6.1.4.1.j § 172.57(c)
2.62	Has the applicant developed procedures to meet the requirements of GACAR 172.57(d)?	☐	☐	☐	8.6.1.4.1.j § 172.57(d)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.63	In the case of RNAV IFP, has the applicant developed procedures to ensure that a test database produced by an appropriate navigation data-coding provider for use in the RNAV system is used?	☐	☐	☐	8.6.1.4.1 j § 172.57(e)
2.64	Has the applicant specified in procedures that in the case of RNAV (GNSS) IAPs of a T- or Y- bar design, manual entry of the procedure into the RNAV system in use is acceptable and that in this case the validating pilot will need to manually activate the Course Deviation Indicator (CDI) scaling changes during the different phases of the flight?	☐	☐	☐	8.6.1.4.1 j § 172.57(f)
2.65	Has the applicant established procedures for justifying the application of paragraph 172.57(c) to an instrument flight procedure?	☐	☐	☐	8.6.1.4.1 j § 172.57(g)
2.66	Has the applicant established in their procedures that the IFP designer must participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure's design from the flight validation pilot?	☐	☐	☐	8.6.1.4.1 j § 172.57(h)
	Evidence / Comments				
	k. Approval of Instrument Flight Procedures				
2.67	1. Has the applicant established procedures for preparation and submission of design submissions for each IFP for which approval will be sought? 2. Do those procedures require that the submission conform to the design submission template prescribed in GACAR § 172.87 and Part 172 Appendix C?	(1)☐ (2)☐	(1)☐ (2)☐	(1)☐ (2)☐	8.6.1.4.1 k § 172.85(a)
2.68	Has the applicant established procedures to ensure that each IFP design submission includes, as a minimum, items, in the prescribed format, listed in GACAR 172.87?	☐	☐	☐	8.6.1.4.1 k § 172.87(a-h)
2.69	Has the applicant established in its procedures a requirement that the Chief Designer cannot make a declaration regarding a design completed by himself, unless the design has been independently verified by another qualified designer (refer 172.87(i))?	☐	☐	☐	8.6.1.4.1 k § 172.87(i)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Evidence / Comments				
2.70	Has the applicant established a detailed procedure for the making of a declaration of compliance by the Chief Designer of every IFP that the custodian's organization proposes to promulgate?	☐	☐	☐	8.6.1.4.1.k § 172.89
	Evidence / Comments				
	I. Promulgation of Instrument Flight Procedures				
2.71	Has the applicant established detailed procedures for promulgating and withdrawing IFP as required by Part 172?	☐	☐	☐	8.6.1.4.1.l § 172.101(b)
2.72	Has the applicant established, or do they intend to establish and maintain an IFP register?	☐	☐	☐	8.6.1.4.1.l § 172.105(a)
2.73	Does the IFP register (or proposed register) contain, as a minimum, the information required by GACAR 172.105?	☐	☐	☐	8.6.1.4.1.l § 172.105(b)
2.74	Has the applicant established procedures to notify the GACA SS&AT, and each AIS provider authorized under GACAR Part 175, of each amendment to the IFP register?	☐	☐	☐	8.6.1.4.1.l § 172.105(c)
2.75	Has the applicant established procedures to ensure that any transfer of aeronautical data associated with an IFP, from or to the IFP register complies with the standards specified in the Aeronautical Information Transfer Model (AIXM-5) document or other standards accepted by the President as an equivalent?	☐	☐	☐	8.6.1.4.1.l § 172.105(d)
2.76	Has the applicant established procedures for integrating their IFP register into the air navigation register that is required to be established and maintained under GACAR § 171.113?	☐	☐	☐	8.6.1.4.1.l § 172.105(e)
2.77	Has the applicant established procedures for the withdrawal of an IFP from use, in accordance with the requirements of GACAR 172.107?	☐	☐	☐	8.6.1.4.1.l § 172.107
	Evidence / Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	n. **Maintenance of Instrument Flight Procedures**				
2.78	Has the applicant established detailed procedures for maintaining every IFP that, in accordance with the statement required under GACAR § 172.87(h)(2), is maintained under the authority of the custodian?	☐	☐	☐	8.6.1.4.1.m § 172.113(a)
2.79	Do those procedures include details for every IFP to be reviewed, and flight validated if necessary: (1) On a periodic basis, not to exceed five years, ensuring that the IFP continues to meet the applicable standards and requirements of this Part; and (2) If there is a change in any of the data referred to in GACAR § 172.7(b) that may affect the integrity of the IFP?	☐	☐	☐	8.6.1.4.1.m § 172.113(b)
2.80	Do those procedures include and document the grounds and criteria for establishing or changing the interval between the periodic maintenance reviews for each IFP?	☐	☐	☐	8.6.1.4.1.m § 172.113(c)
	Evidence / Comments				
2.81	Has the applicant established a procedure for recording, investigating, correcting, and reporting to the President any identified error, and any identified non-conformance or suspected non-conformance with the standards and requirements of Part 172, in an IFP that is maintained under the authority of the custodian?	☐	☐	☐	8.6.1.4.1.m § 172.115(a)
2.82	Do those procedures require, as a minimum, the information contained at GACAR 172.115(b)?	☐	☐	☐	8.6.1.4.1.m § 172.115(b)
	Evidence / Comments				
2.83	Has the applicant established procedures so that if they propose to discontinue the maintenance of an IFP as required by Part 172, the custodian will comply with the requirements prescribed in GACAR § 172.107?	☐	☐	☐	8.6.1.4.1.m § 172.117
	Evidence / Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	o. Quality Assurance				
2.84	Has the applicant established a quality assurance system to ensure compliance with, and the adequacy of, the procedures required under Part 172?	☐	☐	☐	8.6.1.4.1.n § 172.131(a)
2.85	1. Does the applicant's quality system incorporate the elements of a flight procedure design quality assurance system as described in ICAO Doc. 9906? 2. Is the quality system in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards? 3. Has the quality system been accredited by an organization acceptable to the President?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.n § 172.131(b)
2.86	Does the applicant's quality assurance system include the items specified in GACAR 172.131(c)?	☐	☐	☐	8.6.1.4.1.n § 172.131(c)
2.87	Does the applicant's quality assurance system specify how they intend to comply with GACAR 172.131(c)(3)?	☐	☐	☐	8.6.1.4.1.n § 172.131(d)
2.88	Does the applicant's quality assurance system specify how they intend to comply with GACAR 172.131(c)(4)?	☐	☐	☐	8.6.1.4.1.n § 172.131(e)
2.89	Does the applicant's quality assurance system specify how they intend to comply with GACAR 172.131(c)(5)?	☐	☐	☐	8.6.1.4.1.n § 172.131(f)
2.90	Does the applicant's quality assurance system specify how they intend to comply with GACAR 172.131(c)(6)?	☐	☐	☐	8.6.1.4.1.n § 172.131(g)
2.91	Has the applicant established procedures detailing how the senior person responsible for the quality assurance system must will comply with the requirements of Part 172.131(h)?	☐	☐	☐	8.6.1.4.1.n § 172.131(h)
	Evidence / Comments				
	o. Records and Reports				
2.92	Has the applicant established a procedure for the management of records that are required for the custodian organization's functions relating to the design, verification, declaration, registration and maintenance of IFP?	☐	☐	☐	8.6.1.4.1.o § 172.141(a,b)
2.93	Do the applicant's procedures meet the requirements of GACAR 172.141(c)?	☐	☐	☐	8.6.1.4.1.o § 172.141(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.94	Do the applicant's procedures, as required by GACAR 172.141(a), also provide for the following: (1) A record, that includes details of the qualifications, experience, training, assessments, and authorizations if applicable, for— (i) The Chief Designer and every qualified designer required by GACAR § 172.21(a)(2); (ii) Flight validation pilots required by GACAR § 172.59; and (iii) Personnel required by GACAR § 172.21(a)(3). (2) The records required by paragraphs (c) and (d) to be legible, accurate, permanent, and retrievable in a legible format; and (3) The records required by paragraph (c) must be retained for at least 1 year after the associated IFP is withdrawn from use?	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	(1)☐ (2)☐ (3)☐	8.6.1.4.1.o § 172.141(d)
	Evidence / Comments				
2.95	Has the applicant developed procedures for submitting a promulgated information incident report to the President within 24 hours of the promulgated information incident that includes, as a minimum, the information required at GACAR 172.143(b)?	☐	☐	☐	8.6.1.4.1.o § 172.143
	Evidence / Comments				
	p. Qualification and Experience Requirements				
2.96	Has the applicant established qualification and experience requirements relating to the Chief Designer to meet the requirements of Part 172 Appendix B section (a)?	☐	☐	☐	8.6.1.4.1.p § 172 App A (a)
2.97	Has the applicant established qualification and experience requirements relating to Qualified Designers to meet the requirements of Part 172 Appendix B section (b)?	☐	☐	☐	8.6.1.4.1.p § 172 App A (a)
2.98	Has the applicant established qualification and experience requirements relating to the Apprentice (Unqualified) Designers to meet the requirements of Part 172 Appendix B section (c)?	☐	☐	☐	8.6.1.4.1.p § 172 App A (c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
2.99	Has the applicant established qualification and experience requirements relating to minimum design experience to meet the requirements of Part 172 Appendix B section (d)?	☐	☐	☐	8.6.1.4.1 p § 172 App A (d)
2.100	Has the applicant established qualification and experience requirements relating to approvals to meet the requirements of Part 172 Appendix B section (e)?	☐	☐	☐	8.6.1.4.1 p § 172 App A (e)
	Evidence / Comments				
	q. Requirements for Flight Validation Pilots				
2.101	Has the applicant included in their procedures, requirements relating to the qualifications of flight validation pilots employed or contracted to conduct flight validations of IFPs they have designed?	☐	☐	☐	8.6.1.4.1 q § 172 App B
	Evidence / Comments				
	r. Design Submission Template				
2.102	Has the applicant developed detailed procedures for design submission templates, and does it meet or exceed the requirements specified in GACAR Part 172 Appendix C?	☐	☐	☐	8.6.1.4.1 r § 172 App C
	Evidence / Comments				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

Appendix B Advisory Circular 170-02

Approval of Appointment of Chief Designer

Inspector Guidance:*The following Material is the core text of ADVISORY CIRCULAR AC172-02 – Approval of Appointment of Chief Designer. Inspectors should base their assessment of competence for the position of Chief Designer on this Advisory Circular material, and the requirements of GACAR Part 170 and Part 172.Inspectors should ensure they are referring to the latest version of the Advisory Circular before beginning their assessment. Inspectors should use the checklist at TGM 8.6.2 Appendix C.*

CHAPTER 1 – BACKGROUND

1.1 Purpose

This AC provides guidance and information to applicants for approval of the appointment of a Chief Designer of an Instrument Flight Procedure design organisation holding a certificate under GACAR Part 170 and Part 172.

1.2 Applicability

This Advisory Circular is applicable to all instrument flight procedure design organisations required to obtain and maintain a certificate under the provisions of GACAR Part 170 and Part 172.

1.3 Cancellation

This is the first official version of this Advisory Circular and it cancels no other Advisory Circulars.

1.4 Related Regulatory Provisions

GACAR Parts 1, 5, 7, 97, 170,172, 183 and 199.

1.5 Related Reading Material

(a) Advisory Circular AC172-01;

(b) ICAO Annexes 2, 4, 11 and 15;

(c) ICAO PANS-OPS Doc 8168 Volume II (Construction of Visual and Instrument Flight Procedures);

(d) ICAO Template Manual for Holding, Reversal and Racetrack Procedures, (Doc 9371);

(e) ICAO Required Navigation Performance Authorization Required Procedure Design Manual (Doc 9905) (f) ICAO Collision Risk Manual (CRM) (Doc 9274);

(g) ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906):

(1) Volume 1 – Flight Procedure Design Quality Assurance System;

(2) Volume 2 – Flight Procedure Designer Training;

(3) Volume 3 – Flight Procedure Design Software Validation;

(4) Volume 4 – Flight Procedures Design Construction (to be developed);

(5) Volume 5 – Validation of Instrument Flight Procedures; and

(6) Volume 6 – Flight Validation Pilot Training and Evaluation;

(h) ICAO Instrument Flight Procedures Construction Manual (Doc 9368);

(i) ICAO Continuous Descent Manual of Procedure (Doc 9931);

(j) ICAO Performance Based Navigation Manual (Doc 9613); and

(k) ICAO Manual on All Weather Operations (Doc 9365).

1.6 Definitions of Terms Used in this Advisory Circular

Affected parties should refer to Subpart A of GACAR Part 1 for a full listing of defined terms used in the new GACAR and specifically those related to safety management. This Advisory Circular introduces several additional definitions to aid in a common understanding of the ideas presented in this document. In cases where the definitions in this document differ from an identical term defined in GACAR Part 1, the definition in GACAR Part 1 will prevail when interpreting regulatory requirements.

1.7 Approval

This Advisory Circular has been approved for publication by the Assistant President, Safety Sector of the General Authority of Civil Aviation.

CHAPTER 2 APPROVAL OF APPOINTMENT OF CHIEF DESIGNER

2.1 Background

2.1.1 The holder of a procedure design certificate is required under GACAR Part 172 to appoint a Chief Designer and that appointment must be approved by the President. This AC sets out the information that is required to enable GACA to consider an application for approval and the method GACA may use to assess an application.

2.2 Applications

2.2.1 An application may be made by an instrument flight procedure design organisation that is the holder of a procedure design certificate, or has applied for a procedure design certificate.

2.2.2 The application, in writing, must include:

- The name of the instrument flight procedure design organisation
- The name of the person appointed as Chief Designer
- Details of the Chief Designer's relevant qualifications and experience.

2.2.3 The application must address all relevant requirements of GACA Part 172, and in particular should specifically detail the manner in which the certificate holder will ensure that the Chief Designer's functions and duties are performed.

2.3 Approval Process

2.3.1 GACA will consider an application for approval in two stages.

2.3.2 An initial assessment will be made of the written application. If it is determined from that assessment that the Chief Designer possesses appropriate qualifications and experience, GACA will proceed to the second stage, which will be an interview.

2.4 Assessment

2.4.1 GACA will assess the Chief Designer's qualifications & experience in the following areas:

QUALIFICATIONS	
Basic qualification	Evidence of completion of an approved PANS-OPS course must be provided.
Advanced training	Evidence of advanced training must be provided. It is expected that a person appointed as Chief Designer will have completed a number of advanced or refresher courses after gaining the initial qualification. Details of attendance and participation in relevant conferences including papers presented etc., should be included.
RELEVANT EXPERIENCE	
Procedure design	Details of the Chief Designer's procedure design experience should be detailed. The Chief Designer must demonstrate experience in the design of each type of procedure for which he/she will be responsible. Experience shall be assessed by GACA SS&AT as sufficient for the Chief Designer to competently fulfil the duties and function of a Chief Designer. It is expected that the experience required for a Chief Designer to achieve competency would not normally be less than 2 years full-time experience in procedure design involving the design of a considerable number of individual procedures. The assessment of design experience relative to a particular type of procedure will take into account the number of approaches that an "experienced" designer is likely to design in the normal course of his/her duties. For example, the number of ILS designs that an "experienced" designer may have completed may be limited, but, taken in the context of the designer's overall experience, may be assessed an satisfactory. Similarly a designer may be "experienced" in new types of procedures that because of their recent development only a relatively small number of procedures have been designed. Design of procedures in other countries, and to other design criteria (e.g. TERPS), may be taken into account in the assessment of the Chief Designer's overall experience, but GACA SS&AT must be satisfied that the Chief Designer possesses detailed knowledge and experience in PANS-OPS procedures and design rules & procedures applicable in Saudi Arabia. In the case of a Chief Designer who has extensive experience but limited recent experience GACA SS&AT may take into consideration appropriate recent training or other measures that the Chief Designer has taken to ensure that he is fully conversant with current procedure design and has adequate recent "hands-on" design experience.

Supervision & Management	The role of Chief Designer involves accepting responsibility for the work of other persons, including designers, and the effective management of an organisation and design work. A Chief Designer must demonstrate design experience in a supervisory role and/or equivalent supervisory or management experience in a related industry.
Relevant operational experience	It is expected that a Chief Designer will possess experience in a relevant operational environment enabling them to apply design criteria with due regard to operational circumstances. Suitable experience will include experience as an instrument rated pilot, or navigator on IFR operations. In cases where the Chief Designer does not have such experience, evidence must be produced to satisfy GACA SS&AT that equivalent other experience has been gained which enables the Chief Designer to properly fulfil all the duties of Chief Designer.
KNOWLEDGE *(the following criteria will normally be assessed during an interview)*	
Current procedure design practices	A Chief Designer must demonstrate a high standard of detailed knowledge in respect of instrument flight procedure design.
Saudi Arabian Operations	A Chief Designer must demonstrate a thorough knowledge of Saudi Arabian operating rules & procedures as contained in the GACARs and associated documents.
GACAR Part 172	The Chief Designer must demonstrate a thorough knowledge of GACAR Part 172 – Instrument Flight Procedure Design, including the requirements for: • Staff qualifications & minimum experience • Supervision of staff • Recency
PANS-OPS	Detailed knowledge in the principles and practice of design in accordance with the rules contained in ICAO Doc 8168 is required.
Navigation Systems	A Chief Designer must demonstrate a thorough understanding of the principles of operation of relevant ground and space-based navigation systems.
Company operating procedures.	At interview the Chief Designer must demonstrate that he is fully conversant with the organisation's operations manual. In general it is expected that except, in matters of detail, the Chief Designer can demonstrate this knowledge without reference to the operations manual. The Chief Designer must demonstrate detailed knowledge of all company operating procedures including: • Data management & control • Verification of designs • Record keeping • Environmental requirements • Publishing standards • Validation requirements • Procedure maintenance

Company safety management system	A Chief Designer must demonstrate a high standard of knowledge of and a commitment to the principle of a Safety Management System. The Chief Designer must have a thorough knowledge of the company safety management system and be able to discuss action appropriate to typical safety management issues.
Responsibilities as Chief Designer	The Chief Designer must have a thorough understanding of the responsibilities of a Chief Designer. The assessment will include the ability of the Chief Designer to manage staff, including unqualified persons and support staff, and to conduct periodic assessment of staff competence.

2.5 Approval

2.5.1 If GACA approves an appointment the applicant will be advised in writing and the Chief

Designer will be issued a notice of approval of appointment. The notice of approval will contain:

- The name of the person appointed as Chief Designer;
- The name of the organisation holding a procedure design certificate in respect of which the appointment is made; Any conditions that the President may impose.

2.5.2 The approval is not transferable.

2.5.3 The approval will remain valid unless withdrawn by GACA, a person ceases to occupy the position of Chief Designer, or the Chief Designer ceases to be employed by the procedure design certificate holder specified in the notice of approval.

2.5.4 An appointment as Chief Designer will normally apply in respect of a single instrument flight procedure design organisation. i.e., a person may not be the Chief Designer for more than one certificate holder.

2.6 Rejection of Application

2.6.1 GACA will notify the applicant in writing if an appointment is not approved. The advice will state the qualification, experience, or knowledge areas that have been assessed as unsatisfactory.

2.6.2 An unsuccessful applicant may re-apply if additional evidence can be provided to rectify any deficiency in the original application.

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 2. Certification of Exempted Instrument Flight Procedure Design Organisations

8.6.2.1 General Information

8.6.2.1.1 This section provides information to ANS Safety Oversight inspectors in managing applications from organisations for exemptions from some or all of the requirements of Part 172.

8.6.2.1.2 Instrument Flight Procedure (IFP) design is a highly specialised and safety critical air navigation service activity and is subject to stringent certification, approval or licensing requirements around the world. There are a limited number of IFP design organisations worldwide – most are based in a particular State – either working directly as a State organisation within the State's civil aviation authority – or as a private or privatised organisation within a State. A number of States have certificated a number of IFP design organisations.

8.6.2.1.3 It is possible that an independent IFP organisation may be contracted to conduct IFP design work in Saudi Arabia. To comply with GACAR Part 170/172 requirements, that organisation must obtain a certification under GACARs to conduct IFP design work for procedures intended to be used in Saudi Arabia.

8.6.2.1.4 Certification can be a long process involving time and expense. In many cases, the certification requirements that an organisation met in one State may be identical, or substantially similar, to the certification requirements in under GACARs. If the State that certified an organisation is acceptable to the President – i.e., if the regulatory authority that issued the certification is acceptable to the President – it may be possible to accept some or all of that State's assessments and approvals.

8.6.2.1.5 reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 3. Approval of Individual Instrument Flight Procedure Designers

8.6.3.1 General Information

8.6.3.1.1 The purpose of this chapter is to provide guidance to Air Navigation Services (ANS) Safety Oversight Inspectors on the:

a. Approval, in accordance with the provisions of GACAR Section 23, of individual instrument flight procedure designers intending to provide flight procedure design services within the Kingdom of Saudi Arabia; and

b. regular safety oversight and regulatory compliance auditing of approved instrument flight procedure designers.

8.6.3.1.2 This chapter contains baseline approval and audit checklists for standardisation purposes. Where an inspector becomes aware of a non-standard situation, or a circumstance not covered in the checklist, he should adjust the standard checklists accordingly.

8.6.3.1.3 As a matter of policy, approval and audits will be based only on the regulatory requirements of GACAR, and any relevant sections of the associated Standards and procedures in the current versions of ICAO documents as follows:

(a) ICAO Procedures for Air Navigation — Air Operations, Volume II - Construction of Visual and Instrument Flight Procedures, PANS-OPS – Volume II (Doc 8168) as amended from time to time;

(b) ICAO Template Manual for Holding, Reversal and Racetrack Procedures (Doc 9371);

(c) ICAO Required Navigation Performance Authorization Required Procedure Design Manual (Doc9905);

(d) ICAO Collision Risk Manual (CRM) (Doc 9274);

(e) ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906):

(1) Volume 1 – Flight Procedure Design Quality Assurance System;

(2) Volume 2 – Flight Procedure Designer Training;

(3) Volume 3 – Flight Procedure Design Software Validation;

(4) Volume 4 – Flight Procedures Design Construction (to be developed);

(5) Volume 5 – Validation of Instrument Flight Procedures; and

(6) Volume 6 – Flight Validation Pilot Training and Evaluation;

(f) ICAO Instrument Flight Procedures Construction Manual (Doc 9368); (g) ICAO Continuous Descent Operations Manual (Doc 9931);

(h) ICAO Performance Based navigation Manual (Doc 9613); and

(i) ICAO Manual on All Weather Operations (Doc 9365).

8.6.3.1.4 Where there is any discrepancy between the content of this document, and GACARs, the requirements of the GACARs take precedence.

8.6.3.1.5 This document is not concerned with the audit or review of instrument flight procedure submissions; this is covered in Section 8.6.7.

8.6.3.2 Context

8.6.3.2.1 Approvals of individual instrument flight procedure designers is permitted under the provisions of GACAR Section 23; however this provision will not exist under GACAR Part 172 which becomes effective on 1 March 2016.

8.6.3.2.2 Under the provisions of GACAR Part 199, the Flight Procedure Design office of GACA ANS must complete a certification process against GACAR Parts 170 and 172 within 2 years (see Part 199 for specific provisions).

8.6.3.2.3 Individual flight procedure designers currently employed by the GACA ANS Flight Procedure Design office, and approved under the provisions of GACAR Section 23, may continue to exercise privileges of their approval whilst the design office seeks certification, but not longer than 2 years from 1 March 2016.

8.6.3.2.4 This chapter remains current until such time as the ANS Flight Procedure design office achieves

certification and employed designers are incorporated into that certification process, but in any case, not longer than 2 years from 1 March 2016.

Inspector Guidance: *The coming into force (CIF) date of the new GACARs is 1 March 2016. As GACA ANS Procedure Design office did not hold an approval prior to the CIF it has been necessary, to ensure continuity of services during the transition period, to create a procedure to maintain the approval of individual designers that was allowed under the previous GACAR Section 23, but which will not be carried forward into the new GACARs. The fact that the new GACARs have not carried this approval process across does not mean that individual designers are no longer approved. It simply provides a transition period where those individual designers are integrated into a fully certified design office, with all of the required safety and quality processes, and management, training and support structures.Even though Section 23 will be repealed on 1 March 2016, the regulations under which individual approvals were assessed are retained in this document (until 1 March 2018) to allow ongoing monitoring (auditing) of the approvals. It should be clear that the regulations themselves are not applicable after 1 March 2016, and no approvals can be considered or granted if the application is made on or after 1 March 2016.*

8.6.3.3 Regulatory Requirements – GACAR Section 23 - General

8.6.3.3.1 Approval and audit of instrument flight procedure designers is based on the ability of an applicant or established provider to meet regulatory requirements. The main regulatory reference for certification and audit of individual instrument flight procedure designers is GACAR Section 23 Chapter 2. The following extracts are relevant to this guidance material and the associated audit checklists:

a. General Requirements

2.1 General guidelines

2.1.1 …

2.1.2 GACA shall grant individual IFP designer approval to GACA-ANS Staff, provided they comply with GACA requirements for training and experience. Such approvals shall be specific to an individual and non-transferable.

2.1.3 …

2.1.4 GACA shall approve a GACA-ANS Staff Member as an IFP designer if it is satisfied that the applicant is competent [having regard to his knowledge, experience, competence, skill and other arrangements] to design an instrument flight procedure which is safe for use by aircraft.

2.1.5 All applications will be judged solely on merit and compliance to declared requirements, where approval is withheld GACA will notify GACA-ANS with a full explanation of reasons for the decision.

2.1.6 GACA-ANS will be notified with the list of successful applicants.

Inspector Guidance: *This section of regulation contains 4 conditions for considering and approving an application for approval as a designer:*

1. The approvals given by GACA under this part of the regulations is for individuals only not organisations. It also indicates that once an approval is given it is only for the intended person – the approval cannot be transferred.

2. The regulations states that an application will be considered on the basis of training and experience – in 2.1.5 it is more specific that the applicant must be competent in procedure design – so you need to assess knowledge, experience, competence, skill and 'other arrangements'. The regulation does not provide information on 'other arrangements' – but this could be understood as the aviation experience and the quality management system mentioned in 2.2.2. (see below at (b)).

3. The regulation says that any application should only be judged on 'merit and compliance with declared requirements'. This means that an inspector can only base the assessment on the regulatory requirements – not on any other criteria. However, if the inspector has a specific concern about a designer's ability to create safe designs, and that concern would not be identified by regulatory requirements, the inspector must discuss that concern with his immediate supervisor for clarification.

4. GACA ANS needs to be informed about the result of the assessment of any application.

The specific compliance question coming from this sub-regulation is from point 1 above. The other factors are addressed in other sub-regulations.

b. Requirements Relating to Approval of Individual Designers

2.2 Criteria for approval of individual IFP designers

2.2.1 ……

2.2.2 Any request for approval of GACA-ANS Staff, should contain proof of the following items:

a. PANS-OPS Qualification:- Proof of attendance and successful completion of an ICAO PANS-OPS course based upon ICAO PANS-OPS Doc 8168 (including ICAO Doc 9906 Volume 2 training). The courses shall be provided by an approved training institution or organisation. A copy of the approval of the training institution or organisation shall be provided.

Inspector Guidance: *An applicant must have attended at least one recognised PANS-OPS course delivered by a reputable and competent training organisation. The course should be consistent with ICAO training guidelines, and will generally be of minimum duration 8 weeks. Acceptable training institutions or organisations will include:*

Air Navigation Institute (ANI) Switzerland

Singapore Aviation Academy (SAA)

Deutsche Flugsicherung GmbH (DFS)

Ecole Nationale de l'Aviation Civile (French Civil Aviation University) (ENAC)

United ATS Cairo

Proof of attendance should include both a certificate of satisfactory/successful completion of the course (not simply an attendance certificate) and if possible a transcript of the training conducted,

exam results, or other indication that the applicant has acquired an acceptable level of knowledge from the course.

If the inspector has any doubt he should contact the institution to confirm the applicant has satisfactorily completed the course(s) of training.

If the applicant is seeking approval to design non-conventional (PBN) procedures, they should provide evidence of attending and satisfactorily completing a training course in advanced PANS-OPS, PBN procedures, and ARINC 424 coding.

The regulation requires that a copy of the approval of the training institution or organisation 'shall be provided'. If the applicant can confirm they have attended training at one of the institutions listed above the requirement is met. If the applicant has trained at another institution, he should obtain a copy of, or provide evidence of, the

institution's approval as a training organisation.

b. Practical Application of theoretical knowledge: The ability of an applicant to demonstrate practical

application of theoretical knowledge is required. GACA-ANS Staff are expected to provide:

1. Proof of recent IFP design: this should include details of specific designs that have been completed and over what period of time. A Statement detailing what work has been done with at least three examples of IFP designs for each type of procedures Conventional NPA approach, RNAV PBN NPA approach, precision approach (ILS CAT I and CAT II), conventional STAR, RNAV STAR, conventional SID, RNAV SID and RADAR approach.

Inspector Guidance: *This information is critical to the type of approval given to the applicant if he is successful. Approvals can only be given based on the practical experience of the applicant. An applicant should not normally be given approval to design procedures that he has not had experience in designing.*

However, this would make it difficult or impossible for the designer to broaden their experience. In assessing the experience, an inspector should consider granting approval as a designer in those designs where the applicant shows experience – but also allowing the designer to undertake designs of other procedures UNDER DIRECT SUPERVISION of a designer that has appropriate experience, if that is available. Inspectors must confirm that if a designer submits non-conventional procedures for consideration, they have completed appropriate theoretical training in PBN procedure design.

2. References: Applicants should provide details of previous or current employers; (e.g. Names and addresses of previous or current managers that will be used as a check by GACA)

Inspector Guidance: *Approvals under this section of GACAR Section 23 are limited to GACA ANS Staff – so the minimum requirement here is that the applicant demonstrate that he is currently employed in the GACA ANS procedure design office. If the applicant does not have previous ATC or flight crew experience (see next sub-regulation), and 5 years' experience in a GACA design office, previous employment history should also demonstrate time in a suitable design office.*

c. Aviation Experience:- It is generally accepted that a high level of aviation experience is an important attribute for successful IFP design, ideally as aircrew or air traffic controller. It is not considered essential to hold a current license nor to distinguish between a civil or military background. However, it is considered necessary to consolidate knowledge with experience in order to provide a good platform for IFP design. Therefore, a minimum of 5 years recent operational aviation experience is considered a reasonable qualification period. Procedure Designers who have not the aviation experience, should provide evidence that supports a minimum of five years PANS-OPS, on-the-job design training;

Inspector Guidance: *it is desirable – but NOT essential – that an applicant has previous aviation experience as an air traffic controller or flight crew member (civil OR military OR both) as these are the persons most likely to have had practical experience in use of, or application of, instrument flight procedures. Regardless of previous aviation experience, the applicant MUST demonstrate that they have an appropriate amount of experience in a design office designing procedures. If they have not had previous ATC or flight cre w experience, the regulation specifies a minimum of five years PANS-OPS on-the-job (OJT) design training. Note the use of OJT – meaning that the applicant may, by regulation, be designing under supervision.*

d. Quality Management System: GACA-ANS applicants shall demonstrate that they have established and are able to maintain a documented quality system. This quality system shall be such that it enables the design entity to ensure that each design or any advice given with respect to any IFP issue conforms to ICAO or GACA requirements and thus exercise the privileges as granted by their Approval. The quality system shall be described in a quality manual that includes control procedures for:

1. Management responsibility;

2. A Quality System including:

Controlled documentation of the design process;

Record control system of design drawings and worksheets;

Record control system of input data including items such as: survey data and charting;

Record control system of regulatory documents and reference material;

Control procedures for validation of software tools;

Control of non-conforming design;

Records of personnel competence and qualifications;

Training of personnel;

Internal quality audits and corrective actions;

Subcontractor assessment audit and control; and,

Co-ordination throughout the process from design to the publication of the IFP.

Inspector Guidance: *It is unlikely that an applicant for an individual design approval will be able to demonstrate an individual quality management system. It is more likely that the individual designer is working in a design office (certified or not yet certified) that would have quality systems in place. In this case the inspector needs to validate that the designer is, in fact, operating within a quality environment that meets all of the criteria in the sub- regulation. This will require a separate enquiry to the applicant's current employer, requesting confirmation that the design office does have a compliant quality system, and that the applicant is trained to operate in that quality system.*

c. Process for Approval of Individual Designers

2.3. Process for the approval of individual IFP designers

2.3.1. Applying For Approval

2.3.1.1. GACA-ANS shall submit the required material to demonstrate the suitability of applicants against the criteria contained in the Paragraphs above.

2.3.1.2. Submissions for GACA approval to design IFPs should be presented in a bound form to ensure material is not lost in transit. Applications should be sent to GACA Assistant President.

2.3.1.3. Applications shall be acknowledged within 5 workings days of receipt and include a call for Interview or meeting. In considering an application, GACA may call upon the concerned applicant to provide clarification or expansion of the information provided.

2.3.1.4. Following an examination of the applicant's submission against the criteria and a successful interview, the Applicant will be notified, in writing, of GACA-S&AT's decision within 2 weeks from the date of interview. A copy of this notification will be sent to the approved GACA-ANS entity. Any objection on GACA decision shall be explained in writing. This rationale shall be sent to GACA Assistant President for action within 2 months of the decision being made.

2.3.2 Design Privileges

2.3.2.1 An approved IFP designer shall be entitled to design IFPs within the scope of the Approval. The list of IFP approved designer will include all the privileges of each designer.

2.3.3 Issue of Approval

2.3.3.1 GACA-ANS shall be entitled to have a design approval issued by GACA when it has demonstrated compliance with the applicable requirements.

2.3.4 Duration and continued validity

2.3.4.1. GACA-ANS design approval shall be issued for an unlimited duration. It shall remain valid unless:

GACA-ANS designer entity fails to demonstrate compliance with the applicable requirements; or

GACA-ANS designer entity no longer meets the eligibility requirements for the design approval

2.3.5. Maintenance of Approval

2.3.5.1. Design approval shall be granted for a period of 3 calendar years.

2.3.5.2. GACA-ANS approved designers should note that their approval will automatically lapse without an application for renewal. Applications for renewal shall be submitted to GACA within 3 months from the expiry date of the applicant's Approval. Should an applicant feel it appropriate, GACA will accept a catalogue of IFP design activity that has taken place during the previous 3 calendar years.

2.3.5.3. GACA-ANS shall develop job description for IFP designers and all Staff involved in the production and dissemination of instrument flight procedures.

2.3.5.4. GACA-ANS shall develop a training programme based on ICAO Doc 9906 (Quality Assurance Manual for Flight Procedures Design) for all Staff involved in the design and verification of instrument flight procedures. This program shall cover initial, recurrent, specialized and advanced training.

Inspector Guidance: *It is important that an applicant is able to demonstrate that they are receiving regular refresher/recurrent training, and developmental training in new or advanced procedure design techniques. This may also include training in the operation of software design tools, quality management training, safety management training or other related training.*

2.3.5.5. GACA-ANS shall maintain training records for all Staff involved in the design and verification of instrument flight procedures.

Inspector Guidance: *The applicant must be able to demonstrate that his current employer is maintaining complete training records relating to his training as a procedures designer. An inspector could determine this from the application itself, or by enquiry to the applicant's current employer. An inspector should also check to determine if training with a previous employer (if applicable) has been included in the applicant's current training record.*

2.3.6. Withdrawal of Approval

2.3.6.1. The list of approved designers shall be withdrawn or reviewed under the following conditions:

The designer(s) fail(s) to satisfy GACA of his/their continuing competency. In this event, the designer will be advised in writing of GACA decision and the reasons for it.

GACA-ANS requests, in writing, that a designer is withdrawn. Should GACA-ANS wish to reapply for IFP designer approval, the applicant shall be subject to the "Applying for Approval" process detailed in Paragraph 2.3.1 above.

Appendix A

Instrument Flight Procedure Designer

Approval Checklist

INSTRUMENT FLIGHT PROCEDURE DESIGNER

APPROVAL CHECKLIST

NAME OF APPLICANT	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial approval as an instrument flight procedure designer has been completed against the requirements of GACAR Section 23.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
a. General Requirements					
	General Requirements				
1.1	Is the application for an individual only and not an organisation?	☐	☐	☐	8.6.3.3.1.a Sect 23 / 2.1.2
	Evidence / Inspector Comments				
	PANS-OPS Qualification				
1.2	Has the applicant provided evidence of attendance and successful completion of an ICAO PANS-OPS course based upon ICAO PANS-OPS Doc 8168 (including ICAO Doc 9906 Volume 2 training)?	☐	☐	☐	8.6.3.3.1.b Sect 23 / 2.2.2a
1.3	Has the applicant provided evidence that the courses were provided by an approved training institution or organisation?	☐	☐	☐	8.6.3.3.1.b Sect 23 / 2.2.2a
1.4	Has the applicant provided evidence of the approval of the training institution or organisation?	☐	☐	☐	8.6.3.3.1.b Sect 23 / 2.2.2a
	Evidence / Inspector Comments				
	Practical Application of Theoretical Knowledge				
1.5	Has the applicant provided evidence of recent IFP design including what work has been done and over what period of time?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.6	Has the applicant provided evidence of design of at least three conventional non-precision approaches – VOR or VOR/DME?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.7	Has the applicant provided evidence of design of at least three conventional non-precision approaches – NDB?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.8	Has the applicant provided evidence of design of at least three non-precision approaches – RNAV PBN?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.9	Has the applicant provided evidence of design of at least three conventional precision approaches – ILS CAT I or CAT II (or LLZ procedures)?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.10	Has the applicant provided evidence of design of at least three conventional procedures – STAR or SID?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.11	Has the applicant provided evidence of design of at least three procedures – RNAV STAR or SID?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
1.12	Has the applicant provided evidence of design of at least three procedures – RADAR Approach?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.1
	Evidence / Inspector Comments				
	References				
1.13	Has the applicant provided details of previous or current employers including contact details?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.b.2
	Evidence / Inspector Comments				
	Aviation Experience				
1.14	Does the applicant have a minimum of 5 years recent operational aviation experience as civil or military air traffic controller of flight crew member?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.c
1.15	Does the applicant have a minimum of 5 years recent PANS-OPS on-the-job design training??	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.c
	Evidence / Inspector Comments				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Quality Management System				
1.16	Has the applicant provided evidence, or is the applicant able to demonstrate that they are able to operate a documented quality management system?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.d
1.17	Does the identified quality management system include control procedures for: 1. Management responsibility; 2. A Quality System including: • Controlled documentation of the design process; • Record control system of design drawings and worksheets; • Record control system of input data including items such as: survey data and charting; • Record control system of regulatory documents and reference material; • Control procedures for validation of software tools; • Control of non-conforming design; • Records of personnel competence and qualifications; • Training of personnel; • Internal quality audits and corrective actions; • Subcontractor assessment audit and control; and, • Co-ordination throughout the process from design to the publication of the IFP?	☐	☐	☐	8.6.3.3.1.b Sect23/2.2.2.d
	Evidence / Inspector Comments				
	Training				
1.18	Has the applicant provided evidence that GACA ANS has developed a program for ongoing training in the design and verification of instrument flight procedures?	☐	☐	☐	8.6.3.3.1.b Sect23/2.3.5.4
1.19	Has the applicant provided evidence that GACA ANS has maintained his training records in relation to the design and verification of instrument flight procedures?	☐	☐	☐	8.6.3.3.1.b Sect23/2.3.5.5
	Evidence / Inspector Comments				

General Comments *(Insert below any general comments regarding the application, required actions, etc.)*

If Recommended for Approval the Following Design Approvals Should be Issued:					
	Fully Endorsed?	Under Supervision?		Fully Endorsed?	Under Supervision?
VOR, VOR/DME	☐	☐	RNAV PBN NPA	☐	☐
NDB	☐	☐	RNAV SID, STAR	☐	☐
ILS (CAT I or II), LLZ	☐	☐	RADAR Approach	☐	☐
SID, STAR	☐	☐	Other	☐	☐
Other:					
Inspector Guidance: *If the applicant has demonstrated compliance with the regulatory requirements, and has the required level of practical experience in designing a particular procedure, he should be recommended as 'fully endorsed' to design procedures without supervision.* *This does not remove the requirement that a procedure be independently checked after design.* *If an applicant does not have the required level of practical experience in designing a particular procedure, he may be approved to design that procedure but only under the supervision of a designer that holds a fully endorsed approval for that procedure.*					

Appendix B

Instrument Flight Procedure Designer

Audit Checklist

RESERVED

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 4. Regulatory Oversight of Instrument Flight Procedure Design Organisations

8.6.4.1 General Information

8.6.4.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on Instrument Flight Procedure Design Organisations (IFP) after they have been certified. The audits may also be applied in the re-certification of IFP design organisations at or near expiry of their certification period.

8.6.4.1.2 The main reference document for audits of ANS providers including IFP providers is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.6.4.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.6.4.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.6.4.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of IFP. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.6.4.1.6 The reason for this is that in order to obtain certification, the IFP design organisation was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.6.4.1.7 In order to retain their certification, the IFP design organisation needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.6.4.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance

without looking at every part of the IFP design organisation.

8.6.4.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.6.4.2 Audit Checklist

8.6.4.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.6.4.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

IFP Audit Checklist

INSTRUMENT FLIGHT PROCEDURE DESIGN ORGANISATION (IFP)(PART 172)

AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 170 and Part 172.	**FINDING**	
	Satisfactory	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 5. Certification of Flight Validation Organisations

8.6.5.1 General Information

8.6.5.1.1 Reserved

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CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 6. Certification of Exempted Flight Validation Organisations

8.6.6.1 General Information

8.6.6.1.1 Reserved

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CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 7. Audit and Acceptance of Instrument Flight Procedure Design Submissions

8.6.7.1 General Information

8.6.7.1.1 The purpose of this chapter is to provide guidance for GACA inspectors when conducting an approval audit of Instrument Flight Procedures (IFPs) that have been created by an approved designer. Because of the safety critical nature of instrument flight procedures, the intent of these procedures is to encourage GACA inspectors to apply ‘diverse path’ or ‘cross check’ techniques to ensure that procedures submitted for approval meet regulatory requirements and are safe for publication.

8.6.7.1.2 For the purposes of this section, the term ‘approved designer’ has the following meaning:

Approved Designer: An instrument flight procedures designer, or design organisation acceptable to the President, and approved under the provisions of GACA Regulations Section 23 (relating to individual designer approvals issued prior to 1 March 2016) or GACAR Part 172 (relating to design organisation approvals issued after 1 March 2016).

8.6.7.1.3 Under the provisions of GACAR Section 23 IFPs created by individual designers approved by GACA, or design organisations certified by GACA ANS, are submitted to GACA for approval. Under the provisions of GACAR Part 172 (effective 1 March 2016), IFPs will be approved by the Chief Designer of the certified design organisation. This approval does not include approval to publish the procedure in the AIP – such approval can only be given by GACA. As part of the process to approve an IFP for publication, GACA will conduct an approval audit. For the purposes of this section, the term ‘approval audit’ has the following meaning:

Approval Audit: A formal regulatory review of the submission to GACA made by an approved designer containing a proposed design for a new instrument flight procedure, or a proposed amendment to an existing design. The purpose of the approval audit is to ensure that the proposed design meets all regulatory requirements, can be registered in the Air Navigation Register (when established), and can be recommended for publication by the AP GACA, and subsequent publication in the Aeronautical Information Publication (AIP).

Inspector Guidance: *As indicated above, for procedures provided to GACA by design organisations approved under GACAR Part 172, an approval audit is used to recommend that a procedure be published – the responsibility for approving the procedure itself lies with the design organisation. Because the individual designers approved under GACAR Section 23 do not currently work within a certified IFP design organisation, it is not possible for that organisation to make approvals as proposed by GACAR Part 172. In this case, the ‘approval audit’ can be used to determine if GACA should approve a procedure, as well as approving it for*

publication. This condition should lapse after 1 March 2018 when GACA ANS IFP Design Organisation is required to achieve certification.

8.6.7.1.4 A decision has been taken by GACA management that all IFPs intended for use in KSA will be subject to an approval audit by GACA until further notice. This will be a standard part of the Air Navigation Register (ANR) registration process (when established). An IFP may not be published by AIS unless it has first been registered in the ANR (when established), and approved for publication by the Assistant President (AP), GACA.

Inspector Guidance: *The decision to audit all procedures until further notice is based on the need to ensure that certified design organisations are applying appropriate quality control on their design processes. When a design organisation has demonstrated that they are able to design procedures consistently without errors, GACA will consider reducing the audit schedule.*

8.6.7.1.5 The overall process is outlined in the flow diagram in Figure 1. The approval audit process itself is a series of regulatory compliance and technical design assessments intended to determine if the design has been conducted by appropriately qualified organisations and designers, using appropriate data and standards, and if the design itself has been prepared correctly and is consistent with ICAO design standards and procedures and meets all applicable criteria for obstacle clearance as required by the GACAR regulations (refer Figure 2).

8.6.7.1.6 The regulatory compliance and technical assessments will be conducted in accordance with the guidance provided in 8.6.7.2. The procedures in assume that the design submission has been made by an organisation certified by GACA under the provisions of GACAR Part 172 (or as applicable, by designers approved by GACA).

8.6.7.1.7 The procedures in Chapter 2 also assume that designs have been created in accordance with ICAO requirements rather than United States Terminal Area Procedure Design standards, procedures and principles (TERPS). Where a design submission is based on TERPS (either as a new design, or as an amendment to an existing procedure), the procedures in 8.6.7.2 – and the associated Approval Audit Checklist – will be reviewed and adjusted if and where required.

8.6.7.1.8 Where a recommendation is made to the AP, GACA, to approve for publication a design based on the use of TERPS, that recommendation must be accompanied by a statement indicating why it is necessary to promulgate a TERPS procedure in KSA, and what adjustments were made to the approval audit process.

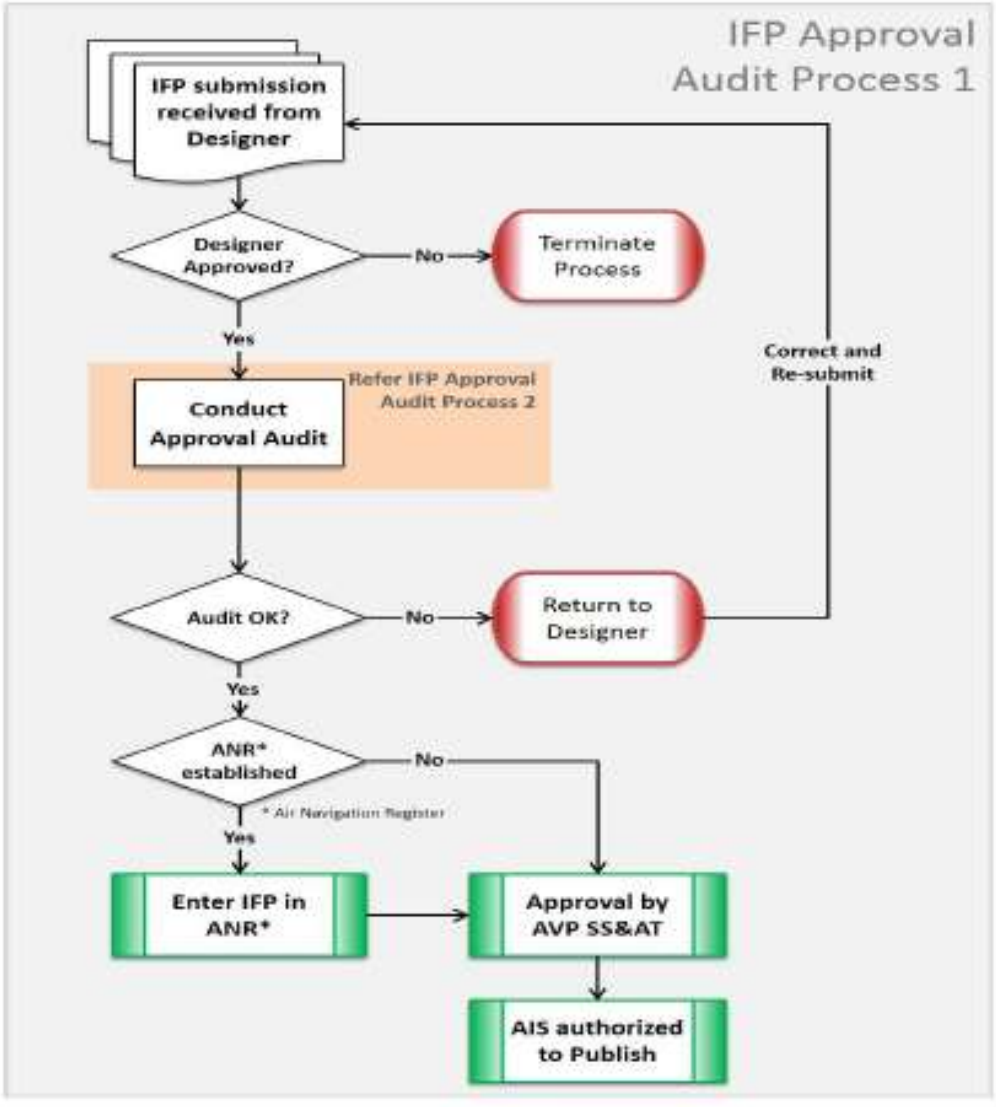

Fig 1: IFP Approval Audit Process - Outline

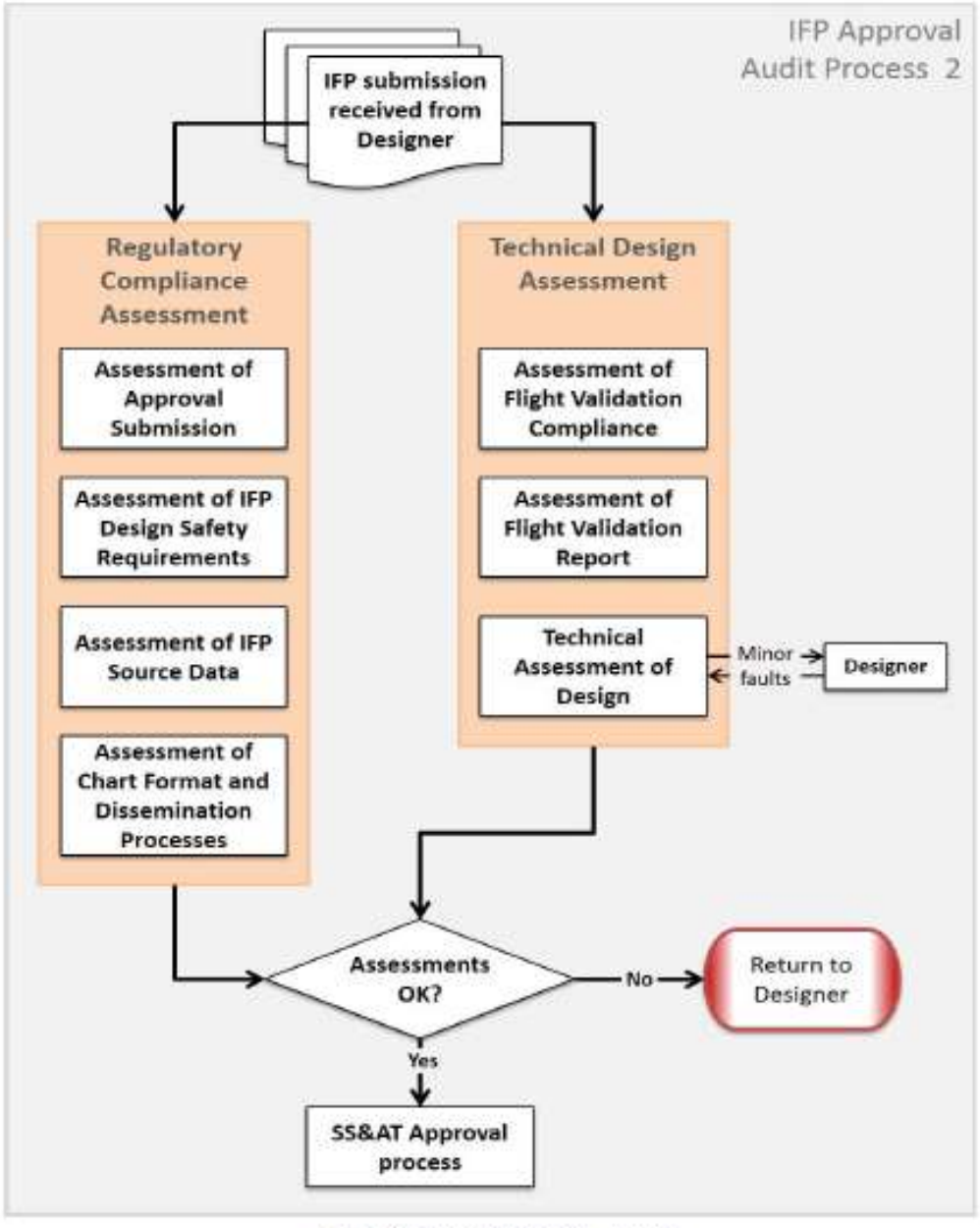

Fig 2: IFP Assessment Process - Outline

8.6.7.1.9 After a submission has been made, GACA will audit the proposed IFP in accordance with the following procedures, and the approval audit checklist at Appendix A.

8.6.7.2 Design Submission

8.6.7.2.1 An IFP designer, on completion of an IFP, is required to submit an IFP design report to GACA in accordance with the format and specification in GACAR Part 172. That report must contain evidence that the IFP has been constructed, designed, and will be maintained, in accordance with the regulatory requirements of GACAR Part 172, and the applicable ICAO design procedures.

Inspector Guidance: *GACA recognizes that all procedures are different and therefore a fully standardized submission is not practical. The processes in this chapter, and the associated checklist, should be applied flexibly – but must ensure that a sufficient level confidence is gained about the submitted procedure to enable the inspectors to recommend approval (or otherwise).*

IFP designers will contact GACA if they have any doubts about to the content and format of a specific submission; GACA inspectors must be prepared to indicate what they need and why, without adding unnecessary requirements or complexity.

8.6.7.2.2 When auditing the IFP design report submission, GACA must check that it contains at least the following information:

(a) Details of the design criteria used in the construction of the IFPThis should include:

1. evidence of the procedure's compliance with respect to the requirements of ICAO (for further see 8.6.7.3.2.a);

2. a brief design rationale in text format; and

3. references to those parts of Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 where a deviation from the standard design criteria or policy has been employed.

(b) A description of the procedure This should include:

1. names of the procedure designer and independent validator;

2. waypoint names (see inspector guidance below), type and coordinates;

3. obstacles assessed in the construction of the procedure including height and position coordinates;

4. description of the source of obstacle, terrain and aerodrome data used as applicable in the design of the IFP, as complying with the requirements of sub-section 8.6.7.4;

5. a diagram detailing the obstacle surfaces used in plan and profile to aid safeguarding assessment;

6. a procedure chart compliant with the requirements ICAO Annex 4 (Charts), ICAO Doc 8697 (Aeronautical Chart Manual) and ICAO Doc 8168 (Procedures for Air Navigation Services Aircraft Operations) Volume 2, as applicable;

7. a text narrative that describes the flight procedure in an unambiguous manner.

Inspector Guidance:

1. All or some of the requirements in 1-7 above may be met through the designer's Record of Quality Assurance and Quality Control.

2. Where 5 Letter Name Code (5LNC) waypoint names are used they must be determined from the ICAO ICARD Database. The design submission should indicate the process used to obtain the 5LNC, and the checks conducted for 'sounds like', and 'proximity'.

(c) Information about electronic design equipment and associated softwareThis should include:

1. a statement regarding any electronic design equipment or capability used (e.g., FPDAM, etc.);

2. a statement of the software version associated with any electronic design equipment.

(d) A flight validation report This should include:

1. evidence of aircraft used;

2. flight crew and certification approvals; and

3. the actual flight validation report.

Inspector Guidance: *Requirements relating to flight validation, and an example template flight validation report are at Chapter 8.6.8 - Audit and Acceptance of Flight Validation Submissions. Information on flight validation aircraft and crew requirements are at Chapter 8.2.3- Certification and Audit of Flight Inspection Service Providers.*

As indicated later in this section, flight validation reports will be required for all procedures.

8.6.7.2.3 In addition, the design submission should include all procedure design drawings. These may be submitted as electronic drawing files using an appropriate computer aided design tool, or paper drawings. The

dominant (or controlling) obstacle for each segment of the procedure must be clearly marked, identified and references to the survey or other data source.

8.6.7.3 IFP Design Requirements

8.6.7.3.1 Instrument flight procedures are safety critical and it is essential that the design be checked to ensure not only compliance with basic design requirements, but also that the designed procedure will meet its operational requirement (i.e., is 'fit for purpose'), flyable, and meets appropriate human factors requirements.

8.6.7.3.2 When auditing the IFP design report, GACA must check that IFP design construction:

(a) is compliant with ICAO standards or procedures GACA should check that:

1. all IFPs have been designed adhering to the methodology and design criteria specified in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 ensuring in particular that required obstacle clearances are achieved;

2. when the IFP being developed is an Area Navigation (RNAV)-based or Performance Based navigation (PBN) procedure, then the additional requirements from ICAO Doc 9613 (PBN Manual) Volumes 1 and 2 have also been applied; and

3. as applicable, the provisions from ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design) in the construction of flight procedures have been applied.

Inspector Guidance: *For TERPS procedure, Inspectors will need to adjust the audit requirements (see 8.6.7.1.7 and 8.6.7.1.8). As it is unlikely that new TERPS procedures will be developed in KSA, and it is most likely that existing TERPS procedures will be replaced by PANS-OPS procedures rather than maintained, no formal guidance material has been developed. If an Inspector is required to audit a TERPS procedure and is not able to use the material in this section, he should access the FAA Website and seek information as required.*

(b) has been completed by an approved design organisation GACA must confirm that:

1. the organisation that has completed the design has been certified in accordance with the requirements of GACAR Part 172; or

2. the design has been completed by an approved individual designer, where that approval was issued before 1 March 2016 under the provisions of GACAR Section 23; or

3. the design has been completed by a design organisation approved by GACA ANS under the

provisions of GACAR Section 23, provided that approval was given before 1 March 2016, a copy of the approval is provided to GACA, and design work on any design submissions commenced prior to 1 March 2016.

Inspector Guidance: *Under the provisions of GACAR Section 23, GACA ANS has engaged design companies to develop instrument flight procedures at several aerodromes in KSA. These companies do not have a certification under GACAR Section 23 as it is/was not required. The companies would not be able to apply for certification until GACAR Part 172 came into force (1 March 2016) and a certification process would take several months. If these companies have begun work on the design of procedures before 1 March 2016, they could not technically be considered under provisions of GACAR Part 172. It is logical to accept that designs begun under provisions of GACAR Section 23 should be evaluated and approved under the same provisions. This should only apply to procedure designs begun before 1 March 2016 and completed within a reasonable period after 1 March 2016 (inspectors should use judgment but not longer than 9 months – i.e. 1 Dec 2016).*

(c) has been undertaken with sufficient documented coordination GACA should check that appropriate (documented or otherwise) coordination has been carried out between ATS/ATC, airlines, the aerodrome certificate holder, the relevant ANS systems and/or Engineering departments, and the design organisation, as applicable. This must include:

1. a review of the obstacles1 applicable to the procedure with GACA or the aerodrome certificate holder prior to any design work; and

2. development of the flight validation plan, taking into account the requirement for operational ground navigation aids as necessary; and

3. validation of both the operational and certification status of all applicable navigation aids.

Inspector Guidance: *the design organisation, or the individual designer, may not actually document all such coordination processes. Nevertheless, GACA should check that such coordination has been carried out (where applicable). If the design submission does not contain a statement about coordination, GACA should contact the designer to check if it has been done, and indicate this in the checklist form.*

Formal records and procedures

8.6.7.3.3 GACA must also check to ensure that the IFP design organisation has established formal records and procedures to ensure that:

(a) there are sufficient cross validations to detect erroneous calculations;

(b) the IFP has been verified by a designer other than the designer that created the IFP design;

(c) potential navigation database limitations are addressed before the procedure is coded and approved (for RNAV procedures);

(d) GACA has been informed and a reassessment of the IFP minimum altitudes undertaken when:

1. There has been a potential obstacle infringement of the IFP protected surfaces; or

2. there is a potential breach of aerodrome protected surfaces stipulated through aerodrome safeguarding;

Inspector Guidance: *In normal circumstances the aerodrome operator, as the entity responsible under GACAR Part 139 for detecting any infringement of the Obstacle Limitation Surface (OLS) will request an assessment of published IFPs.*

(e) a NOTAM to suspend the IFP can be promulgated when a potential infringement or breach is confirmed.

1. This requirement assumes that the aerodrome certificate holder has responsibility for managing/monitoring obstacles in the vicinity of the affected aerodrome. Where this is not the case, GACA should check to ensure that the designer has undertaken coordination with the authority or authorities that hold information about obstacles.

8.6.7.4 Origin of IFP source data

8.6.7.4.1 Source data used in the development of IFP procedures must include, as applicable, the data stated in GACAR Part 172. This includes relevant aerodrome, navigation aid, obstacle and terrain data as specified in ICAO Annex 14/GACAR Part 139 (Aerodromes) and ICAO Annex 15/GACAR Part 175 (Aeronautical Information Services).

8.6.7.4.2 When auditing the IFP design report, GACA must check the origin or provenance of IFP source data, and in particular should check that:

(a) all data used as the basis for IFP design is traceable to source GACA should check that IFP design data is traceable to source, and has, as a minimum, the following metadata available, effectively as required by ICAO Annex 15:

1. the name of the source or entity originating the data;

2. the function performed by the source or entity; and

3. the date at which the function was performed.

(b) all source data is in WGS-84 format

GACA should check that all source data is in WGS-84 format as specified in ICAO Doc 9674 (World Geodetic System – 1984 (WGS-84) Manual) and compliant with the requirements of ICAO Doc 9613 (PBN Manual) Volume 1 Attachment 2. If source data is unavailable in WGS- 84 format, then it should have been converted to WGS-84 prior to use. The source data and converted data should be made available.

(c) third party survey data is ICAO compliant

GACA should ensure that where a third party has been contracted by the IFP designer for the purpose of obstacle survey, the survey data is consistent with the requirements of ICAO Annex 14 Volume 1 Appendix 5 and Volume 2 Appendix 1, ICAO Annex 11 Appendix 5 and ICAO Annex 15 (Aeronautical Information Services) Appendix 7.

8.6.7.5 IFP Flight validation requirements

8.6.7.5.1 All IFPs are subject to flight validation as required under the provisions of GACAR Part 172 and Part 173, and Chapters 8.2.3, 8.2.4, 8.6.5, 8.6.6 and 8.6.8 of the Technical Guidance Material and E-Book. When auditing the IFP design report, GACA must check that:

(a) flight validation aircraft and crew are appropriate

GACA must check that the flight validation has been conducted using aircraft and aircrew compliant with the requirements of GACAR Part 172 and Part 173 and the GACA GACA Flight Validation policy and procedures.

(b) flight validation is ICAO compliant

GACA must check that the flight validation has been conducted in accordance with the requirements of

- ICAO PANS-OPS (Doc 8168) (Procedures for Air Navigation Services – Aircraft Operations) Volume II;

- ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) Volume 1, Part B Chapter 1;
- Doc 8071 (Manual on Testing of Radio Navigation Aids) Volume 2 (Testing of Satellite- based Radio Navigation Systems) Chapter 5; and
- ICAO Doc 9906 Quality Assurance Manual – Flight Procedure Design – Volume 5 and 6;

noting that the purpose of the flight validation is:

1. to validate the obstacles as shown on the chart and used as the basis for computing minimum altitude;

2. to ensure, in particular, the flyability of the procedure in maintaining safe operations for each category of aircraft; and

3. to review the IFP for complexity of workload, correctness of information and ease of interpretation.

8.6.7.6 IFP Dissemination

8.6.7.6.1 Once the IFP design submission has been approved, the details can be entered into the Air Navigation Register (when established). The IFP and associated documentation can then be released to the designated Aeronautical Information Service (AIS) for publication. It is important, therefore, that the IFP submission is appropriately formatted for dissemination.

8.6.7.6.2 When auditing the IFP design submission, GACA must check that:

(a) the design and format of the IFP charts are in a standardized format

GACA must check that the design and format of the IFP charts are in a standardized format in accordance with the requirements of ICAO Annex 4 (Charts), ICAO Doc 8697 (Aeronautical Chart Manual) and ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2.

(b) RNAV procedure is clear and unambiguous

GACA must check that where the IFP is an RNAV procedure, it is described in a clear and unambiguous fashion as detailed in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume II and ICAO Annex 15 (Aeronautical Information Services).

(c) the dataset is complete, coherent and correct

GACA must check that where the IFP is an RNAV procedure, prior to publication, it is validated to ensure

that the dataset is complete, coherent and correct.

(d) an error detection process is in place

GACA must check that the IFP designer has in place a process to perform a final validation of the published data in the AIP/chart amendment when issued to ensure that no errors have been introduced during the data transfer process.

8.6.7.7 Technical Design Assessment

8.6.7.7.1 A full technical design assessment will be conducted on each submitted IFP. The intent is to ensure that all of the basic design requirements are met and that the design and associated charts are consistent with design rules and standards and do not contain obvious errors. It is not intended that every calculation or design factor be checked unless a specific error warrants further review.

Inspector Guidance: *The intention is not for GACA to have to re-design or replicate the design of the procedure. Part 172 establishes requirements on design organisations so that they can do the quality checks and authorisations and approvals.*

The intention is to make sufficient checks to provide confidence that the designer has followed the construction rules and that the design is ICAO and GACAR compliant.

This may involve the inspector using independent means (electronic or manual), using the data provided with the IFP submission (or independent data if available), to independently construct one or more components of the procedure for comparison purposes.

Ultimately, the goal is to ensure that any procedure released for public use is safe.

8.6.7.7.2 Where an obvious error is detected, it is not necessary to completely reject the design submission; it may be possible to have the error(s) corrected as part of a collaborative process. If however, there are a number of errors detected which indicate the possibility of faulty design, or misunderstanding of the rules, the submission should be rejected and returned to the designer for complete review and re-submission.

Inspector Guidance: *Where there is an exchange between GACA and a designer regarding an element of the design, any such exchange must be transmitted formally. Where there has been a verbal exchange to resolve an issue, a follow up formal note concerning that exchange must be transmitted.*

8.6.7.7.3 If GACA has any concerns about a particular IFP design, it should be referred back to the design organisation with an appropriate written explanation. The designer may choose to cancel the approval process – or schedule a meeting, at the request of the sponsor, to resolve any problem(s).

8.6.7.7.4 A key issue for GACA is to determine if the design organisation has appropriate quality management and quality control processes in place. In many cases, simple errors – such as missing data on a chart – should have been picked up in the quality processes of the design organisation. If there are a number of ‘simple errors’, it may indicate that the designer’s quality control process is not functioning. This may be grounds for a more detailed audit of the design organisation, outside the audit of the instrument flight procedure submission.

8.6.7.7.5 The Technical Design Assessment Checklist, based on design requirements in ICAO PANS- OPS Volume II, is included in the audit checklist at Appendix A.

8.6.7.8 Recommendation to Publish

8.6.7.8.1 If the approval audit of an IFP submission is satisfactory, the GACA inspector(s) conducting the audit will make a recommendation to the AP GACA that the details of the procedure be entered into the Air Navigation Register (when established), and approved for publication by AIS.

8.6.7.8.2 This recommendation will comprise the signatures of the inspectors who conducted the regulatory compliance assessment, the technical assessment, and the review of the flight validation report.

8.6.7.8.3 The recommendation will contain a proposed effective date, and associate AIRAC cut-off date. These dates should be coordinated with AIS to ensure alignment with other processes, including data coding, etc. They should also take into account any delay in processing data into the Air Navigation Register (when established), or obtaining the necessary signatures.

Appendix A

Instrument Flight Procedures - Approval Audit Report

INSTRUMENT FLIGHT PROCEDURE
SS&AT APPROVAL AUDIT REPORT

Location	
Design Type	
Runway	
Submission Reference Number	
Submission Date	

Audit Finding	
Satisfactory	☐
Unsatisfactory	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Flight Validation Report Reviewed			
If Audit Finding Satisfactory:			
Information entered into Air Navigation Register *(when applicable)*			
Recommended for Approval			

Recommended for Publication			

Audit Questionnaire		Yes	No	N/A	Reference
1. APPROVAL SUBMISSION					
	Details of the design criteria used in the construction of the IFP				
1.1	Does the submission contain evidence of the procedure's compliance with respect to the requirements of ICAO Docs 8168, 9613 and 9906?	☐	☐	☐	8.6.7.2.2.a.1
1.2	Does the submission contain a design rationale in text format?	☐	☐	☐	8.6.7.2.2.a.2
1.3	If applicable, does the submission contain references to those parts of Doc 8168 (PANS-OPS) Volume 2 where a deviation from the standard criteria or policy has been employed? Is the explanation or proposed change acceptable?	☐	☐	☐	8.6.7.2.2.a.3
Comments					
	Description of the instrument flight procedure				
1.4	Does the submission contain names of the procedure designer and independent validator?	☐	☐	☐	8.6.7.2.2.b.1
1.5	Does the submission contain a description of waypoint names (*including ICAO ICARD compliance, where applicable*), type and coordinates?	☐	☐	☐	8.6.7.2.2.b.2
1.6	Does the submission contain a description of obstacles assessed in the construction of the procedure including height and position coordinates?	☐	☐	☐	8.6.7.2.2.b.3
1.7	Does the submission contain a description of the source of obstacle, terrain and aerodrome data used as applicable in the design of the IFP, as complying with the requirements of section 8.6.7.4?	☐	☐	☐	8.6.7.2.2.b.4

	Audit Questionnaire	Yes	No	N/A	Reference
1.8	Does the submission contain a diagram detailing the obstacle surfaces used in plan and profile to aid safeguarding assessment?	☐	☐	☐	8.6.7.2.2.b.5
1.9	Does the submission contain a procedure chart compliant with the requirements ICAO Annex 4, ICAO Doc 8697 and ICAO Doc 8168 Volume 2, as applicable?	☐	☐	☐	8.6.7.2.2.b.6
1.10	Does the submission contain a text narrative that describes the flight procedure in an unambiguous manner?	☐	☐	☐	8.6.7.2.2.b.7
	Comments				
	Information about electronic design equipment and associated software				
1.11	Does the submission provide information about electronic design equipment used to assist with the design of the IFP?	☐	☐	☐	8.6.7.2.2.c.1
1.12	Does the submission provide information about the software and software version associated with electronic design equipment?	☐	☐	☐	8.6.7.2.2.c.2
	Comments				
	Description of the flight validation procedure				
1.13	Does the submission contain a description of the flight validation procedure including: a. Evidence of the aircraft used; b. Flight crew and certification approvals; and c. The flight validation report?	☐	☐	☐	8.6.7.2.2.d
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference
2. IFP DESIGN REQUIREMENTS					
	Compliance with ICAO standards or procedures				
2.1	Has the IFP been designed adhering to the methodology and design criteria specified in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 ensuring in particular that required obstacle clearances are achieved?	☐	☐	☐	8.6.7.3.2.a.1
2.2	If this is an Area Navigation (RNAV)-based or Performance Based navigation (PBN) procedure, have the additional requirements from ICAO Doc 9613 (PBN Manual) Volumes 1 and 2 also been applied?	☐	☐	☐	8.6.7.3.2.a.2
2.3	As applicable, have the provisions from ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design) in the construction of flight procedures been applied?	☐	☐	☐	8.6.7.3.2.a.3
Comments					
	Completion by an approved individual or design organisation				
2.4	**GACAR PART 172:** Has the organisation that has completed the design been approved by GACA in accordance with the requirements of GACAR Part 172?	☐	☐	☐	8.6.7.3.2.b.1
2.5	**GACAR SECTION 23.** Has the design has been completed by an approved individual designer, where that approval was issued before 1 March 2016 under the provisions of GACAR Section 23?	☐	☐	☐	8.6.7.3.2.b.2
2.6	**GACAR SECTION 23.** Has the design has been completed by a design organisation approved by GACA ANS under the provisions of GACAR Section 23, provided that approval was given before 1 March 2016, a copy of the approval is provided to GACA SS&AT, and design work on any design submissions commenced prior to 1 March 2016?	☐	☐	☐	8.6.7.3.2.b.3

	Audit Questionnaire	Yes	No	N/A	Reference
	Comments				
	Sufficient documented coordination				
2.7	Has appropriate coordination has been carried out between ATS/ATC, airlines, the aerodrome certificate holder, the relevant ANS systems and/or engineering department(s) and the design organisation, as applicable, including: a. a review of the obstacles applicable to the procedure with the aerodrome certificate holder prior to any design work; and b. development of the flight validation plan, taking into account the requirement for operational ground navigation aids as necessary; and c. validation of both the operational and certification status of all applicable navigation aids?	☐	☐	☐	8.6.7.3.2.c
	Comments				
	Formal records and procedures				
2.8	Has the IFP design organisation established formal records and procedures to ensure that: a. there are sufficient cross validations to detect erroneous calculations; b. **the IFP has been verified by a designer other than the designer that created the IFP design;** c. potential navigation database limitations are addressed before the procedure is coded and approved; d. SS&AT has been informed and a reassessment of the IFP minimum altitudes undertaken when: 1. There has been a potential obstacle infringement of the IFP protected surfaces; or 2. there is a potential breach of aerodrome protected surfaces stipulated through aerodrome safeguarding; e. a NOTAM to suspend the IFP can be promulgated when a potential infringement or breach is confirmed?	☐	☐	☐	8.6.7.3.3
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference
3. ORIGIN OF IFP SOURCE DATA					
	Traceability of IFP design data to source				
3.1	Is the IFP design data traceable to source, and is the following metadata available, as required by ICAO Annex 15: a. the name of the source or entity originating the data; b. the function performed by the source or entity; and c. the date at which the function was performed?	☐	☐	☐	8.6.7.4.2.a
Comments					
	Data in WGS-84 Format				
3.2	Is the source data in WGS-84 format as specified in ICAO Doc 9674 (World Geodetic System – 1984 (WGS-84) Manual) and compliant with the requirements of ICAO Doc 9613 (PBN Manual) Volume 1 Attachment 2?	☐	☐	☐	8.6.7.4.2.b
3.3	If source data is unavailable in WGS-84 format, has it been converted to WGS-84 prior to use?	☐	☐	☐	8.6.7.4.2.b
3.4	Has the source data and converted data should been made available?	☐	☐	☐	8.6.7.4.2.b
Comments					
	Third party data				
3.5	Has the IFP designer contracted a third party to conduct an obstacle survey?	☐	☐	☐	8.6.7.4.2.c
3.6	Where a third party has been contracted by the IFP designer for the purpose of obstacle survey, is the survey data consistent with the requirements of ICAO Annex 14 (Aerodromes) Volume 1 Appendix 5 and Volume 2 Appendix 1, ICAO Annex 11 (Air Traffic Services) Appendix 5, and ICAO Annex 15 (Aeronautical Information Services) Appendix 7 as appropriate?	☐	☐	☐	8.6.7.4.2.c

Audit Questionnaire		Yes	No	N/A	Reference
Comments					
4. FLIGHT VALIDATION					
	Flight validation				
4.1	Has a flight validation been conducted?	☐	☐	☐	8.6.7.5.1
	Flight validation aircraft and crew				
4.2	Has the flight validation has been conducted using aircraft and aircrew compliant with the requirements of GACAR Part 173, GACAR Part 173, and any relevant SS&AT Flight Validation policy and procedures?	☐	☐	☐	8.6.7.5.1.a
Comments					
	GACAR and ICAO compliance				
4.3	Has the flight validation has been conducted in accordance with the requirements of GACAR Section 23 and the GACA SS&AT Flight Validation policy and procedures?	☐	☐	☐	8.6.7.5.1.b
4.4	Has the flight validation has been conducted in accordance with ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) Volume 1, Part B Chapter 1?	☐	☐	☐	8.6.7.5.1.b
4.5	Has the flight validation has been conducted in accordance with ICAO Doc 8071 (Manual on Testing of Radio Navigation Aids) Volume 2 (Testing of Satellite-based Radio Navigation Systems) Chapter 5?	☐	☐	☐	8.6.7.5.1.b
4.6	Has the flight validation has been conducted in accordance with ICAO Doc 9906 Quality Assurance Manual – Flight Procedure Design – Volume 5 and 6?	☐	☐	☐	8.6.7.5.1.b

	Audit Questionnaire	Yes	No	N/A	Reference
	Comments				
	Result of Flight Validation				
4.7	Has the flight validation successfully validated the IFP?	☐	☐	☐	8.6.7.5.1.b
	Assessment of Flight Validation Report *(add comments here regarding the report provided, and any deficiencies noted)*				

	Audit Questionnaire	Yes	No	N/A	Reference
5.	**IFP DISSEMINATION**				
	Standardized design and format of the IFP charts				
5.1	Is the design and format of the IFP charts in a standardized format in accordance with the requirements of ICAO Annex 4 (Charts), ICAO Doc 8697 (Aeronautical Chart Manual) and ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2?	☐	☐	☐	8.6.7.6.2.a
	Provision of charts to aerodrome certificate holder				
5.2	Has provision has been made to provide the aerodrome certificate holder with charts detailing the obstacle surfaces used in plan and profile to aid safeguarding assessment?	☐	☐	☐	8.6.7.2.2.b.5

	Audit Questionnaire	Yes	No	N/A	Reference
	Clarity of RNAV procedure				
5.3	If the IFP is an RNAV procedure, is it described in a clear and unambiguous fashion as detailed in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 and ICAO Annex 15 (Aeronautical Information Services).	☐	☐	☐	8.6.7.6.2.b
	Dataset characteristics				
5.4	If the IFP is an RNAV procedure, prior to publication, has it been / will it be validated to ensure that the dataset is complete, coherent and correct.	☐	☐	☐	8.6.7.6.2.c
	Error detection process				
5.5	Does the IFP designer have in place a process to perform a final validation of the published data in the AIP/chart amendment when issued to ensure that no errors have been introduced during the data transfer process?	☐	☐	☐	8.6.7.6.2.d
	Comments				

	Audit Questionnaire	Yes	No	N/A	Reference
6. TECHNICAL COMPLIANCE CHECKLIST					(refer 8.6.7.7)
6.1	**Visit to Airport**	☐	☐	☐	8.6.7.7
6.2	**Aerodrome Reference Point**	☐	☐	☐	"
6.3	**Aerodrome Elevation**	☐	☐	☐	"
6.4	**Runway (RWY) data**	☐	☐	☐	"
a	Threshold (THR) Elevation(s)	☐	☐	☐	"
b	Touchdown Zone (TDZ) Elevation(s)	☐	☐	☐	"
c	Runway Bearing (Magnetic)	☐	☐	☐	"
6.5	**Magnetic Variation**	☐	☐	☐	"
6.6	**Aerodrome Reference Temperature**	☐	☐	☐	"
6.7	**Aerodrome High Temperature**	☐	☐	☐	"
6.8	**Aerodrome Low Temperature**	☐	☐	☐	"
	Comments 1-8				
6.9	**Air Traffic Services (ATS) Communication Data**	☐	☐	☐	"
	Comments				
6.10	**Procedure Type**	☐	☐	☐	"

	Audit Questionnaire	Yes	No	N/A	Reference
6.11	**Mountainous Terrain**	☐	☐	☐	"
6.12	**Minimum Sector Altitude(s) (MSA)**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 8
	Comments				
	ARRIVAL AND APPROACH PROCEDURES (PANS-OPS Vol II Section 4)				
6.13	**Standard Arrival (STAR)**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 2
6.14	**Route Descriptions**	☐	☐	☐	"
6.15	**Waypoint Data and Coordinates**	☐	☐	☐	"
6.16	**Obstacle Analysis**	☐	☐	☐	"
6.17	**Navigation Route Data**	☐	☐	☐	"
6.18	**Procedure construction and layout**	☐	☐	☐	"
	Comments 10-18				
6.19	**Holding pattern(s) – construction, speeds, controlling obstacles**	☐	☐	☐	PANS-OPS Vol II Sect 4 App to Ch 3
	Comments				
6.20	**Initial segment**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 3
	a Construction and controlling obstacle	☐	☐	☐	"

	Audit Questionnaire	Yes	No	N/A	Reference
b	Left	☐	☐	☐	"
c	Right	☐	☐	☐	"
d	Central	☐	☐	☐	"
e	Distance and descent gradient	☐	☐	☐	"
Comments					
6.21	**Intermediate Segment**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 4
a	Construction and controlling obstacle	☐	☐	☐	"
b	Distance and descent gradient	☐	☐	☐	"
Comments					
6.22	**Final segment**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 5
a	Construction and controlling obstacle	☐	☐	☐	"
b	Distance and descent gradient	☐	☐	☐	"
c	Step down fix	☐	☐	☐	"
Comments					
6.23	**Missed Approach Segment**	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 6
a	Construction and controlling obstacle	☐	☐	☐	"
b	Climb gradient	☐	☐	☐	"

	Audit Questionnaire	Yes	No	N/A	Reference
	Comments				
6.24	Check Visual Segment Surface (VSS)	☐	☐	☐	
6.25	Circling construction	☐	☐	☐	PANS-OPS Vol II Section 4 Chapter 7
6.26	Visibility at departure and alternate airport	☐	☐	☐	"
6.27	Speed	☐	☐	☐	"
6.28	Time and distance	☐	☐	☐	"
6.29	Categories of aircraft	☐	☐	☐	"
6.30	Turns	☐	☐	☐	"
6.31	Meteorological (MET) data availability	☐	☐	☐	"
6.32	Minimum visibility and duration	☐	☐	☐	"
	Comments 24-32				
	FOR DEPARTURE PROCEDURES (PANS-OPS Vol II Section 3)				
6.33	Departure (or Standard Instrument Departure - SID)	☐	☐	☐	PANS-OPS Vol II Section 3
6.34	Route Descriptions	☐	☐	☐	"
6.35	Average Flight Path	☐	☐	☐	"

	Audit Questionnaire	Yes	No	N/A	Reference
6.36	Area Width	☐	☐	☐	"
6.37	Turn Parameters	☐	☐	☐	"
6.38	Construction and Obstacle Assessment	☐	☐	☐	"
6.39	Coding Table	☐	☐	☐	"
6.40	Aeronautical Data Tabulation	☐	☐	☐	"
	Comments 33-40				
	FOR ALL PROCEDURES *(comments)*				
6.41	AIRAC cycle date				
6.42	Method references				
6.43	Effective date				

	Audit Questionnaire	Yes	No	N/A	Reference
6.44	**Concerns**				
6.45	**Comparison of ANS report with Flight Validation report**				
6.46	**Comparison of ANS report with Other Design Organisation report**				
6.47	**Flight simulator comments**				
6.48	**General Comments (if any)**				

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 8. Audit and Acceptance of Flight Validation Submissions

8.6.8.1 General Information

8.6.8.1.1 The purpose of this chapter is to provide guidance for ANS Safety Oversight inspectors on assessing flight validation reports as part of the assessment of an instrument flight procedure design submission (see Chapter 8.6.7), and to provide guidance to flight validation organisations on acceptable means of compliance with requirements for the flight validation of instrument flight procedures intended to be published for use in the Kingdom of Saudi Arabia.

8.6.8.1.2 It supports, and should be read in conjunction with, the requirements in GACAR Part 172 – Instrument Flight Procedure Design, the relevant provisions of GACAR Part 173 (Aeronautical Telecommunications) – particularly those relating to Flight Inspection Service Providers, and the guidance in Chapter 8.6.7 of the Technical Guidance Material/e-Book.

8.6.8.1.3 This chapter is not concerned with ground validation or simulator assessments of flight procedures – however parts of the material in this chapter may be adapted for simulator assessments.

8.6.8.1.4 Where there is a discrepancy between the content of this chapter, and GACA Regulations, the requirements of GACARs take precedence.

8.6.8.1.5 Nothing in this document overrides the responsibility of a pilot-in-command in relation to safety of flight operations.

8.6.8.1.6 This chapter should be read in conjunction with the following ICAO documents:

(a) ICAO Procedures for the Construction of Visual and Instrument Flight Procedures (PANS-OPS Doc 8168 Volume II) - Part I, Section 2, Chapter 4;

(b) ICAO Manual on Testing of Radio Navigation Aids (Doc 8071) Volume 1 Chapter 8 and Volume II Chapter 5;

(c) ICAO Quality Assurance Manual – Flight Procedure Design (Doc 9906) Volume 1 – Flight Procedure Design Quality Assurance System, Volume 5 – Validation of Instrument Flight Procedures, and Volume 6 – Flight Validation Pilot Training and Evaluation;

(d) ICAO Performance Based Navigation Manual (Doc 9613).

8.6.8.2 Regulatory Requirements

8.6.8.2.1 When an inspector is reviewing flight validation reports, he must ensure that all regulatory requirements relating to flight validation have been met. The checklist at Appendix B should be used.

a. General Crew Requirements

§ 172.59 Crew Requirements.

(a) Flight validations must be performed by qualified and experienced flight validation pilots. The qualifications and experience for flight validation pilots are specified in Appendix B to this part.

(b) The minimum crew of the validation aircraft must be one pilot to validate the IFP and an observer to assist the pilot in the validation process while observing the “out of cockpit” environment. In the case of an aircraft requiring two pilots, one of the pilots may carry out the observer role. It is required that the observer has successfully completed an ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, for the design and validation of IFP.

(c) Where the procedure to be flight validated is an RNAV (GNSS) IFP of a T- or Y- bar design and is to be manually loaded into the RNAV system, the flight validation pilot must ensure that the observer is fully competent in the use of the RNAV system to be used for the flight.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

b. Requirements for Flight Validation Pilots

APPENDIX B TO GACAR PART 172 – REQUIREMENTS FOR FLIGHT VALIDATION PILOTS

(a) Qualifications. Each IFP flight validation pilot must hold:

(1) An airline transport pilot certificate issued in accordance with GACAR Part 61 or be otherwise acceptable to the President;

(2) Current instrument rating, valid for the type of procedure under validation; and

(3) Relevant experience in multi-engine IFR procedures.

(b) Training. Each IFP flight validation pilot must have successfully completed:

(1) An ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, that provides a thorough knowledge of ICAO PANS-OPS procedures design principles and methods related to the design and validation of instrument flight procedures;

(2) A flight validation course conducted by GACA or an organization acceptable to the President and possess a letter of competency issued by President certifying competence to conduct flight validations; and

(3) A course in aerodrome lighting and visual approach slope guidance systems conducted by GACA or an organization acceptable to the President and possess a letter of competency issued by President certifying competence to conduct aerodrome lighting inspections.

(c) Experience. Each IFP flight validation pilot must have:

(1) At least 2 years' experience in the flight validations of IFP; and

(2) Completed an IFP flight validation flight within the previous year.

(d) Rotorcraft. Rotorcraft IFP procedures must be flight validated by pilots who, in addition to the above qualifications, are certificated in the rotorcraft category and helicopter class rating and are familiar with rotorcraft procedure design and operations. Should the validation pilot not be qualified as pilot-in-command of a helicopter (or other type of aircraft) to be used for a validation flight, another qualified pilot may be assigned to be the pilot in command (PIC) provided the validation pilot occupies either a control seat or a seat in close proximity to the PIC, and directs the conduct of the validation.

(e) Where required by the President, flight validation pilots must also comply with any additional requirements contained in the Quality Assurance Manual for Flight Procedure Design (ICAO Doc.9906) – Volume 5: Validation of Instrument Flight Procedures, and Volume 6: Flight Validation Pilot Training and Evaluation.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation. In relation to the requirement for PANS-OPS training, some training organisations offer an abbreviated PANS- OPS training course (and ARINC 424 database training) that is specifically designed for validation pilots on the basis that a validation pilot does not need to qualify as a designer. These courses would be acceptable to the president on recommendation of the inspector.*

c. Aircraft Requirements

§ 172.61 Aircraft Requirements.

The aircraft to be used for flight validation of an IFP must have the performance capabilities appropriate to the categories for which the IFP has been designed.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

d. Meteorological Conditions

§ 172.63 Meteorological Conditions.

All IFP validation flights must be conducted during daylight hours in visual meteorological conditions (VMC), which allow the flight to be carried out with a flight visibility of not less than 8KM, and in sight of the surface throughout the flight validation of the procedure.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

e. Validation of Navigation Database

§ 172.65 Navigation Database Validation.

(a) Navigation database validation must be performed for all RNAV instrument flight procedures. Such procedures are coded using ARINC 424 path terminators to define specific nominal tracks, which are defined by waypoint location, waypoint type, and path terminator and, where appropriate, speed constraint, altitude constraint and course.

(b) Navigation database validation must ensure that the coding of the procedure in the RNAV/FMS system does not compromise the flyability of the procedure.

(c) If the database validation is unable to take place until after the effective date of the IFP, then NOTAM action must be required to delay the effective date.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

f. Validation Reports

§ 172.67 Validation Reports.

Where a ground and/or flight and navigation database validation has been conducted, a report must be completed by each of the following where applicable:

(a) IFP designer;

(b) IFP flight validating pilot; and

(c) Relevant ATS unit.

Inspector Guidance: *Requirements relating to flight validation are derived from general requirements in the PANS-OPS (ICAO Doc 8168 Volume II) and specifically from the procedures and practices specified in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design – Volume 5 Validation of Instrument Flight Procedures and Volume 6 Flight Validation Pilot Training and Evaluation. Inspectors must be familiar with these documents in assessing compliance with Part 172 for flight validation.*

Additional requirements and clarification may be found in the Quality Assurance Manual for Flight procedure Design (ICAO Doc 9906) – Volume 5: Validation of Instrument Flight Procedures, and Volume 6: Flight Validation Pilot Training and Evaluation

8.6.8.3 Flight Validation Procedures

8.6.8.3.1 The following regulatory requirements apply in relation to flight validation procedures:

§ 172.57 Flight Validation.

(a) Each IFPS provider must establish detailed procedures for conducting the flight validation of an IFP as required by this section. The flight validation procedures must include the use of equipment that—

(1) Has the precision, and accuracy traceable to appropriate standards, that are necessary for the validation being performed;

(2) Has known measurement uncertainties including, but not limited to, the software, firmware and crosswind uncertainties;

(3) Records the actual flight path of the validation aircraft;

(4) Is checked before being released for use, and at intervals not exceeding the calibration intervals recommended by the manufacturer, to establish that the system is capable of verifying the integrity of the IFP; and

(5) Is operated in accordance with flight validation system procedures and criteria by persons who are competent and current on the system used.

(b) Except as provided in paragraph (c), each IFP must be flight validated in accordance with the procedures required under paragraph (a) to ensure that—

(1) The IFP allows aircraft using the procedure to maneuver consistently within safe operating practices and pilot workloads for the categories of aircraft that the procedure is intended for;

(2) The IFP provides azimuth and distance information, and vertical guidance information for a precision approach ensure that an aircraft using the procedure remains clear of obstacles;

(3) The IFP is not affected by any radio frequency interference; and

(4) Visual guidance systems and cues for the runway are appropriate for the IFP and are not confused by lighting, pyrotechnic or laser displays, or any other visual distraction.

(c) The following IFP procedures do not require flight validation if it can be shown that current obstacle data meets the design requirements of the IFP:

(1) An en-route or an instrument arrival procedure unless—

(i) There is doubt about the coverage of the navigation system supporting the requirements of the procedure; or

(ii) The procedure limits the flyability and performance characteristics of the class of

aircraft the procedure is designed for:

(2) An instrument departure procedure unless the procedure limits the flyability and performance characteristics of the class of aircraft the procedure is designed for: (3) An amendment of a previously flight validated IAP if —

(i) The design change can be verified during the design process; and

(ii) A safety assessment of the proposed amendment has been completed and confirms that no additional risks to the safety of the procedure are introduced by the amendment.

(d) Where a flight validation is conducted the following elements must be evaluated:

(1) All segments of the IFP must be flown;

(2) In the case of SIDs and PDRs, all segments of the procedure from the departure end of the runway (DER) to joining the en-route structure or termination point must be flown; and

(3) In the case of IAPs all segments of the procedure from the Arrival/ Initial Fix through to the end of the Missed Approach must be flown.

(4) Flight validation of the visual maneuvering area must also be carried out.

(e) Where procedures share the same segment of flight (e.g. initial), the shared segment needs only to be validated once.

(f) In the case of RNAV IFP a test database produced by an appropriate navigation data-coding provider for use in the RNAV system must be used.

(g) In the case of RNAV (GNSS) IAPs of a T- or Y- bar design, manual entry of the procedure into the RNAV system in use is acceptable. In this case the validating pilot will need to manually activate the Course Deviation Indicator (CDI) scaling changes during the different phases of the flight.

(h) Each custodian of the IFP must establish procedures for justifying the application of paragraph (c) to an instrument flight procedure.

(i) The IFP designer may participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure’s design from the flight validation pilot.

8.6.8.3.2 As a requirement of certification under GACAR Part 170, 172 and 173 (as applicable), each Flight Validation organisation must demonstrate that it has in place, and applies, appropriate procedures for flight validation (including the reporting process or forms or documents used). The procedures used by an organisation are fundamental to understanding the basis of the flight validation report, e.g., the aircraft used, the crew

qualifications, the conditions of flight, the pre-flight briefing arrangements, the methods used to conduct the validation etc.

8.6.8.3.3 When assessing a flight validation report, inspectors should look for evidence that the organisation's approved procedures were applied. This may be reflected on the flight validation report form(s), or by regular audit of the flight validation organisation.

8.6.3.4 The procedures shown at Appendix A are based on best practice in flight validation, and would constitute acceptable means of compliance for flight validation organisations in Saudi Arabia. Inspectors should familiarise themselves with these procedures to understand the factors involved in flight validation and reporting.

8.6.3.5 The flight validation report form shown at Appendix C is based on best practice, and would constitute acceptable means (but not the only means) of compliance with requirements relating to flight validation reporting. Inspectors should familiarise themselves with the items on the sample inspection report, so that they are able to determine if key elements have been reviewed and reported during a flight validation flight.

Inspector Guidance: *These procedures are designed to ensure that all aspects required for flight validation and contained in various ICAO documents are captured and can be audited during a certification of a Flight Inspection / Flight Validation organisation, or during regular safety oversight audits.A Flight Validation Organisation may adopt (use) these procedures, adapt these procedures to meet their specific operations, or develop alternative procedures. Adapted or alternate procedures would need to be approved by GACA.*

Appendix A

Sample Flight Validation Procedures

This is an Acceptable Means of Compliance – it is not the only means of compliance. Flight Validation Organisations may adapt these procedures or use another format or other content as long as the information required for compliance with GACAR Part 170/172 is included.

Appendix A: Sample - Flight Validation Procedures

A1 Introduction

A1.1 The purpose of flight validation is to verify database and chart information, to check all obstacles (including the identification of any unforeseen obstacles) that affect the safety of the procedure, and to assess the flyability of, and human factors issues associated with, the procedure.

A1.2 Flight validation is required for:

(a) new instrument approach procedures (including Area Navigation (RNAV) procedures, Performance

based Navigation (PBN) procedures, Standard Instrument Departures (SIDs) and Standard Arrival Routes (STARs);(b) revised instrument approach procedures (including RNAV, PBN, SIDs and STARs) where the final course has been re-aligned by 3° or more or any other significant change affecting the procedure has occurred.

A1.3 Flight validation of an instrument flight procedure comprises:

(a) a review of the draft procedures from an operational perspective conducted by the validation pilot in consultation with the procedure designer; and

(b) a validation flight check.

Compliance note: *In some cases the procedure designer conducting the flight validation may not be the actual designer of the procedure being checked. In this case it is important that the procedure designer obtains a thorough understanding of the procedure and associated issues from the actual designer before commencing the validation flight.*

A2 Procedure Validation Package

A2.1 The data and information contained in the procedure flight validation package must be provided to the flight validation pilot in an acceptable format for the conduct of a flight validation, and must, as a minimum, contain the following:

(a) the IFP summary;

(b) a draft copy of the Instrument Approach Chart;

(c) the proposed ARINC 424 path terminators;

(d) a list of relevant obstacles, identification and description of controlling obstacles, and obstacles otherwise influencing the design of the procedure;

(e) a list of waypoint fixes, with latitude and longitude, procedural tracks and courses, distance and altitudes;

(f) airport infrastructure information (e.g., visual aids, ALS, PAPI/VASI, etc.);

(g) any special local operational procedure (e.g., noise abatement, non-standard traffic patterns, lighting activation, etc.);

(h) a detailed listing of deviations from design criteria (if any) and proposed mitigation if applicable; (i)

for non-standard IFPs, if applicable, training, operational and equipment procedure specificrequirements;

(j) appropriate flight validation checklist and report forms; and

(k) maps and charts including an appropriate topographical chart.

A3 Maps and Charts

A3.1 Validation flights must carry maps and charts including an appropriate topographical map of at least 1:250,000 scale or larger scale. (A scale of 1:100,000 may be necessary in areas of precipitous terrain and when checking circling, final and missed approach segments.) The map must be marked by the procedure designer with:

(a) initial, intermediate and final segment splays;

(b) missed approach segment splay/s;

(c) circling area for the appropriate categories or category groups;

(d) controlling obstacles for each segment, MSA and holding pattern; and

(e) significant objects adjacent to, but outside, the procedure protection area (see note).

Compliance Note 1: *This will help the flight validation crew's situational awareness in the case of higher obstacles being located within the secondary area or just outside the procedure protection areas. This is significant when high terrain surrounds or is in close proximity to an aerodrome.*

Compliance Note 2: *Where the designer uses 1:50,000 scale charts, the use of these charts during flight validation should be discussed carefully before the flight validation flights, and arrangements made to ensure that it is not necessary to manage several charts during a particular validation flight (e.g., by combining charts, pre-folding, etc.)*

A4 Weather

A4.1 Validation flights must be undertaken in daylight hours and in VMC. The aircraft must remain in VMC throughout the flight validation process.

A5 Responsibilities

A5.1 The organization that designed the procedure is normally responsible for the organisation of flight validation activities. In all cases, the organization conducting a flight validation in KSA must be certified by

GACA.

A5.2 The procedure design flight validation crew member is responsible for the operational planning of the particular validation flight.

A6 Aircraft

A6.1 The standard for the type of aircraft to be used for flight validations is an aircraft that has performance capabilities appropriate to the type and design of the procedure, together with adequate performance characteristics for low level flight operations.

A6.2 The aircraft must be of a configuration that permits good visibility and adequate cockpit dimensions permitting maps and other documents to be readily and safely referred to in flight.

A6.3 The type of aircraft to be used for flight validation will be approved by the GACA (see notes below).

Compliance Note 1: *There are a number of key issues for flight validation including the ability to simulate the operating characteristics on aircraft in all categories (A/B, and C/D), and the ability to be able to see obstacles and terrain easily from the cockpit. The choice of aircraft can be critical to the effectiveness of flight validation.*

Compliance Note 2: *Priority should be given to the use of twin engine turboprop aircraft for flight validation purposes due to higher transit speeds, availability of modern navigation aids, greater operating safety margins when compared to piston engine aircraft.*

A7 Crew

A7.1 The minimum crew is a pilot (or the minimum crew required to operate the aircraft) and a procedure designer.

A7.2 Only persons involved in the validation procedure are to be carried in the aircraft whilst flight validation is in progress.

A7.3 Crew will be qualified in accordance with the requirements of GACAR Part 172.

A8 Conduct of Operations

A8.1 Judgment must be applied when planning the validation flight to minimise the time spent on task. Efficiently linked segments and avoiding those areas where obstacles will have no effect on the procedure will help to achieve this objective.

A8.2 Crew responsibilities:

(a) the pilot must fly the aircraft and is legally responsible for the overall safety of the conduct of the flight;

(b) the procedure designer must:

(1) assist the pilot by providing tracks and altitudes to fly; and

(2) note any differences to the pre-determined list of obstacles;

Note: It must be stressed that the procedure designer is NOT responsible for the safety of the aircraft, and has no direct flight responsibilities. The procedure designer responsibilities are solely related to the flight procedure design validation and checking of data and information relating to that design.

(c) both crew members are responsible for obstacle identification (however the pilot retains ultimate responsibility for terrain and obstacle clearance safety margins);

(d) when flying the segments of the procedure, the aircraft should be configured to emulate the highest category aircraft for which the procedures are planned - this will be particularly important when the length of a particular segment is short;

(e) when checking individual obstacles, the highest practical speed, commensurate with fuel reserves and flight safety should be used;

(f) during the validation process, any lights that increase the visibility of the aircraft should be turned on.

A9 Environment

A9.1 Prior to conducting the validation of a procedure, especially in a populated or environmentally sensitive area, the procedure designer should:

(a) discuss with the validation pilot any options for reducing the environmental impact of the flight; (b) as appropriate, advise the aerodrome operator, ATC, military and any other affected persons, of the details of the proposed operation, including advice that low-level flying will be required.

A9.2 Flight validation flights should try to:

(a) avoid flight over built-up areas, concentrations of animals, or other noise-sensitive areas;

(b) avoid repetitious flight over the same area or areas; and

(c) minimize high or loud engine noise.

A10 Flight Validation of the Procedure

A10.1 Immediately prior to the flight the flight validation pilots should:

(a) check to ensure the chart(s) has/have sufficient detail to navigate safely, and to identify significant terrain or obstacles;

(b) ensure all required notes are included (e.g., DME required, do not confuse Runway 14 with Runway 16, non-standard approach angle, etc.);

(c) ensure that the chart accurately portrays the procedure in both plan and profile view and is easily interpreted;

(d) ensure flight track matches the chart and will take the aircraft to the designed point;

(e) verify that the true magnetic course to the next waypoint indicated on the FMS or GNSS receiver accurately reflects the procedure as designed;

(f) verify that segment distances indicated by the aircraft navigation system accurately reflect the designed procedure;

(g) verify the flight path angle (FPA) indicated on the FMS or GNSS receiver accurately reflects the designed procedure; and

(h) check the waypoint spacing and segment length are sufficient to allow the aircraft to decelerate or change altitude on each leg without bypassing.

A10.2 In flight, the actual sequence of checks is not mandated in this document, as each situation will suggest the most economical way of arranging the elements of the task.

A10.3 The specified altitude(s) for the validation of an instrument approach segment should be determined in discussion with the procedure designer and GACA prior to the flight validation.

A10.4 Each controlling obstacle and/or procedure segment must be checked at the specified altitude of the obstacle to validate the obstacle data used and to determine whether there are any unforeseen obstacles extending above the specified altitude. Such a case would indicate that the unforeseen obstacle is higher than the controlling obstacle and that it may affect the procedure. If such an unforeseen obstacle is observed, its location

and observed height AMSL must be recorded for subsequent detailed analysis by the procedure designer.

A11 25 and 10 NM Minimum Sector Altitude

A11.1 25 NM and 10 NM MSA checks must include the controlling obstacle in addition to other obviously high terrain or obstacles.

A11.2 Where the sector/circle does not exhibit greatly differing terrain elevations, judgment may be exercised regarding the tracks flown to provide a full coverage of the area.

A12 Terminal Arrival Altitude

A12.1 Each Terminal Arrival Altitude (TAA) sector must be checked at an altitude that is determined in discussion with the procedure designer and GACA prior to the flight validation. Checks must include the controlling obstacle in addition to other obviously high terrain or obstacles.

A12.2 Where adjacent TAAs do not have greatly differing terrain elevations, judgement may be exercised regarding the tracks flown to provide a full coverage of the area.

A13 Circling Area

A13.1 The circling area should be checked by flying around the lateral limit of the circling area for the lowest supported aircraft category or group (usually CAT A/B) at the specified altitude for that category and looking in towards the airfield. In this manner, both the controlling obstacle and any unforeseen obstacles will be seen in the one action.

A13.2 The same procedure is then used to check obstacles in the circling area for the next highest supported aircraft category or group (CAT C/D). By conducting the inner check first, obstacles that may affect all categories can be readily identified.

A13.3 Controlling obstacles should be checked at their actual altitude if possible. A13.4 Circling area checks are not conducted in those areas designated 'No Circling'.

A14 Final and Intermediate Segments

Compliance Note 1: *The procedure specified below is an example of a way in which the Final and Intermediate Segments may be checked. If the flight validation pilot has experience in another technique it may be used, subject to discussion and evaluation by GACA to ensure it is appropriate. The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

Compliance Note 2: *The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

A14.1 The final and, where implemented, the intermediate segment, should be checked as follows:

(a) fly from overhead the MAPT at the specified altitude for the final segment, at 90° to the final track, to the limit of the splay;

(b) turn to fly away from the airfield along the lateral edge of the splay at the final specified altitude to abeam the step down fix (if implemented) or abeam the FAF:

(1) abeam the step down fix, climb to the specified altitude for the next section of the final segment;

(2) terminate abeam the FAF unless an intermediate segment is implemented, in which case continue along the lateral limit of the intermediate segment at the intermediate specified altitude until abeam the IF and terminate at that point;

(3) during this process look across the splay to identify the controlling obstacle and any unforeseen obstacles;

(c) conduct the same process on the opposite side of the splay, but looking in the opposite direction; (d) if the terrain and visibility are such that an unobstructed view can be had from one side of the splay to the other, the procedure outlined above can be shortened by flying along the centreline of the splay at the appropriate specified altitude.

A15 Missed Approach Segment

Compliance Note 1: *The procedure specified below is an example of a way in which the Missed Approach Segment may be checked. If the flight validation pilot has experience in another technique it may be used, subject to discussion and evaluation by GACA to ensure it is appropriate. The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

Compliance Note 2: *The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

A15.1 The missed approach segment must be checked in accordance with the following:

(a) travelling along the final approach track, position the aircraft at the start of climb point, determined in accordance with Figure 1, at the minimum descent altitude minus the final MOC;

(b) fly the aircraft along the missed approach track, climbing at a rate that equates to the missed approach design gradient, until in the final phase of the missed approach.

A15.2 For environments with numerous obstacles, the missed approach segment should be checked by flying the missed approach splays in a similar manner to that specified for the final and intermediate segments, but climbing

along the lateral edge of the splay, in accordance with the missed approach design gradient, until in the final phase of the missed approach.

A15.3 The validation start of climb must be determined in accordance with Figure 1.

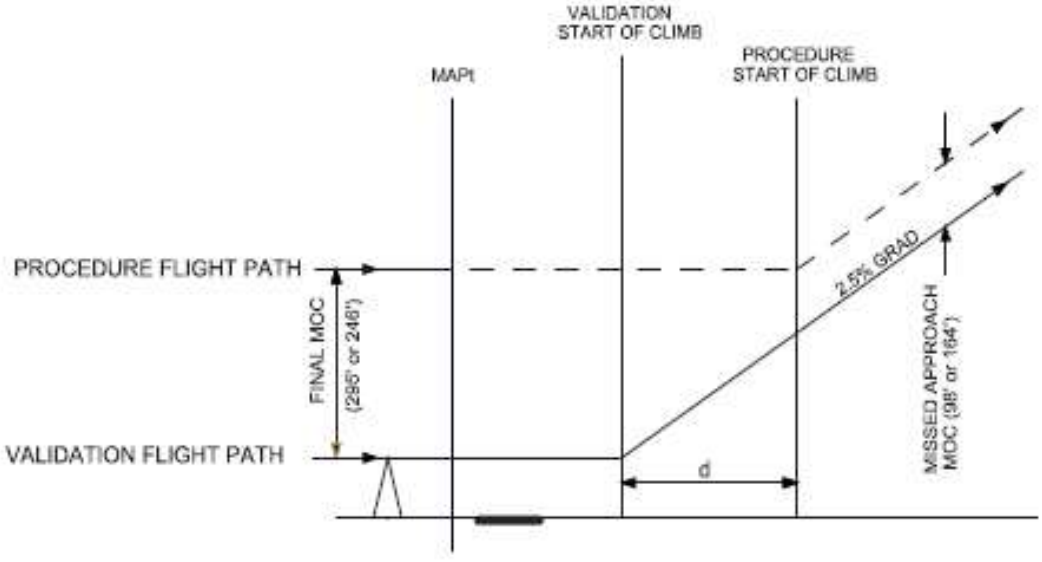

Figure 1: Validation start of climb

A16 Linking the Final and Missed Approach Segments

Compliance Note 1: *The procedure specified below is an example of a way in which the Final and Missed Segments may be linked. If the flight validation pilot has experience in another technique it may be used, subject to discussion and evaluation by GACA to ensure it is appropriate. The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

Compliance Note 2: *The following procedure may be adapted if it is more practicable when the flight validation is being planned.*

A16.1 Figure 2 shows one method for linking the checks of the final and missed approach segments. Other methods may be used as appropriate.

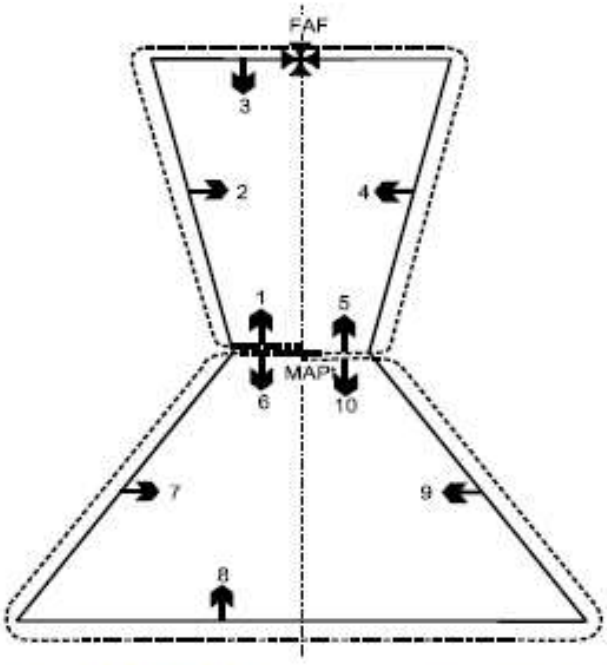

Figure 2: Final and missed approach segments (example only)

A17 Holding and Initial Segments

A17.1 The controlling obstacles for the holding and initial segments must be checked at their specified altitude and any unforeseen obstacles identified.

A18 Flyability and Human Factors Issues Check

A18.1 The procedure must be flown in the navigation mode, using the correct receiver, or with navigation equipment that permits the flight to be conducted at an equivalent level of performance, as required by the design.

A18.2 The complete design, as proposed for publication, must be checked for operational acceptability. This check should be flown at the maximum segment speeds for the fastest category of aircraft served by the procedure. The check includes:

(a) lead radials;

(b) outbound tracks (highest use category);

(c) outbound timing (highest use category);

(d) descent gradients;

(e) bank angle for turn onto final during base turns;

(f) runway alignment and distance from runway at the minima;

(g) descent gradient from the minima for a straight-in approach;

(h) the missed approach;

(i) acceptability of initial and intermediate segment lengths for GNSS based approaches; and

(j) pilot workload.

A19 Conduct Associated Validation Tasks

A19.1 The following associated validation tasks should be performed in conjunction with the obstacle or flyability assessment as appropriate:

(a) verify that all required runway markings, lighting and communications are in place and operative.

(b) verify that any required navigation aids/sensors have been satisfactorily flight inspected to determine that they support the procedure design.

(c) ensure that the components of the VASIS/PAPI angles appear as intended or charted when evaluating.

(d) vertically guided procedures.

(e) ensure that adequate ATS communications, according to State regulations, are available.

(f) where required, ensure that radar coverage is available for all portions of the procedure.

(g) indicate any TAWS warnings or alerts. Record details of the alert to include latitude/longitude, aircraft configuration, speed and altitude.

(h) if night evaluation is required, determine the adequacy of airport lighting systems prior to authorizing night operations. Conduct night evaluations during VMC following appropriate daytime evaluation.

A19.2 The lighting system needs to be evaluated for:

(a) correct lighting facilities and lighting patterns as charted; and

(b) local lighting patterns in the area surrounding the airport to ensure they do not distract, confuse or incorrectly identify the runway environment.

A19.3 It needs to be verified that waivers/mitigations for deviations from design criteria do not compromise safety.

A20 Windsocks

A20.1 For runway aligned approaches where a windsock is not located adjacent to the runway threshold, it must be confirmed that a windsock is visible when the aircraft is at the MDA.

A21 Flight Safety

A21.1 Some of these checks will be conducted close to obstacles and in close proximity to airfields; therefore a visual-and-listening watch by all crewmembers is essential. In particular, the following points should be noted:

(a) pay particular attention to airspeed during manoeuvres with high angles of bank;

(b) be vigilant for inconspicuous towers and power transmission lines. Some towers are painted in low-contrast colours;

(c) be alert for birds, particularly near smoke from fires, and over mountainous areas or inland water bodies.

A22 Traffic

A22.1 Priority should be given to other traffic when validation requirements conflict with existing traffic patterns.

A23 Reporting

A23.1 A flight validation report form, prepared for the applicable aerodrome, must be attached as part of the validation flight request package.

A23.2 Following completion of the validation flight:

(a) the pilot must complete the validation report; and

(b) the procedure designer must process the report form and complete the follow-up action.

Compliance Note: *Appendix C contains an example of a flight validation/flight evaluation report which may be used as a template.*

A23.3 Where required, a printed graphic and/or electronic file of sufficient detail to depict the flight track flown must be included in the report. Such a file must show procedure fixes, the maximum and minimum altitude, ground speed, climb rate and climb gradient, and a comparison of the actual track flown with the desired track of the designed procedure.

Satisfactory Validation

A23.4 Where the flight validation finds that the procedure is satisfactory (PASS), the pilot should complete the report form and submit it to the procedure design organisation and GACA as required. Where practicable the report should include any comments outside the scope of the procedure design (e.g., potential ATC issues, etc.).

Unsatisfactory Validation

A23.5 Where the flight validation finds that the procedure is unsatisfactory (FAIL), the pilot should complete the report form and submit it to the procedure design organisation. The report should contain detailed feedback to the designer and/or sponsor, and where practicable should include suggestions for mitigation or correction of unsatisfactory elements of the design.

A24 Navigation Database Validation (RNAV procedures)

A24.1 Navigation database validation is only applicable to RNAV instrument flight procedures. Such procedures are coded using ARINC 424 path terminators to define specific nominal tracks, which are, in turn, defined by waypoint location, waypoint type, path terminator, and where appropriate, speed constraint, altitude constraint and course.

A24.2 The key element of a navigation database validation during flight validation is to ensure that the coding of the procedures in the RNAV/FMS system does not compromise the flyability of the procedure.

Appendix B

Flight Validation Certification Checklist

FLIGHT VALIDATION CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 172 and where applicable GACAR Part 173.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

	Audit Questionnaire	Yes	No	N/A	Reference TGM/GACAR
	1. Flight Validation Procedures				
1.1	Has the organisation provided a copy of their procedures for flight validation?	☐	☐	☐	8.6.8.3 § 172.57
1.2	Are the submitted procedures consistent with the requirements of GACAR Part 172.57?	☐	☐	☐	8.6.8.3 § 172.57
1.3	Has the organisation provided a copy of their procedures for flight validation reports?	☐	☐	☐	8.6.8.3 § 172.57
	Comments				
	2. General Crew Requirements				
2.1	Are the organisation's flight validation pilots appropriately experienced and qualified? *(refer question 3 for further assistance in completing this question)*	☐	☐	☐	8.6.8.2.1.a § 172.59.(a)
2.2	Has the organisation established procedures to ensure minimum crewing in accordance with GACAR Part 172.59(b)?	☐	☐	☐	8.6.8.2.1.a § 172.59.(b)
2.3	Has the organisation established procedures to ensure that an observer has been appropriately trained in PANS-OPS requirements in accordance with GACAR Part 172.59(b)?	☐	☐	☐	8.6.8.2.1.a § 172.59.(b)
2.4	Has the organisation established procedures to ensure that where required, an observer has been appropriately trained in the use of RNAV systems to be used for a validation flight in accordance with GACAR Part 172.59(c)?	☐	☐	☐	8.6.8.2.1.a § 172.59.(c)
	Comments				

	Audit Questionnaire	Yes	No	N/A	Reference TGM/GACAR
	3. Flight Validation Pilots				
3.1	Has the organisation provided evidence that each intended IFP flight validation pilot holds: 1. An airline transport pilot certificate issued in accordance with GACAR Part 61 or be otherwise acceptable to the President; 2. Current instrument rating, valid for the type of procedure under validation; and 3. Relevant experience in multi-engine IFR procedures?	☐	☐	☐	8.6.8.2.1.b § 172.B.(a)
3.2	Has the organisation provided evidence that each intended IFP flight validation pilot has successfully completed: 1. An ICAO PANS-OPS training course, or a training course accepted by the President as an equivalent, that provides a thorough knowledge of ICAO PANS-OPS procedures design principles and methods related to the design and validation of instrument flight procedures; and 2. A flight validation course conducted by GACA or an organization acceptable to the President and possess a letter of competency issued by President certifying competence to conduct flight validations?	☐	☐	☐	8.6.8.2.1.b § 172.B.(b)
3.3	Has the organisation provided evidence that each intended IFP flight validation pilot has successfully completed a course in aerodrome lighting and visual approach slope guidance systems conducted by GACA or an organization acceptable to the President and possess a letter of competency issued by President certifying competence to conduct aerodrome lighting inspections?	☐	☐	☐	8.6.8.2.1.b § 172.B(b)(3)
3.4	Has the organisation provided evidence that each intended IFP flight validation pilot has: 1. At least 2 years' experience in the flight validations of IFP; and 2. Completed an IFP flight validation flight within the previous year.	☐	☐	☐	8.6.8.2.1.b § 172.B(c)
3.5	**Rotorcraft Procedures Only** If the organisation intends to validate rotor craft procedures, are the pilots qualified in accordance with the provisions of GACR 172, Appendix B, sub-section (d)?	☐	☐	☐	8.6.8.2.1.b § 172.B(d)
3.6	Has the organisation provided evidence in support of any additional requirements from the Quality Assurance Manual for Flight Procedure Design (ICAO Doc. 9906) – Volume 5: Validation of Instrument Flight Procedures, and Volume 6: Flight Validation Pilot Training and Evaluation?	☐	☐	☐	8.6.8.2.1.b § 172.B(e)

	Audit Questionnaire	Yes	No	N/A	Reference TGM/GACAR
	Comments				
	4. Aircraft Requirements				
4.1	Has the organisation provided evidence that the aircraft to be used for flight validation of an IFP has the performance capabilities appropriate to the categories for which the IFP has been designed?	☐	☐	☐	8.6.8.2.1.c § 172.61
	Comments				
	5. Meteorological Conditions				
5.1	Has the organisation provided evidence of procedures requiring that all IFP validation flights must be conducted during daylight hours in visual meteorological conditions (VMC), which allow the flight to be carried out with a flight visibility of not less than 8KM, and in sight of the surface throughout the flight validation of the procedure?	☐	☐	☐	8.6.8.2.1.d § 172.63
	Comments				
	6. Validation of Navigation Database				
6.1	Has the organisation provided evidence that navigation database validation will be performed for all RNAV instrument flight procedures? (Such procedures are coded using ARINC 424 path terminators to define specific nominal tracks, which are defined by waypoint location, waypoint type, and path terminator and, where appropriate, speed constraint, altitude constraint and course)	☐	☐	☐	8.6.8.2.1.e § 172.65.a

	Audit Questionnaire	Yes	No	N/A	Reference TGM/GACAR
6.2	Has the organisation provided evidence that navigation database validation will ensure that the coding of the procedure in the RNAV/FMS system does not compromise the flyability of the procedure?	☐	☐	☐	8.6.8.2.1.e § 172.65.b
6.3	Has the organisation provided evidence of procedures to ensure that if the database validation is unable to take place until after the effective date of the IFP, then NOTAM action must be required to delay the effective date?	☐	☐	☐	8.6.8.2.1.e § 172.65
	Comments				
	7. Validation Reports				
7.1	Has the organisation provided evidence of procedures for providing flight validation reports to each of the following where applicable: (a) IFP designer; (b) IFP flight validating pilot; and (c) Relevant ATS unit?	☐	☐	☐	8.6.8.2.1.f § 172.67
	Comments				
General Comments					

Appendix C

Sample Flight Validation Template

FLIGHT VALIDATION IS SAFETY CRITICAL – USE DUE DILIGENCE WHEN COMPLETING THIS FORM

FLIGHT EVALUATION CHECKLIST – FIXED WING	Page 1 of 5
Date:	**Validation Type :** New ☐ Amended ☐
Organization:	**Procedure:** Approach ☐ SID ☐ STAR ☐
Procedure Title:	
Location:	
Airport:	**Runway:**
Evaluator's Name / Contact No:	
PBN Navigation Specification:	

PLANNING	
	COMPLETED
Check that all the necessary items from the IFP package are available, including: graphics, text, maps, submission form	
Check that the necessary flight validation forms are available	
Check that the aircraft and avionics are appropriate for the IFP being evaluated	
Does the procedure require use of autopilot or flight director?	

PRE-FLIGHT	
	COMPLETED
Review preflight validation assessment	
Review simulator evaluation assessment (if applicable)	
Obstacle assessment planning: areas of concern; ability to identify and fly lateral limits of obstacle assessment area (if required)	
Verify source of IFP data for aircraft FMS (electronic or manual creation)	
Evaluate navigation system status at time of flight (NOTAM, RAIM, outages)	
Weather requirements	
Night evaluation requirement (if applicable)	
Required navigation (NAVAID) support (if applicable)	
Combination of multiple IFP evaluations	
Estimated flight time	
Coordination (as required) with ATS, procedure designer, airport authority	
Necessary equipment and media for electronic record of validation flight	

FLIGHT EVALUATION CHECKLIST – FIXED WING	Page 2 of 5	
GENERAL		
	SATISFACTORY	
	YES	NO
IFP graphic (chart) is complete and correct	☐	☐
Check for interference: document all details related to detected RFI	☐	☐
Satisfactory radio communication	☐	☐
Required radar coverage is satisfactory	☐	☐
Verify proper runway markings, lighting and VASIS/PAPI	☐	☐
Altimeter sources	☐	☐
Extra consideration given to non-surveyed areas	☐	☐
For approach procedures with circling minima, verify controlling obstacle for each circling category	☐	☐
FLYABILITY		
	SATISFACTORY	
	YES	NO
Comparison of FMS navigation database and source documents, including proper ARINC 424 coding. *Note.— If manual entry is used, this field is marked "N/A", and a note must be inserted in the remarks section to alert the approving authority of the procedure that a table top review of the coded procedure, or an operational assessment by a company pilot, should be completed prior to operational approval being granted.*	☐	☐
Human Factors and general workload are satisfactory	☐	☐
Was there any loss of RAIM?	☐	☐
Was there any loss of required RNP (where applicable)?	☐	☐
Missed approach procedure	☐	☐
Descent/climb gradients	☐	☐
Procedure flown auto-coupled	☐	☐
Segment length, turns and bank angles, speed restrictions and deceleration allowance	☐	☐
TAWS	☐	☐

FLIGHT EVALUATION CHECKLIST – FIXED WING										Page 3 of 5
SEGMENT CHECKS										
	SEGMENT COURSE (DF, CF, TF)		SEGMENT DISTANCE		FLIGHT PATH ANGLE		TERRAIN WARNING ALERT		DOCUMENTED CONTROLLING OBSTACLE VERIFIED	
	PASS	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL
INITIAL										
INITIAL										
INITIAL										
INTERMEDIATE										
FINAL										
MISSED APPROACH										
HOLDING PATTERN										
HOLDING PATTERN										

OBSTACLE ASSESSMENT			
	Coordinates (Latitude / Longitude)	Altitude (AGL) / Height (MSL)	Obstacle Identification
Obstacle in data base does not exist			
Obstacle not in data base			
Obstacle data incorrect			
Comments:			

FLIGHT EVALUATION CHECKLIST – FIXED WING												Page 4 of 5
STANDARD INSTRUMENT DEPARTURES (SIDs) (if applicable)												
Segment Checks												
SEGMENT	1		2		3		4		5		6	
Starting Waypoint	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Ending Waypoint	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Segment Heading Conformity	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Waypoint Coordinates	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Path Terminator (DF, CF, TF...)	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Altitude constraints	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Track angle change check	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Climb gradient check	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
EGPWS Warning / alert	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐	P☐	F☐
Comments:												
STANDARD ARRIVAL ROUTES (STARs) (if applicable)												
Comments:												

FLIGHT EVALUATION CHECKLIST – FIXED WING		Page 5 of 5
INSTRUMENT APPROACH PROCEDURE		
	SATISFACTORY	
	YES	**NO**
Segment lengths, headings/tracks and waypoint locations match procedure design	☐	☐
Final segment vertical glide path angle (if applicable)	☐	☐
Threshold crossing height (LTP or FTP), if applicable.	☐	☐
Course alignment	☐	☐
Along-track alignment	☐	☐
FAS data block	☐	☐
REMARKS		
PROCEDURE ASSESSMENT		
PASS ☐	FAIL ☐	
Evaluator's Signature: **Date:**		
Evaluation Aircraft (Registration/Type):		
Evaluator's GACA Approval(s): *(if applicable)*		

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 9. Procedures for Instrument Flight Procedure Custodian Management

8.6.9.1 General Information

8.6.9.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 6. INSTRUMENT FLIGHT PROCEDURE SERVICE PROVIDERS

Section 10. Reserved

8.6.10.1 General Information

8.6.10.1.1 Reserved

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 7. AIR TRAFFIC CONTROL TRAINING ORGANISATIONS

Section 1. Certification of ATS-related Training Organisations

8.7.1.1 General Information

8.7.1.1.1 The purpose of this chapter is to provide guidance material for ANS Safety Oversight Inspectors in the management of applications for certification as an ATS Training Organisation in KSA – specifically as an ATC School under the provisions of GACAR Part 144.

8.7.1.1.2 This chapter identifies the regulatory requirements that must be considered, and also provides a set of questions (checklist) regarding those regulatory requirements and additional questions (as required) which will enable an inspector to determine if an applicant can satisfy the regulatory requirements.

Inspector Guidance: *There are two purposes of the checklist questions. The first is to provide evidence that all regulatory requirements have been addressed when considering an application. The second is to allow the inspector to ensure that they have the required competency to operate as an ATC Training School in KSA – ATC training is a SAFETY CRITICAL activity and it is essential that the approved/certified organisation understands its safety obligations and has the right management structures, operational personnel, equipment and proceduresto fulfil those obligations.*

8.7.1.1.3 Reserved

8.7.1.2 Regulatory Requirements – Part 144

8.7.1.2.1 The general regulatory requirement for an ATC School to obtain certification from GACA, and the requirements relating to that service, are contained in GACAR Part 144. The following extracts are relevant to the initial certification of an ATC School training provider:

a. General Requirements

§ 144.17 Inspections.

Each holder of a certificate issued under this part must allow the President to inspect its personnel, facilities,equipment, and records to determine the certificate holder’s compliance with the GACAR.

Inspector Guidance: *reserved*

§ 144.19 Facilities.

(a) An applicant for, or holder of, a certificate issued under this part must ensure that—

(1) Each room, training booth, or other space used for instructional purposes is heated, lighted, and ventilated to conform to local building, sanitation, and health codes.

(2) The facilities used for instruction are not routinely subject to significant distractions caused by flight operations and maintenance operations at the aerodrome.

(b) Each holder of a certificate issued under this part must maintain a principal business office with a mailing address and the business name shown on its certificate.

(c) The facilities and equipment at the principal business office must be adequate to maintain the files and records required under this part.

(d) Before changing the location of the training school, each certificate holder must notify the President of thenew location, and the notice must be—

(1) Submitted in writing at least 30 working days before the change of location and

(2) Accompanied by any amendments needed for the certificate holder’s approved training course outline.

(e) A certificate holder issued under this part may conduct training at an operations base other than its principal operations base in accordance with GACAR § 144.99.

Inspector Guidance: *reserved*

§ 144.21 Contracts or Agreements.

(a) The holder of a certificate issued under this part may contract with other persons to obtain suitable training devices or equipment as applicable.

(b) The holder of a certificate issued under this part that is approved to conduct training toward a particular air traffic controller certificate and rating may contract with another party to conduct part of the training required toward the same certificate and rating.

(c) A certificate holder who contracts with another party to provide training may not authorize or permit a third party to conduct the training in whole or in part.

(d) In all cases, the holder of a training school certificate issued under this part that is approved to conduct training is responsible for the nature and quality of the instruction given.

(e) All contracting carried out under (a) to (d) of this section must be authorized in advance by the President.

b. Personnel and Training Equipment Requirements

§ 144.43 Appointment of Personnel.

(a) Each holder of a certificate issued under this part must appoint an accountable manager who has authority to ensure that all requirements of this part are met by the school.

(b) Each holder of a certificate issued under this part must employ sufficient personnel for ensuring compliance with the requirements of this part, including the planning, performance, and supervision of training to be conducted.

Inspector Guidance: *reserved*

§ 144.45 Instructor Requirements.

(a) Each holder of a certificate issued under this part, must have and maintain, a sufficient number of instructors that are qualified in accordance with this subpart to perform the duties to which they are assigned. The training school is required to maintain a list of the names and qualifications of qualified instructors, and upon request, provide a copy of the list to the President.

(b) Each holder of a certificate issued under this part, must have and maintain, a sufficient number of air traffic controller instructors certificated under GACAR Part 64 in order to supervise student ATCO controllers while they provide an ATC service for which they do not hold a valid certificate or rating. The training school is required to maintain a list of the names and qualifications of qualified air traffic controller instructors, and upon request, provide a copy of the list to the President.

Inspector Guidance: *reserved*

§ 144.47 Instructor Training.

Each holder of a certificate issued under this part must provide procedures to ensure instructors receive initial and recurrent training appropriate to their responsibilities. Training in knowledge and skills related to human factors principles must be included in both initial and recurrent instructor training.

Inspector Guidance: *reserved*

§ 144.49 Simulator Training Devices.

All training courses are required to indicate the amount of training, if any, that will be conducted on a simulator. The simulator must be approved by the President in coordination with the ATC Unit, as part of the course approval process. Each training school certificated under this part is required to demonstrate how the simulator and the associated exercises will provide adequate support for the particular training plan.

Inspector Guidance: *reserved*

c. Manual Requirements

§ 144.51 General.

Each holder of a certificate issued under this part must prepare and maintain a training and procedures manual,acceptable to the President, for the use of the school's personnel. The training school must ensure that—

(a) The policies and procedures contained in the manual must not be contrary to any applicableGACAR.

(b) Each training school certificated under this part maintains at least one copy of the manual at each operations base at which it conducts training.

(c) A copy of the manual, or the appropriate portions of the manual, is made available to personnel by the training school and furnished to—

(1) Its instructors and

(2) Representatives of the GACA assigned to the training school.

(d) To comply with paragraph (c) of this section, a training school may furnish the persons listed therein with all or part of its manual in printed or other form, acceptable to the President, which is retrievable in the English language. If the school furnishes all or part of the manual in other than printed form, it must ensure there is a compatible reading device available to those persons that provides a legible image of the information and instructions, or a system that is able to retrieve the information and instructions in the English language.

(e) Each employee of the training school to whom a manual or appropriate portions of it are furnished under paragraph (c) of this section must keep it up to date with the changes and additions furnished to them.

Inspector Guidance: *reserved*

§ 144.53 Manual Contents.

(a) The training and procedures manual must contain at least the following information…..

(b) The training school must ensure that the training and procedures manual is amended as necessary to maintain current data.

(c) Copies of each amendment to the training and procedures manual must be furnished promptly to all persons to whom the manual has been issued.

Inspector Guidance: *reserved*

d. Quality Assurance System

§ 144.61 Quality Assurance System.

(a) Each holder of a certificate issued under this part must establish a quality assurance system acceptable to the President. Management personnel responsible for the implementation and maintenance of the quality assurance system must be identified by the training school.

(b) The quality assurance system must address…..

Inspector Guidance: *reserved*

§ 144.63 Quality of Training.

(a) When requested by the President, each holder of a certificate issued under this part must allow the GACA to administer any knowledge test, practical test, stage check, or end of course test as applicable to its students.

(b) When a stage check is administered by the GACA under the provisions of paragraph (a) of this section, and the student has not completed the training course, then that test will be based on the standards prescribed in the training school’s approved training course.

(c) When a practical test or knowledge test is administered by the GACA under the provisions of paragraph (a) of this section, to a student who has completed the school’s training course, that test will be based upon the areas of operation as prescribed in the applicable appendix to this part.

Inspector Guidance: *reserved*

e. Training Course Outline and Curriculum

§ 144.73 Approval Procedures for a Training Course: General.

(a) General. An applicant for a certificate issued under this part must obtain the President's approval of the outline of each training course for which the applicant seeks to obtain certification. The training of air traffic controllers must adequately prepare the student and/or trainee air traffic controllers for the grant of an ATC certificate and and/or associated rating(s). Such training must provide the necessary skills and knowledge to an appropriate level of competence to enable student or trainee air traffic controllers to provide air traffic control service while operating under the supervision of an ATCI.

(b) Application. An application for the initial approval of a training course or approval of an amended training course must be submitted in a form and manner acceptable to the President at least 30 working days before any training under that course, or any amendment thereto, is scheduled to begin.

(c) Training courses. An applicant for or holder of a training school certificate or provisional training school certificate issued under this part may request approval for the following training courses:…..

(d) Additional rules for Internet based training courses. An application for an initial or amended training course offered through an Internet based medium must comply with the following:...

Inspector Guidance: *reserved*

§ 144.75 Training Course: Contents.

(a) Each training course for which approval is requested must meet the minimum curriculum requirements in accordance with the appropriate appendix to this part.

(b) Each training course for which approval is requested must meet the minimum class training and, if applicable, practical training time requirements in accordance with the appropriate appendix to this part.
(c) Each training course for which approval is requested must contain…..

Inspector Guidance: *reserved*

f. Operating Rules

§ 144.95 Limitations.

(a) The holder of a certificate issued under this part may not issue a graduation certificate to a student, or recommend a student for an air traffic controller certificate or rating unless the student has—

(1) Completed the training specified in the school's course of training and

(2) Passed the required final tests.

(b) The holder of a certificate issued under this part may not graduate a student from a course of traini ng unless the student has completed all of the curriculum requirements of that course.

Inspector Guidance: *reserved*

§ 144.97 Maintenance of Personnel, Facilities, and Equipment.

The holder of a certificate issued under this part may not provide training to a student who is enrolled in an approved course of training unless…..

Inspector Guidance: *reserved*

§ 144.99 Satellite Base.

(a) Each holder of a certificate issued under this part may conduct training in accordance with an approved training course at a satellite base if…..

(b) Each holder of a certificate issued under this part conducting training in accordance with an approved training course at a satellite base must allow the President to inspect its personnel, facilities, equipment, and records at the satellite base.

Inspector Guidance: *reserved*

§ 144.101 Enrolment.

(a) Each holder of a certificate issued under this part must furnish, at the time a student is enrolled in anapproved training course, that student with a copy of the following:…..

(b) Each holder of a certificate issued under this part must maintain a current listing of persons enrolled in each training course offered by the school.

Inspector Guidance: *reserved*

§ 144.105 Graduation Certificate.

(a) Each holder of a certificate issued under this part must issue a graduation certificate to each student who completes an approved course of training.

(b) The graduation certificate must be issued to the student upon …..

(c) Graduation certificates issued from a course based on Internet media must be….

Inspector Guidance: *reserved*

g. Records

§ 144.113 Recordkeeping Requirements.

(a) Each holder of a certificate issued under this part must maintain a record for each student that contains…..

(b) Each holder of a certificate issued under this part must maintain the records required …..

(c) Each holder of a certificate issued under this part must, upon request, …..

Inspector Guidance: *reserved*

§ 144.115 Instructor Records.

Each holder of a certificate issued under this part must keep a current record of each instructor, must retain the record for at least 2 years after the instructor ceases to perform a function for the training school, and must make each record available for inspection by the President during that period……

Inspector Guidance: *reserved*

§ 144.117 Electronic Recordkeeping.

(a) No certificate holder may use an electronic signature for records requiring a certifying statement unless … .

(b) No certificate holder may use an electronic recordkeeping system for any record required by this part unless….

(c) Storage and Retrieval. A computer hardware and software system must…..

(d) Security. Any electronic recordkeeping system must…..

(e) Procedures. Before employing an electronic recordkeeping system, a certificate holder must ……

Inspector Guidance: *reserved*

h. Training Courses – Syllabus and Other

Appendix A: Basic ATC Certification Course

Appendix A. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section.

(b) Classroom training must include the following knowledge areas:……

Appendix A. III. Practical Training.

Each approved course must include not less than three months of practical training with the student engaged in the actual control of air traffic under the supervision of an appropriately rated air traffic controller instructor. The practical training requirements specified for other air traffic controller rating courses may be credited aspart of the practical training requirements specified in this paragraph.

Appendix A. IV. Stage Checks and End of Course Tests.

Each student enrolled in a basic air traffic controller certification course must satisfactorily accomplish the stage checks and end of course tests, in accordance with the school's approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performancerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix B: Aerodrome Control Rating Course

Appendix B. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section.

(b) Classroom training must include the following knowledge areas:…..

Appendix B. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified

air traffic controller instructor

(b) The training curriculum must include an aerodrome control service, for a period of not less than 90 hours orone month, whichever is greater, at the unit for which the rating is sought.

Appendix B. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks and end of course tests, in accordance with the school's approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performancerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix C: Approach Control Procedural Rating Course

Appendix C. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section.

(b) Classroom training must include the following knowledge areas:…..

Appendix C. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified air traffic controller instructor.

(b) The training curriculum must include an approach control procedural service for a period of not less than180 hours or three months, whichever is greater, at the unit for which the rating is sought.

Appendix C. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks and end of course tests, in accordance with the school's approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performancerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix D: Approach Control Surveillance Rating Course

Appendix D. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section. The applicant shall meet the requirements specified in (b)(1) thru (8) in so far as they affect the area of responsibility.

(b) Classroom training must include the following knowledge areas:…..

Appendix D. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified air traffic controller instructor.

(b) The training curriculum must include an approach control surveillance service for a period of not less than180 hours or three months, whichever is greater, at the unit for which the rating is sought.

(c) If the privileges of the approach control surveillance rating include surveillance radar approach duties, the experience must include not less than 25 plan position indicator approaches on the surveillance equipment of the type in use at the unit for which the rating is sought and under the supervision of an appropriately ratedcontroller.

Appendix D. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks and end of course tests, in accordance with the school’s approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performancerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix E: Approach Precision Radar Control Rating Course

Appendix E. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section. The applicant shall meet the requirements specified in (b)(1) thru (8) in so far as they affect the area of responsibility

(b) Classroom training must include the following knowledge areas:…..

Appendix E. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified air traffic controller instructor.

(b) The training curriculum must include not less than 200 precision approaches of which not more than 100 must have been carried out on a radar simulator approved for that purpose by the President. Not less than 50 of those precision approaches must have been carried out at the unit and on the equipment for which the rating issought.

Appendix E. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks and end of course tests, in accordance with the school's approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performancerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix F: Area Control Procedural Rating Course

Appendix F. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section.

(b) Classroom training must include the following knowledge areas:…..

Appendix F. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified air traffic controller instructor.

(b) The training curriculum must include an approach control procedural service for a period of not less than180 hours or three months, whichever is greater, at the unit for which the rating is sought.

Appendix F. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks and

end of course tests, in accordance with the school's approved training course. The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performa ncerequired to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix G: Area Control Surveillance Rating Course

Appendix G. II. Knowledge Training.

(a) Each approved course must include classroom training on the knowledge areas listed in paragraph (b) of this section. The applicant shall meet the requirements specified in (b)(1) thru (8) in so far as they affect the area of responsibility

(b) Classroom training must include the following knowledge areas:…..

Appendix G. III. Practical Training.

(a) Each approved course must include practical training for a student, under the supervision of a qualified air traffic controller instructor.

(b) The training curriculum must include an area control surveillance service for a period of not less than 180hours or three months, whichever is greater, at the unit for which the rating is sought.

Appendix G. IV. Stage Checks and End of Course Tests.

Each student enrolled in an aerodrome control rating course must satisfactorily accomplish the stage checks andend of course tests, in accordance with the school's approved training course.

The student must have demonstrated, at a level appropriate to the privileges being granted, the skill, judgment and performance required to provide a safe, orderly and expeditious control service, including the recognition and management of threats and errors.

Inspector Guidance: *reserved*

Appendix A

ATS Training Organisation - Certification Checklist

AIR TRAFFIC CONTROLLER SCHOOL (PART 144)

CERTIFICATION CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 144 with 64 and 171.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements					
	General Requirements				
1.1	Has the applicant established procedures and practices to allow the President to inspect its personnel, facilities, equipment, and records to determine the certificate holder's compliance with the GACAR at any time?	☐	☐	☐	8.7.1.2.1.a § 144.17
	Comments / Evidence				
1.2	Has the applicant demonstrated that each training room, training booth, or other space used for instructional purposes is heated, lighted, and ventilated to conform to local building, sanitation, and health codes?	☐	☐	☐	8.7.1.2.1.a § 144.19(a)(1)
1.3	Has the applicant demonstrated that the facilities used for instruction are not routinely subject to significant distractions caused by flight operations and maintenance operations at the aerodrome?	☐	☐	☐	8.7.1.2.1.a § 144.19(a)(2)
1.4	Does the applicant maintain a principal business office with a mailing address and the business name that will be or is shown on its certificate?	☐	☐	☐	8.7.1.2.1.a § 144.19(b)
1.5	Are the facilities and equipment at the principal business office adequate to maintain the files and records required under Part 144?	☐	☐	☐	8.7.1.2.1.a § 144.19(c)
1.6	Does the applicant conduct or intend to conduct training at an operations base other than its principal operations base in accordance with GACAR § 144.99?	☐	☐	☐	8.7.1.2.1.a § 144.19(e)
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.7	Does the applicant intend to contract with other persons to obtain suitable training devices or equipment as applicable?	☐	☐	☐	8.7.1.2.1.a § 144.21(a)
1.8	If the applicant is approved to conduct training toward a particular air traffic controller certificate and rating, do they intend to contract with another party to conduct part of the training required toward the same certificate and rating?	☐	☐	☐	8.7.1.2.1.a § 144.21(b)
1.9	Has the applicant provided assurance that if they contract with another party to provide training, that party may not authorize or permit a third party to conduct the training in whole or in part?	☐	☐	☐	8.7.1.2.1.a § 144.21(c)
1.10	Has the applicant provided assurance that they understand that if approved, they are responsible for the nature and quality of the instruction given?	☐	☐	☐	8.7.1.2.1.a § 144.21(d)
	Comments / Evidence				
	b. Personnel and Training Equipment Requirements				
1.11	Has the applicant appointed an accountable manager who has authority to ensure that all requirements of Part 144 are met by the school?	☐	☐	☐	8.7.1.2.1.b § 144.43(a)
1.12	Has the applicant employed sufficient personnel for ensuring compliance with the requirements of Part 144, including the planning, performance, and supervision of training to be conducted?	☐	☐	☐	8.7.1.2.1.b § 144.43(b)
	Comments / Evidence				
1.13	Does the applicant have and maintain, a sufficient number of instructors that are qualified in accordance with Part 144 to perform the duties to which they are assigned?	☐	☐	☐	8.7.1.2.1.b § 144.45(a)

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1.14	Does the applicant maintain a list of the names and qualifications of qualified instructors, and have they established procedures to ensure that, upon request, they can provide a copy of the list to the President?	☐	☐	☐	8.7.1.2.1.b § 144.45(a)
1.15	If applicable, does the applicant have and maintain, a sufficient number of air traffic controller instructors certificated under GACAR Part 64 in order to supervise student ATCO controllers while they provide an ATC service for which they do not hold a valid certificate or rating?	☐	☐	☐	8.7.1.2.1.b § 144.45(b)
1.16	If applicable, does the applicant maintain a list of the names and qualifications of qualified air traffic controller instructors, and have they established procedures to ensure that upon request, they can provide a copy of the list to the President?	☐	☐	☐	8.7.1.2.1.b § 144.45(b)
	Comments / Evidence				
1.17	Has the applicant developed and provided procedures to ensure instructors receive initial and recurrent training appropriate to their responsibilities?	☐	☐	☐	8.7.1.2.1.b § 144.47
1.18	Has the applicant ensured that training in knowledge and skills related to human factors principles is included in both initial and recurrent instructor training?	☐	☐	☐	8.7.1.2.1.b § 144.47
1.19	Has the applicant developed procedures to ensure that all training courses will indicate the amount of training, if any, that will be conducted on a simulator?	☐	☐	☐	8.7.1.2.1.b § 144.49
1.20	If applicable, has the applicant's simulator must been approved by the President in coordination with the ATC Unit, as part of the course approval process?	☐	☐	☐	8.7.1.2.1.b § 144.49
1.21	Has the applicant demonstrated how the simulator and the associated exercises will provide adequate support for the particular training plan?	☐	☐	☐	8.7.1.2.1.b § 144.49

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	Comments / Evidence				
	c. Manual Requirements				
1.22	Has the applicant prepared and/or does the applicant maintain a training and procedures manual, acceptable to the President, for the use of the school's personnel?	☐	☐	☐	8.7.1.2.1.c § 144.51
1.23	Has the applicant developed and implemented procedures and practices to ensure that the policies and procedures contained in the manual are not contrary to any applicable GACAR?	☐	☐	☐	8.7.1.2.1.c § 144.51(a)
1.24	Does the applicant maintain at least one copy of the manual at each operations base at which it conducts training?	☐	☐	☐	8.7.1.2.1.c § 144.51(b)
1.25	Does the applicant ensure that a copy of the manual, or the appropriate portions of the manual, is made available to personnel and furnished to its instructors and any representatives of GACA assigned to the training school?	☐	☐	☐	8.7.1.2.1.c § 144.51(c)
1.26	Does the applicant provide the persons who should have a copy of its manual with that manual either in printed form or other form, acceptable to the President, which is retrievable in the English language?	☐	☐	☐	8.7.1.2.1.c § 144.51(d)
1.27	Does the applicant ensure that each employee of the training school to whom a manual or appropriate portions of it are furnished keep it up to date with the changes and additions furnished to them?	☐	☐	☐	8.7.1.2.1.c § 144.51(e)
	Comments / Evidence				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1.28	Does the applicant's training and procedures manual contain at least the following information: (1) A general description of the scope of training authorized under the training school's certificate and operations specifications? (2) Copies of the certificate holder's operations specifications or appropriate extracted information? (3) The content of the training programs offered including the courseware and training equipment to be used? (4) A description of the quality assurance system required under Subpart D of Part 144? (5) A description of the training school's facilities? (6) A description of the duties and qualifications of the personnel designated as responsible for planning, performing, and supervising training? (7) A description of the procedures used by the training school to establish and maintain the competence of its instructors? (8) A description of the method used for the completion and retention of training and qualification records under Subpart G of Part 144? (9) A training program to ensure that all instructors receive initial and recurrent training appropriate to assigned tasks and responsibilities. The training must include knowledge and skills related to human factors? (10) Procedures for revising the training and procedures manual required under this section to maintain current data?	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐ (7) ☐ (8) ☐ (9) ☐ (10) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐ (7) ☐ (8) ☐ (9) ☐ (10) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐ (7) ☐ (8) ☐ (9) ☐ (10) ☐	8.7.1.2.1.c § 144.53(a)
1.29	Has the applicant developed and implemented procedures and practices to ensure that the training and procedures manual is amended as necessary to maintain current data.	☐	☐	☐	8.7.1.2.1.c § 144.53(b)
1.30	Has the applicant developed and implemented procedures and practices to ensure that copies of each amendment to the training and procedures manual are furnished promptly to all persons to whom the manual has been issued?	☐	☐	☐	8.7.1.2.1.c § 144.53(c)
	Comments / Evidence				

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	d. Quality Management System				
1.31	Has the applicant established a quality assurance system acceptable to the President?	☐	☐	☐	8.7.1.2.1.d § 144.61(a)
1.32	Has the applicant identified management personnel responsible for the implementation and maintenance of the quality assurance system?	☐	☐	☐	8.7.1.2.1.d § 144.61(a)
1.33	Does the applicant's quality assurance system address— (1) Conduct and effectiveness of all training programs? (2) Compliance and adequacy of curriculums? (3) Conformity and security of the training school's recordkeeping system? (4) Adequacy of facilities and equipment? (5) Qualifications, eligibility, and ability of instructors? (6) Effectiveness of management, including delegation of authority and responsibility?	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐	(1) ☐ (2) ☐ (3) ☐ (4) ☐ (5) ☐ (6) ☐	8.7.1.2.1.d § 144.61(b)
1.34	Has the applicant developed and implemented procedures and practices to allow GACA to administer any knowledge test, practical test, stage check, or end of course test as applicable to its students?	☐	☐	☐	8.7.1.2.1.d § 144.63(a)
	Comments / Evidence				
	e. Training Course Outline and Curriculum				
1.35	Has the applicant established procedures to ensure that an application for the initial approval of a training course or approval of an amended training course will be submitted in a form and manner acceptable to the President at least 30 working days before any training under that course, or any amendment thereto, is scheduled to begin?	☐	☐	☐	8.7.1.2.1.e § 144.73(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.36	Is the applicant requesting approval for, or do they intend to provide, any of the following training courses: (1) Basic air traffic controller certification course? (2) Aerodrome control rating course? (3) Approach control procedural rating course? (4) Approach control surveillance rating course? (5) Approach precision radar control rating course? (6) Area control procedural rating course? (7) Area control surveillance rating course? (8) Air traffic controller instructor course?	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐ (6)☐ (7)☐ (8)☐	8.7.1.2.1.e § 144.73(c)
1.37	If the applicant intends to offer an Internet based training course, does it comply with all of the requirements specified at GACAR 144.73(d)?	☐	☐	☐	8.7.1.2.1.e § 144.73(d)
1.38	Does each training course for which approval is requested meet the minimum curriculum requirements in accordance with the appropriate appendix Part 144?	☐	☐	☐	8.7.1.2.1.e § 144.75(a)
1.39	Does each training course for which approval is requested meet the minimum class training and, if applicable, practical training time requirements in accordance with the appropriate appendix to Part 144?	☐	☐	☐	8.7.1.2.1.e § 144.75(b)
1.40	Does each training course for which approval is requested contain— (1) A description of each room used for classroom training, including the room's size and the maximum number of students that may be trained in the room at one time, unless the course is provided via an Internet based training medium; (2) A description of each type of audiovisual aid, projector, tape recorder, mockup, chart, and other special training aid used for class training; (3) A description of each simulator training device used for training, if applicable; (4) The minimum qualifications for each instructor assigned to classroom or, if applicable, practical training; and (5) A training syllabus that includes the following information: (i) The prerequisites for enrolling in the classroom and, if applicable, practical portion of the course that includes training, experience, and knowledge; (ii) A detailed description of each lesson, including the lesson's objectives, standards, and planned time for completion; (iii) A description of what the course is expected to accomplish with regard to student learning;	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	(1)☐ (2)☐ (3)☐ (4)☐ (5)☐	8.7.1.2.1.e § 144.75(c)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
	(iv) The expected accomplishments and the standards for each stage of training; and (v) A description of the checks and tests to be used to measure a student's accomplishments for each stage of training.				
	Comments / Evidence				
	f. Operating Rules				
1.41	Has the applicant developed and published procedures to ensure that they do not issue a graduation certificate to a student, or recommend a student for an air traffic controller certificate or rating unless the student has completed the training specified in the school's course of training and passed the required final tests?	☐	☐	☐	8.7.1.2.1.f § 144.95(a)
1.42	Has the applicant developed and published procedures to ensure that they do not graduate a student from a course of training unless the student has completed all of the curriculum requirements of that course?	☐	☐	☐	8.7.1.2.1.f § 144.95(b)
1.43	Has the applicant developed and published procedures to ensure that they do not provide training to a student who is enrolled in an approved course of training unless— (a) The training equipment and facilities necessary for that training meet the standards specified in the holder's approved training course outline and the appropriate requirements of this part? and (b) The management personnel and instructors meet the qualifications specified in the holder's approved course of training and the appropriate requirements of this part?	(a) ☐ (b) ☐	(a) ☐ (b) ☐	(a) ☐ (b) ☐	8.7.1.2.1.f § 144.97
1.44	If the applicant intends to conduct training in accordance with an approved training course at a satellite base, does it comply with the requirements of GACAR Part 144.99(a)?	☐	☐	☐	8.7.1.2.1.f § 144.99(a)
1.45	Has the applicant established procedures to allow the President to inspect its personnel, facilities, equipment, and records at the satellite base?	☐	☐	☐	8.7.1.2.1.f § 144.99(b)

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.46	Has the applicant established procedures to ensure it will issue an enrolment certificate and training syllabus as specified in GACAR Part 144.101(a)?	☐	☐	☐	8.7.1.2.1.f § 144.101(a)
1.47	Has the applicant established procedures to ensure it will maintain a current listing of persons enrolled in each training course offered by the school?	☐	☐	☐	8.7.1.2.1.f § 144.101(b)
1.48	Has the applicant established procedures to ensure it issues graduation certificates in accordance with the requirements of GACAR Part 144.105?	☐	☐	☐	8.7.1.2.1.f § 144.105
	Comments / Evidence				
	g. Records				
1.49	Has the applicant developed and implemented procedures to ensure that it maintains a record for each student in compliance with the requirements of GACAR Part 144.113(a)?	☐	☐	☐	8.7.1.2.1.g § 144.113(a)
1.50	Has the applicant developed and implemented procedures to ensure that it maintain the records for at least 2 years following the completion of training, testing or checking?	☐	☐	☐	8.7.1.2.1.g § 144.113(b)
1.51	Has the applicant developed and implemented procedures to ensure that it can, upon request, provide the records required to the President, and must keep the records required at the training school or satellite base where the training, testing, or checking, if appropriate, occurred and the instructor is primarily employed?	☐	☐	☐	8.7.1.2.1.g § 144.113(c)
1.52	Has the applicant developed and implemented procedures to ensure it can provide to a student, upon request, a copy of his training records?	☐	☐	☐	8.7.1.2.1.g § 144.113(d)
1.53	Has the applicant developed and implemented procedures to ensure it keeps a current record of each instructor, and retains the record for at least 2 years after the instructor ceases to perform a function for the training school, and can make each record available for inspection by the President during that period?	☐	☐	☐	8.7.1.2.1.g § 144.115

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.54	If applicable, has the applicant developed procedures relating to electronic record keeping that comply with the requirements of GACAR Part 144.117?	☐	☐	☐	8.7.1.2.1.g § 144.117
	Comments / Evidence				
	h. Training Courses				
1.55	If the applicant intends to deliver the Basic ATC Certification Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix A, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App A
1.56	If the applicant intends to deliver the Aerodrome Control Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix B, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App B
1.57	If the applicant intends to deliver the Approach Control Procedural Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix C, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App C
1.58	If the applicant intends to deliver the Approach Control Surveillance Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix D, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App D

	Audit Questionnaire	Yes	No	N/A	Reference *TGM/GACAR*
1.59	If the applicant intends to deliver the Approach Precision Radar Control Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix E, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App E
1.60	If the applicant intends to deliver the Area Control Procedural Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix F, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App F
1.61	If the applicant intends to deliver the Area Control Surveillance Rating Course, does that course meet all of the requirements specified in GACAR Part 144 Appendix G, including: a. Knowledge Training? b. Practical Training? and c. Stage Checks and End of Course Checks?	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	(a) ☐ (b) ☐ (c) ☐	8.7.1.2.1.h § 144 App G
	Comments / Evidence				

Assessment conducted by:

	Name	Signature	Date
Certification Team Leader			
Team Member			
Team Member			
Team Member			

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 7. AIR TRAFFIC CONTROL TRAINING ORGANISATIONS

Section 2. Regulatory Oversight of ATS-related Training Organisations

8.7.2.1 General Information

8.7.2.1.1 This section provides information for ANS Safety Oversight inspectors in conducting ongoing regulatory compliance and safety oversight audits on ATS-Related Training Organisations (Air Traffic Controller (ATC) Schools) after they have been certified. The audits may also be applied in the re-certification of ATS service providers at or near expiry of their certification period.

8.7.2.1.2 The main reference document for audits of ANS providers including ATC Schools is Chapter 8.0.3 of this document – ANS Safety Oversight Audits. Chapter 8.0.3 establishes the generic audit protocol and procedures to be applied by ANS Safety Oversight inspectors in preparing for audits, conducting audits, and the follow-up processes.

8.7.2.1.3 Chapter 8.0.3 also includes the audit report forms and audit findings forms.

8.7.2.1.4 Chapter 8.0.3 requires that an audit checklist be created so that there is a formal schedule of questions that will be asked, or areas of compliance that will be examined.

8.7.2.1.5 The certification checklist responses and associated Operations Manual documentation that was approved as part of the certification form the basis of regulatory oversight of ATC Schools. As such, the main audit checklist that should be used as the basis of a regulatory oversight audit must be either the original certification checklist (in the case of the first post certification audit) – or the checklist from the last audit.

8.7.2.1.6 The reason for this is that in order to obtain certification, the ATC School was required to demonstrate full compliance with GACARs and other requirements that may have been imposed by the President.

8.7.2.1.7 In order to retain their certification, the ATC School needs to clearly demonstrate that their standard of compliance has not fallen, and preferably has improved (for example, compliance with SMS, or documentation or quality management requirements where some flexibility may have been applied).

8.7.2.1.8 The ANS Safety Oversight office will not have sufficient resource to conduct the same level of audit as a certification audit every time an ongoing audit is required. So, ANS Safety Oversight inspectors need to choses the questions and audit areas carefully so that they are able to get a good understanding of the level of compliance

without looking at every part of the ATS School's organisation.

8.7.2.1.9 Chapter 8.0.3 provides information on how an inspector should determine the areas that need to be audited.

8.7.2.2 Audit Checklist

8.7.2.2.1 The template at Appendix A should be used to record the questions that are asked during an audit and the adequacy of the responses. The questions should be taken from the original certification audit checklist.

8.7.2.2.2 Additional questions can be created based on past audits, or safety reports – but they should always be cross-referenced to a regulation requirement in GACARs or an ICAO SARP.

Appendix A

ATS Training Organisation – Audit Checklist

AIR TRAFFIC CONTROLLER SCHOOL (PART 144)

AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	

	FINDING	
This assessment for initial certification or renewal of certification has been completed against the requirements of GACAR Part 144 with 64 and 171.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(and as appropriate)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. General Requirements					
	General Requirements				
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

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CHAPTER 7. AIR TRAFFIC CONTROL TRAINING ORGANISATIONS

Section 3. Approval of ATS-related Training Courses

8.7.3.1 General Information

8.7.3.1.1 Reserved

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CHAPTER 7. AIR TRAFFIC CONTROL TRAINING ORGANISATIONS

Section 4. Reserved

8.7.4.1 General Information

8.7.4.1.1 Reserved

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CHAPTER 8. AIRSPACE MANAGEMENT

Section 1. Guidelines for Assessment of Airspace and Air Route Amendment Proposals

8.8.1.1 General Information

8.8.1.1.1 Reserved

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CHAPTER 8. AIRSPACE MANAGEMENT

Section 2. Guidelines for Assessment of Special Use Airspace Proposals

8.8.2.1 General Information

8.8.2.1.1 Reserved

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CHAPTER 8. AIRSPACE MANAGEMENT

Section 3. Reserved

8.8.3.1 General Information

8.8.3.1.1 Reserved

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CHAPTER 9. OBSTACLE EVALUATION

Section 1. Guidelines Relating to the Safeguarding of Airspace Near Aerodromes

8.9.1.1 General Information

8.9.1.1.1 Reserved

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CHAPTER 9. OBSTACLE EVALUATION

Section 2. Procedures for the Evaluation of Obstacles or Structures

8.9.2.1 General Information

8.9.2.1.1 Reserved

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CHAPTER 9. OBSTACLE EVALUATION

Section 3. Authorisation and Audit of Obstacle Assessment Service Providers

8.9.3.1 General Information

8.9.3.1.1 GACAR Part 183 specifically provides that the President may designate a person to assess obstacles under the provisions of GACAR Part 77, under certain conditions. Part 183.41 states:

§ 183.41 Designated Obstacle Assessors.

Subject to the privileges and limitations prescribed on the certificate of designation, a designated obstacle assessor may-

(a) Conduct assessments in accordance with the provisions of GACAR Part 77 to determining whether or not a proposed obstacle or structure will infringe a published obstacle limitation surface. Published obstacle limitat ion surface areas include municipal zoning charts.

(1) Where it is determined that a proposed obstacle will not infringe a published obstacle limitation surface, the designated person may make a Determination of No Hazard to Air Navigation. A copy of that determination must be forwarded to the President.

(2) Where it is determined that a proposed obstacle will infringe a published obstacle limitation surface, and the proponent of the obstacle or structure is desirous of proceeding with the construction, the designated person must forward the proposal to the President for further assessment and determination.

(b) Perform authorized functions at any authorized location.

8.9.3.1.2 The requirements applying to obstacle assessors approved under Part 183.41, and the method for applying for the designation as an obstacle assessor, are contained in Advisory Circular AC 183.02.

8.9.3.1.3 This section provides guidance for ANS Oversight inspectors on the assessment of applications for approval as a designated obstacle assessor.

8.9.3.2 Regulatory Requirements

8.9.3.2.1 The following extract from AC 183.02 contains the requirements and conditions applicable:

2.2 Scope of Authorisation

2.2.1 Obstacle assessments conducted under the provisions of GACAR Part 183.41 will initially be limited to determining whether or not a proposed obstacle or obstruction will infringe a published obstacle limitation surface. Published obstacle limitation surface areas include municipal zoning charts.

2.2.2 Where it is determined that a proposed obstacle or obstruction will not infringe a published obstacle limitation surface, the authorized person may make a Determination of No Hazard to Air Navigation. A copy of that determination must be forwarded to the President.

2.2.3 Where it is determined that a proposed obstacle or obstruction will infringe a published obstacle limitation surface, the authorized person must forward the proposal to the President for further assessment and determination.

Inspector Guidance: *The intent of the designation by the President is to approve the general assessment of obstacles against the Obstacle Limitation Surface (OLS) around aerodromes in KSA to determine if they infringe. The OLS is the 'first line of defence' for protection of navigable airspace around an aerodrome. If an object or obstacle infringes/penetrates this protection layer, it does not mean they are unacceptable – but more detailed studies need to be conducted. An obstacle or structure may penetrate the OLS but may be clear of the instrument procedure protected areas for an airport – so may be permitted with certain conditions. The President's designation under Part 183 does not allow the assessor to go further than a simple assessment against the OLS*. If an obstacle or obstruction does not infringe the OLS the assessor can make a determination to that effect – i.e., Determination of No Hazard to Air Navigation.*

*(*Note: it is possible that the approval to conduct more detailed assessments may be extended to an assessor at some later point in time – but this would require a change to Part 183)*

2.3 Applications

2.3.1 An application may be made by a suitably qualified person. A suitably qualified person must demonstrate the competencies listed in 2.4.

2.3.2 The application, in writing, must include:

The name of the person

Details of the person' relevant qualifications and experience;

Details of how the person intends to meet the required competencies in 2.4 below.
Inspector Guidance: An application form (183_02) has been developed. The applicant should fill in this application form and submit to GACA, along with evidence of competencies. A fee may be associated with consideration of the application.

2.4 Required Competencies

2.4.1 GACA will assess the applicant's qualifications & experience in the following areas:

A. Fitness to Perform Duties – Regulatory Compliance

1. Record of compliance with regulatory requirements (in Saudi Arabia or elsewhere) relating to aviation safety and other transport safety;

2. Demonstrated attitude towards compliance with regulatory requirements (in Saudi Arabia or elsewhere) relating to aviation safety and other transport safety;

3. Knowledge of the appropriate regulatory requirements applicable to civil aviation in Saudi Arabia;

4. Any evidence held by GACA that the applicant has contravened:

The Saudi Arabia Civil Aviation Law or Civil Aviation Regulations; or

A law of another country relating to aviation safety; or

Another law (of Saudi Arabia or of another country) relating to transport safety;

5. Any other matter relating to the fitness of the applicant to hold the authorisation.

Inspector Guidance: *The core issue to be considered here by an inspector are whether or not the applicant can demonstrate that they have the correct attitude to safety, and that they do not have a history of non -compliance with regulations or the law – either in KSA or in another State. The reason is that the applicant, if granted an approval, will be a 'Representative of the President' under the provisions of Part 183. This is an important designation, and the person approved should be a fit person to represent the President.*

B. Relevant Experience and Knowledge

1. Evidence of experience in obstacle and obstruction assessment at or around aerodromes, either in Saudi Arabia or elsewhere.

2. Demonstrated understanding of relevant GACA Regulations and associated legislation having regard to the purpose of obstacle and obstruction assessment – in particular Part 77 and Part 139.

3. Detailed knowledge of the principles and practice of obstacle assessment in accordance with the rules contained in ICAO Annex 14 and associated documents is required.

4. Demonstrated knowledge of other pertinent ICAO documents relating to protection of navigable airspace in the vicinity of airports is desirable.

5. An understanding of the requirement to communicate safety related matters to GACA.

Inspector Guidance: *reserved*

2.4.2 In addition, the applicant must provide evidence of:

1. a quality management system designed to ensure that obstacle assessments are based on current information and are conducted in accordance with current standards; and

2. a document management system designed to ensure that documentation relating to assessments and determinations are retained for a minimum of 5 years.

Inspector Guidance: *reserved*

Appendix A

Obstacle Assessor - Checklist

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CHAPTER 9. OBSTACLE EVALUATION

Section 4. Reserved

8.9.4.1 General Information

8.9.4.1.1 Reserved

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CHAPTER 10. AIR NAVIGATION REGISTER

Section 1. Procedures for the Developmentand Maintenance of the Air Navigation Register

8.10.1.1 General Information

8.10.1.1.1 Reserved

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CHAPTER 10. AIR NAVIGATION REGISTER

Section 2. Reserved

8.10.2.1 General Information

8.10.2.1.1 Reserved

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 1. ANS Safety Management System Evaluation Guidelines

8.11.1.1 General Information

8.11.1.1.1 Reserved

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 2. ANS Change Management System Evaluation Guidelines

8.11.2.1 General Information

8.11.2.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 3. ANS Risk Management Tools and Techniques

8.11.3.1 General Information

8.11.3.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 4. Quality Management System Evaluation Guidelines

8.11.4.1 General Information

8.11.4.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 5. Guidelines for Assessment of ANS Safety Case Including ALARP

8.11.5.1 General Information

8.11.5.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 6. Procedures for the Management of Incident Reports

8.11.6.1 General Information

8.11.6.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 7. Procedures for the Management of Incident Investigation Reports

8.11.7.1 General Information

8.11.7.1.1 The purpose of this chapter is to

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CHAPTER 11. ANS SAFETY AND QUALITY MANAGEMENT EVALUATION GUIDELINES

Section 8. Reserved

8.11.8.1 General Information

8.11.8.1.1 Reserved

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CHAPTER 12. ANS – GENERAL PROCEDURES

Section 1. Guidelines Relating to Secondment of Staff for Regulatory Oversight Duties

8.12.1.1 General Information

8.12.1.1.1 The purpose of this chapter is to

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 12. ANS – GENERAL PROCEDURES

Section 2. Procedures for the Evaluation of ANS Operations Manuals

8.12.2.1 General Information

8.12.2.1.1 The purpose of this chapter is to

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 12. ANS – GENERAL PROCEDURES

Section 3. Procedures for the Assessment of ANS Senior Operational Staff

8.12.3.1 General Information

8.12.3.1.1 The purpose of this chapter is to

VOLUME 8. AIR NAVIGATION SERVICES - AUTHORIZATION & ADMINISTRATION

CHAPTER 12. ANS – GENERAL PROCEDURES

Section 4. Procedures for the Assessment of an ANS Security Program

8.12.4.1 General Information

8.12.4.1.1 This section provides guidance to ANS Safety Oversight inspectors in assessing a security program proposed by, or operated by an ANS provider, where required. The security program is not directly related to the general security subject of unlawful interference – this should be addressed by an ANS provider in other compliance areas. The ANS Security Program is related to the protection of personnel and operational assets against security threats or actions which could jeopardise the safe operation of the ANS system.

8.12.4.1.2 An ANS security program is about safeguarding of the ATM (Air Traffic Management) System from security threats and vulnerabilities, by ensuring the security and resilience of the physical infrastructure, personnel, information and communication systems, ATM/CNS infrastructure and networks.

8.12.4.1.3 A security program should specify the physical security measures, and the procedures to be followed for the purpose of:

(a) preventing and detecting intentional and unintentional damage to any personnel, facility or equipment used by the provider in providing an air navigation service;

(b) responding to a threat of intentional and unintentional damage to a facility or equipment used by the provider in providing an air navigation service; and

(c) preventing unauthorised people from having access to any facility or equipment used by the provider in providing an air navigation service.

8.12.4.2 Regulatory Requirements and International Standards

8.12.4.2.1 GACAR Part 170 requires that Air Traffic Service certificate holders (Part 171) and Aeronautical Telecommunication Service certificate holders (Part 173) must have in place a security program. The extract from Part 170 below is relevant:

§ 170.9 Security Program.

(a) Certificate holders authorized to conduct operations under GACAR Part 171 or 173 must have, and put into effect, a security program that is acceptable to the President and that sets out the procedures designed to protect its personnel, and any facility and equipment that it uses, in providing any of its services.

(b) A person applying to the President for an ANSC to provide air navigation services under GACAR Part 171 or 173 must demonstrate, as part of the application process under GACAR § 170.25, that it has a security program that is acceptable to the President.

8.12.4.2.2 ICAO is generally silent on the issue of ANS security (other than unlawful interference) – however, Annex 17 make the following recommendations:

Inspector Guidance: *Whilst landside generally refers to a portion of the airport, in the context of ANS security it can relate to facilities located at a distance from an airport – so Annex 17 can be interpreted as applying to distributed ANS facilities*

Extract from ICAO Annex 17

4.8 Measures relating to the landside

Recommendation. — Each Contracting State should ensure that security measures in landside areas are established to mitigate possible threats of acts of unlawful interference in accordance with a risk assessment carried out by the relevant authorities.

4.9 Measures relating to cyber threats

Recommendation. — Each Contracting State should develop measures in order to protect information and communication technology systems used for civil aviation purposes from interference that may jeopardize the safety of civil aviation.

8.12.4.2.3 The Eurocontrol Manual for National ATM Security Oversight (Edition 1.0 – 10 October 2012 – Ref DSS/CM/SEC/DEL/12-044) provides general guidance on requirements for security assessment of ATM systems. While the primary focus is audit and oversight by security authorities, there are aspects that can be audited by ANS Safety Oversight inspectors as part of the certification or compliance audit process.

8.12.4.2.4 Eurocontrol guidance on certification requirements for ANSPs (Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013) includes the following recommendations:

Air navigation service providers shall establish a security management system to ensure:

(a) the security of their facilities and personnel so as to prevent unlawful interference with the provision of air navigation services;

(b) the security of operational data they receive or produce or otherwise employ, so that access to it is restricted only to those authorised.

The security management system shall define:

(a) the procedures relating to security risk assessment and mitigation, security monitoring and improvement, security reviews and lesson dissemination;

(b) the means designed to detect security breaches and to alert personnel with appropriate security warnings;

(c) the means of containing the effects of security breaches and to identify recovery action and mitigation procedures to prevent reoccurrence.

Air navigation service providers shall ensure the security clearance of their personnel, if appropriate, and coordinate with the relevant civil and military authorities to ensure the security of their facilities, personnel and data.

The safety, quality and security management systems may be designed and operated as an integrated management system.

8.12.4.2.5 The questions in the audit checklist at Appendix A are designed to find out the level of commitment of an applicant or certificate holder to security of air navigation services. Specific security auditing should be conducted by the aviation security (AvSec) division, GACA.

Inspector Guidance: *In the absence of direct regulatory requirements other than a need to have a security program in place, it is difficult for an inspector to make an absolute assessment about an applicant's program. The questions in the checklist are designed to assist an inspector in making a considered judgment about the applicant's program. The inspector should also seek guidance from the GACA Aviation Security division.*

Appendix A

ANS Security Program Assessment Checklist

ANS SECURITY PROGRAM ASSESSMENT

CERTIFICATION/AUDIT CHECKLIST

ORGANISATION	
DATE OF ASSESSMENT	
ASSESSMENT REFERENCE NUMBER	
Type of Assessment	Certification ☐ Audit ☐

	FINDING	
This assessment for initial certification or compliance auditing purposes been completed against the requirements of GACAR Part 170.	**Satisfactory**	☐
	Unsatisfactory	☐
	Information Required	☐

	Name	**Signature**	**Date**
Compliance Assessment Completed			
Technical Assessment Completed			
Demonstration(s) Completed			
If Assessment Satisfactory *(complete as applicable)*			
Recommended for Approval			
Operations Specifications Completed			
Certificate Completed			

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
1. Regulatory Requirements					
	Regulatory Requirements				
1.1	Does the applicant a security program that sets out the procedures designed to protect its personnel, and any facility and equipment that it uses, in providing any of its services?	☐	☐	☐	8.12.4.2.1 §170.9
	Comments				
2. Guidance Questions					
	ICAO Annex 17				
2.1	Does the applicant's security program establish measures to mitigate possible acts of unlawful interference? *(Ref: ICAO Annex 17 4.8)*	☐	☐	☐	8.12.4.2.2 n/a
2.2	Does the applicant's security program include measures to protect information and communication technology systems used for civil aviation purposes from interference that may jeopardize the safety of civil aviation? *(Ref: ICAO Annex 17 4.9)*	☐	☐	☐	8.12.4.2.2 n/a
	Comments				
	Eurocontrol				
2.3	Is the applicant's security program designed to ensure the security of their facilities and personnel so as to prevent unlawful interference with the provision of air navigation services? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
	Comments				

Audit Questionnaire		Yes	No	N/A	Reference *TGM/GACAR*
2.4	Is the applicant's security program designed to ensure the security of operational data they receive or produce or otherwise employ, so that access to it is restricted only to those authorised? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
	Comments				
2.5	Does the applicant's security management system define the procedures relating to security risk assessment and mitigation, security monitoring and improvement, security reviews and lesson dissemination? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
2.6	Does the applicant's security management system define the means designed to detect security breaches and to alert personnel with appropriate security warnings? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
2.7	Does the applicant's security management system define the means of containing the effects of security breaches and to identify recovery action and mitigation procedures to prevent re-occurrence? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
	Comments				
2.8	Does the applicant's security management system ensure the security clearance of their personnel, if appropriate? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
2.9	Does the applicant's security management system ensure coordination with the relevant civil and military authorities to ensure the security of their facilities, personnel and data? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a
2.10	Has the applicant integrated their security management system with their Safety Management System and/or their Quality Management System? *(Ref: Guidelines for NSAs for the Development of the ANSP Certification Process – Edition 4 – June 2013)*	☐	☐	☐	8.12.4.2.4 n/a

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CHAPTER 12. ANS – GENERAL PROCEDURES

Section 5. Reserved

8.12.5.1 Reserved

8.12.5.1.1 Reserved