

PART 171

Aeronautical Telecommunications Facilities

This part of Jordanian Civil Aviation Regulations is hereby adopted under the authority and provisions of the Civil Aviation Law No. (41) dated 2007.



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**Subpart- A
General**

- 171.1 [Applicability.](#)
- 171.3 [Reserved .](#)
- 171.5 [Certification Requirements.](#)
- 171.7 [Applications for an approval.](#)
- 171.9 [Grant of a certificate.](#)
- 171.11 [Changes to Aeronautical Telecommunication Provision.](#)
- 171.13 [Duration of Certificate.](#)
- 171.15 [Renewal certificate.](#)
- 171.17 [Certificate comes into effect.](#)
- 171.19 [CARC authority to vary condition of approval.](#)
- 171.21 [Suspension, cancellation and revoke of certification.](#)
- 171.23 [Notice to certificated service provider to show cause.](#)
- 171.25 [Grounds for cancellation of certificate.](#)
- 171.27 [Cancellation of certificate after the statement notice.](#)
- 171.29 [Cancellation at request of service provider.](#)
- 171.31 [CARC authority to direct variation of manual.](#)
- 171.33 [Return of certificate if ceases.](#)

[171.35-171.43 Reserved.](#)

**Subpart - B
Certification Requirements**

- 171.45 [Organizational Structure and Management.](#)
- 171.47 [Personnel Requirements.](#)
- 171.49 [Training Requirements.](#)
- 171.51 [Periodic inspection and testing.](#)
- 171.53 [Aeronautical facility requirements.](#)
- 171.55 [Human Resource](#)
- 171.57 [Reports and records.](#)
- 171.59 [Reserved](#)
- 171.61 [Submission of requests.](#)
- 171.63 [Service provision.](#)
- 171.65 [Changes to service provision by service provider.](#)
- 171.67 [Changes to operations manual by service provider.](#)
- 171.69 [Agreements with other bodies.](#)

- 171.71 [Test transmissions.](#)
- 171.73 [Audit and Inspections.](#)
- 171.75 [Post-accident performance inspection.](#)
- 171.77 [Notification of aeronautical facility information](#)
- 171.79 [Interruption to service.](#)
- 171.81 [Aeronautical facility check after accident or incident](#)
- 171.83 [Facility malfunction incidents](#)
- 171.85 [Equipment, tools and material](#)
- 171.87 [Documents and records.](#)
- 171.89 [Automatically Recording system](#)
- [171.91-171.99 Reserved](#)

Subpart C

Aeronautical Facility requirements

- 171.101 [Scope.](#)
- 171.103 [Requests for IFR procedure approval.](#)
- 171.105 [Requirements for Aeronautical facility certification.](#)
- 171.107 [Performance requirements.](#)
- 171.109 [Installation requirements.](#)
- 171.111 [Maintenance and operations requirements.](#)
- [171.113-171.119 Reserved](#)

Subpart D

General requirements

- 171.121 [Safety Management System](#)
- 171.123 [Quality Management System](#)
- 171.125 [Quality of Service.](#)
- 171.127 [Internal quality assurance](#)
- 171.129 [Security programme.](#)

**Subpart- A
General**

171.1 Applicability.

(a) This Part sets out:

(1) The requirements for a person to be certificated as an Air Navigation service provider that provide, operate and maintain Aeronautical Telecommunication service used for Air Traffic Services; and

(2) Operational and technical standards for the Aeronautical Telecommunications services, Aeronautical facilities; and

(b) However, this Part does not apply to:

(1) A person who is providing an aeronautical telecommunication service in the course of his duties for the Jordan Armed Force; or

(2) Any aeronautical telecommunication service provided by the Jordan Armed Force.

171.3 Reserved.

171.5 Certification Requirements.

(a) CARC shall designee an Aeronautical Telecommunication service provider holding a valid certificate separated from CARC as minimum at functional level, to ensure the provision of Aeronautical Telecommunication services on an exclusive basis within Amman FIR.

(b) Any certified Aeronautical Telecommunication Service provider who operates any equipment that is part of an Air Navigation service system referred to in Annex 10 as amended to the Chicago Convention shall ensure that:

(1) The System is installed, maintained and operated in accordance with the standards specified in Annex 10 as amended to the Convention; and

(2) Documentation is maintained, that shows the compliance with the standards referred to in paragraph (a) in this part.

171.7 Applications for an approval.

(a) An application for Aeronautical Telecommunication Service provider certificate, shall be in writing, using the appropriate CARC Form 172.2001 in Appendix A and shall include:

- (1) The applicant's name and address;
- (2) A statement, prepared, showing each kind of telecommunication service for which the application is being made;
- (3) A statement of the intended location and coverage of each service.
- (4) A description of the facility and evidence that the equipment meets the performance requirements of 171.107 and is installed in accordance with 171.109

(b) A copy of the operations manual of aeronautical telecommunication services shall be attached with the application;

(c) If an application is made to provide a telecommunication or radio navigation services that would not comply with one or more of the standards set out in Annexes 10 and 11 to the Chicago Convention; the applicant shall provide justification and alternative measures of the non-compliance.

171.9 Grant of a certificate.

(a) CARC may not grant an Aeronautical Telecommunication Services certificate unless CARC is satisfied that the Applicant comply with the general requirements set out in this Part.

(b) An applicant for Aeronautical Telecommunication service certification (Communication, Navigation and Surveillance CNS), shall be able to demonstrate that its working methods and operating procedures are in accordance with the standards of Annex 10 Aeronautical Telecommunications, to the Convention on International Civil Aviation as amended and CARC requirements.

(c) CARC shall at the latest five years after entry into force of this part issue an Aeronautical Telecommunication service certification to an applicant if CARC is satisfied that:

- (1) The applicant meets the requirements of subpart B;

- (2) The applicant and the senior persons required under 171.47 are fit and proper persons; and
 - (3) The granting of the approval is not contrary to the interests of aviation safety.
- (d) Based on CARC inspections and evaluations of the facility, the applicant shall be advised of the results and of any required changes in the facility or the operational manual, maintenance manual or maintenance organization. The applicant shall then correct the deficiencies, if any, and operate the facility for an in-service evaluation by CARC

171.11 Changes to Aeronautical Telecommunication Provision.

(a) An applicant for Aeronautical Telecommunication service certificate shall notify CARC 60 days before any planned changes to its provision of services which may affect its compliance with the general requirements or with the conditions attached to the certificate.

(b) Where a certificated Aeronautical Communication service provider does not comply any longer with the applicable general requirements or with the conditions attached to the certificate, CARC may issue an exemption within a time period not exceeding one month; CARC shall require the Aeronautical telecommunication service provider to take corrective action to comply with the required requirements prescribed by subpart B as soon as practicable.

(c) CARC will consider enforcement action when the Aeronautical Telecommunication service provider is unable to comply with subpart B

171.13 Duration of Certificate.

(a) Unless sooner surrendered, suspended, or revoked, an ANSP certificate expires:

- (1) At the end of the twenty-fourth month after the month in which it was issued or renewed; or
- (2) Upon notice from the Chief Commissioner/CEO that for more than 60 days the ANSP has failed to maintain the eligibility of requirements prescribed in this Part, as amended, for certification.

171.15 Renewal certificate.

An application for the renewal of ANSP certificate shall be submitted in writing in writing to the Chief Commissioner/CEO of not less than 30 days before the expiry date of the certificate.

171.17 Certificate comes into effect.

A certificate comes into effect on the date of the notice of CARC decision.

171.19 CARC authority to vary condition of approval.

(a) If necessary in the interests of the safety of air navigation, CARC may impose a condition on, or vary a condition of certification.

(b) CARC shall give the service provider a notice of the imposition or variation, and shall specify a reasonable period within which the approval holder may make a submission in relation to the imposition or variation.

(c) Unless CARC withdraws the condition or variation, the condition or variation shall have effect at:

- (1) The end of the period mentioned in CARC notice; or
- (2) A later time stated for the purpose in a notice.

171.21 Suspension, cancellation and revoke of certification.

(a) CARC may state, in writing, that a certificate is suspended if CARC reasonably considers that not suspending the certificate would be likely to have an adverse effect on the safety of air navigation.

(b) The certificate is suspended when the statement notice is received by the certificate holder.

(c) CARC may revoke the suspension at any time when approved reasonable correction actions have been taken by the certificate holder.

(d) The holder of a certificate that is surrendered, suspended, or revoked, shall return it to the Chief Commissioner/CEO.

171.23 Notice to certificated service provider to show cause.

(a) CARC may issue a certificate holder a notice in writing, if there are reasonable grounds for believing that there are facts or circumstances that amount to grounds for the cancellation of the certificate.

(b) A show cause notice shall:

- (1) Inform the certificate holder of the facts and circumstances that justify the cancellation of the certificate; and
- (2) Invite the holder to show in writing, within a reasonable period stated in the notice, why the certificate should not be cancelled. The period shall not be more than 7 days.

171.25 Grounds for cancellation of certificate.

Grounds for the cancellation of a certificate:

- (a) If the certificate holder is no more compliant with the certificate requirements;
- (b) If the certificate holder has breached a condition of the certificate;
- (c) If the certificate holder has contravened the Act or Regulations; or
- (d) Has otherwise been of miss conduct that renders the holder's continued holding of the certificate; or to have an adverse effect on the safety of air navigation.

171.27 Cancellation of certificate after the statement notice.

CARC may cancel a certificate if:

- (a) There exist facts or circumstances that amount to grounds for the cancellation of the certificate;
- (b) CARC has given the holder a statement notice in relation to the grounds for the proposed cancellation; and
- (c) Not canceling the certificate would be likely to have an adverse effect on the safety of air navigation.

171.29 Cancellation at request of service provider.

(a) CARC will cancel a service provider's certificate if asked to do so, in writing by the provider.

(b) The cancellation takes effect when the request is submitted in writing to CARC, and CARC approves the cancellation.

(c) Prior the approval cancellation, CARC shall ensure the continuity of services or provide means to ensure continuity of safety critical operations, appropriate to the needs of the air traffic service being supported

171.31 CARC authority to direct variation of manual.

(a) If necessary in the interests of the safety of air navigation, CARC may direct a Telecommunication service provider in writing to vary its operations manual, within a reasonable period specified in the direction, in a way specified in the direction.

(b) CARC may extend the period by written notice, before or after the end of the period mentioned in paragraph (a).

(c) If the Telecommunication service provider does not comply with the direction within the period (including any extension of it), the manual is taken to cease to be approved at the end of the period.

(d) After complying with the direction, the holder shall give CARC a copy of the manual as so varied.

171.33 Return of certificate if ceases.

If a certificate ceases, the person that was the service provider shall return the certificate to CARC immediately.

Note: All the Certification requirement will be applicable to ANSPs after 5 years from the effective date of this regulation.

171.35-171.43 Reserved.

**Subpart - B
Certification Requirements**

171.45 Organizational Structure and Management.

(a) An applicant shall set up and manage the organization according to a structure that supports the safe, efficient and continuous provision of services.

(b) The organizational structure shall define:

(1) The authorities, duties and responsibilities of the nominated post holders, in particular of the management personnel in charge of safety, quality, security, finance and human resources related functions;

(2) The relationship and reporting lines between different parts and processes of the organization.

(c) An applicant shall produce a business plan covering a minimum period of five years, which shall:

(1) Set out the overall aims and goals of the air navigation service provider and its strategy toward achieving them in consistency with any overall longer term plan of the provider and with relevant community requirements relevant for the development of infrastructure or other technology;

(2) Contain appropriate performance objectives in terms of quality and level of service, safety and cost- effectiveness.

(d) An air navigation service provider shall produce an annual plan covering the forthcoming year which shall specify further the features of the business plan and describe any changes to the plan. The annual plan shall cover the following provision on the level and quality of service such as the expected level of capacity, safety and delays to flight incurred as well as on financial arrangements:

(1) Information on the implementation of new infrastructure or other development and a statement how they will contribute to improving the level and quality of services;

(2) Indicators of performance against which the level and quality of service may be reasonably assessed;

(3) The service providers expected short-term financial position as well as any change to or impacts on the business plan.

171.47 Personnel Requirements.

(a) An applicant for an Aeronautical Telecommunication Service Certificate shall employ, contract, or otherwise engage:

(1) A senior person identified as the accountable manager who:

(i) Has the authority within the applicant's organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements; and

(ii) Is responsible for ensuring the organization compliance with the requirements of this Part; and

(2) A senior person or persons responsible for ensuring that the applicant's organization complies with its exposition; and

(3) Sufficient personnel to inspect, supervise, and maintain the facilities listed in the applicant's exposition.

(b) The applicant for the grant of an Aeronautical Telecommunication Service certificate shall ensure that technical and engineering personnel including personnel of subcontracted operating organizations who operate and maintain ANS systems approved for its operational use have and maintain sufficient knowledge and understanding of the services they are supporting, of the actual and potential effects of their work on the safety of those services, and of the appropriate working limits to be applied.

(c) With regard to the personnel involved in safety related tasks including personnel of subcontracted operating organizations, the provider of ANS shall document the adequacy of the competence of the personnel and roster arrangements to ensure:

(1) Sufficient capacity and continuity of service;

(2) The personnel qualification schemes and policy,

(3) The personnel training policy,

(4) Training plans and records

(5) Arrangements for the supervision of non-qualified personnel. And

(6) It shall have procedures in place for cases where the physical or mental condition of the personnel is in doubt.

(d) A provider of Aeronautical Telecommunication Service shall maintain a register of information on the numbers, status and deployment of the personnel involved in safety related tasks. The register shall:

- (1) Identify the accountable managers for safety related functions;
- (2) Record the relevant qualifications of technical and operational personnel, against required skills and competence requirements;
- (3) Specify the locations and duties to which technical and operational personnel are assigned, including any rostering methodology.

(e) An applicant for an aeronautical telecommunication service certificate shall establish procedures for personnel, who are authorized by the holder of the aeronautical telecommunications service certificate to place into operational service any of the facilities listed in the exposition, to:-

- (1) Assess the competence of those authorized personnel; and
- (2) Maintain the competence of those authorized personnel; and
- (3) Establish a means to provide those personnel with written evidence of the scope of their authorization.

171.49 Training Requirements.

An applicant for an Aeronautical Telecommunication Service Certificate shall maintain training programme and training records for its technical staff. The training courses for staff of engineers and/or technicians shall consist of:

- (a) The initial training shall include the technical fundamentals concerning the theory and the practical procedures to be conducted at the technical unit; the objective of the initial training is to prepare a trainee for the field training.
- (b) Recurrent training is conducted under the supervision of a qualified On-the-Job Training Instructor to validate the practical skills and knowledge.
- (c) Specialized training is conducted to provide the trainee with the specialized equipment training and for the new technology.

(d) Refresher training shall be conducted annually for all engineers and technicians at the operational positions.

(e) Human factors training shall be conducted at annual basis; each engineer and/or technician shall have at least one day training on Human Factor.

171.51 Periodic inspection and testing.

(a) An applicant for an aeronautical telecommunication service certificate shall establish a procedure for the periodic inspection and testing of the aeronautical facilities listed in the applicant's exposition to verify that each aeronautical facility meets the applicable operational requirements and performance specifications for that facility.

(b) The procedure required under paragraph (a) shall:

(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 exposition, having regard to:

(i) Any applicable information published by ICAO; and certificate shall establish

(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; and

(3) Ensure that the grounds for establishing or changing the interval between the periodic tests for each aeronautical facility listed in the exposition are documented.

(c) An applicant for an aeronautical telecommunication service certificate shall establish:

(1) A programme of periodic ground inspections for each aeronautical facility listed in the applicant's exposition; and

(2) A programme of periodic flight tests for each Radio Navigational Aid

facilities listed in the applicant's exposition 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 services.

(d) The programmes required by paragraphs (c)(1) and (c)(2) shall be based on the criteria required under paragraph (b)(2) and shall specify the maximum interval between the tests for each aeronautical facility.

(e) An applicant for an Aeronautical Telecommunication Service certificate shall notify CARC of any radio navigation aid that is not subjected to periodic flight tests.

171.53 Aeronautical facility requirements.

(a) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that each aeronautical facility listed in the applicant's exposition:

(1) Is designed, installed, and commissioned to meet the applicable operational specification for that facility; and

(2) Conforms with the applicable system characteristics and specification standards prescribed in ICAO Annex 10 as amended, Volumes I, III, IV and V; and

(3) Conforms with the applicable specifications and requirements of Subpart C

(b) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that Information on the operational status of each radio navigation aid listed in the applicant's exposition, that is essential for the approach, landing, and take-off at an aerodrome, is provided to meet the operational needs of:

(1) The air traffic control unit providing an aerodrome control service for that aerodrome while that service is being provided; and

(2) The air traffic control unit providing an approach control service for that aerodrome while that service is being provided; and

(c) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that each aeronautical facility listed in the applicant's exposition is installed with suitable power supplies and means to ensure continuity of operation appropriate to the needs of the air traffic service or radio navigation service being supported; and

(d) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that each aeronautical facility listed in the applicant's exposition is installed in accordance with the security programme required under 171.129 to minimize any risk of destruction, damage, or interference with the operation of the facility; and

(e) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that any critical site area of any aeronautical facility listed in the applicant's exposition is:

- (1) Clearly identified on the site drawings for the aeronautical facility; and
- (2) Physically protected by suitable signposts on the site; and
- (3) protected by written agreements with the site holder of aeronautical telecommunication service certificate, aerodrome operator, and air traffic control unit, as appropriate, to ensure that site restrictions are not infringed by buildings, fences, vehicles, machinery, or aircraft.

171.55 Human Resource

An air navigation service provider shall employ appropriately skilled personnel to ensure the provision of its services in a safe, efficient, continuous and sustainable manner. In this context, it shall establish policies for the recruitment, retention and training of personnel.

171.57 Reports and records.

(a) An applicant for an aeronautical telecommunication service approval shall establish procedures to identify, collect, index, store, maintain, and dispose of the records that are necessary to document the safe:

- (1) Provision of the aeronautical telecommunication services; and
- (2) Operation of each aeronautical facility listed in the applicant's approval.

(b) The procedures shall require that, for each aeronautical facility, accurate records of the following are maintained:

- (1) The operating performance of the aeronautical facility; and
 - (2) A history of the maintenance, and the periodic inspections and tests of the aeronautical facility, traceable to the person or persons responsible for each of the recorded activities; and
- (c) The procedures shall ensure providing a complete record:
- (1) Of readings, recorded on each scheduled visit to the facility. keeping the original of each month's record at the facility and send a copy of it to the ANSS Directorate; and
 - (2) For each test equipment used for the measurement of an aeronautical facility's critical performance parameters, that includes a traceable history of the location, maintenance, and the calibration checks for the item of test equipment; and
- (d) The records shall include facility maintenance log of all equipment malfunctioning met in maintaining the facility, including information on the kind of work and adjustments made, equipment failures, causes (if determined), and corrective action taken, keeping the original report at the facility.
- (e) The Records shall, not exclude the operational performance of a service, changes to the configuration of a facility, showing software upgrades, or records of commissioning procedures.
- (f) A record for each facility malfunction incident reported documenting:
- (1) Details of the nature of the malfunction; and
 - (2) The findings of the investigation; and
 - (3) The follow up corrective actions; and
 - (4) A copy of the report submitted to CARC and
- (g) A record of each internal audit required and performed under 171.123, and of each management review required under 171.123; and
- (h) A record of the person's experience, qualifications, training, competence assessments, and current authorizations, for each person who is authorized in accordance with 171.47 to place aeronautical facilities into operational service,

(i) The procedures shall require:

(1) All records to be legible and of a permanent nature; and

(2) all aeronautical facility records required under paragraph (b)(1) shall be retained for a period of at least three years unless a longer period is required for retrieval if needed for an aviation safety investigation:

(i) By the Chief Commissioner/CEO; or

(ii) To establish a performance history for the aeronautical facility.

(j) Alternative forms of reports. On a case-by-case basis, the Chief Commissioner/CEO may accept any report in a format other than CARC form required by this part if satisfied that the report contains all the information required by CARC and can be processed by CARC as conveniently as CARC requires.

171.59 Reserved

171.61 Submission of requests.

(a) Requests for certificate of facilities or its modification shall be submitted in writing by the an aeronautical telecommunication service provider to the Chief Commissioner/CEO.

(b) Reporting Requirements. An Aeronautical Telecommunication service provider shall be able to provide an annual report of its activities to CARC. This report shall cover its operational performance and any other significant activities and developments in particular in the area of safety. The annual report shall include as a minimum:

(1) An assessment of the level and quality of service generated and of the level of safety provided,

(2) The performance of the Aeronautical Telecommunication service provider compared to the performance objectives established in the business plan, reconciling actual performance against the annual plan by using the indicators of performance established in the annual plan,

(3) Developments in operations and infrastructure,

(4) Information about the formal consultation process with the users of its services,

(5) Information about the human resources policy.

171.63 Service provision.

(a) An aeronautical telecommunication service shall be provided in accordance with:

- (1) The certification; and
- (2) The service provider's operations manual.

(b) Paragraph (a) does not apply to:

- (1) A test transmission made in accordance with regulation 171.71; or
- (2) An aeronautical telecommunication service provided in an emergency.

171.65 Changes to service provision by service provider.

(a) This regulation applies if a service provider wants to make a change to its aeronautical telecommunication service, the effect of which would be that the service would no longer be in accordance with the operations manual.

(b) Before making the change the service provider shall:

- (1) Prepare a draft amendment of the operations manual that reflects the proposed change; and
- (2) Send a copy of the draft amendment to CARC.

(c) If CARC approves the draft amendment of the manual the provider may:

- (1) Incorporate the amendment into the manual; and
- (2) Make the change to the service.

171.67 Changes to operations manual by service provider.

A service provider may change its operations manual without changing its service if the amendment to the manual is accepted by CARC.

171.69 Agreements with other bodies.

An agreement of the following kinds shall be in writing and be in accordance with the standards of this part:

- (a) An ATS provider agreement;
- (b) A support-service agreement;

- (c) An aerodrome operator agreement;
- (d) An AIS agreement.

171.71 Test transmissions.

A service provider may perform a test transmission if:

- (a) The transmission is necessary to test a service, facility or equipment; and either:
 - (1) Reasonable time before commencing the transmission, the provider notified AIS about the transmission; or
 - (2) The transmission contains information showing that it is a test transmission.

171.73 Audit and Inspections.

(a) CARC as the national supervisory authority (NSA) is responsible for the functions of the Certification and audit and inspection over the Aeronautical telecommunications services provider .NSA shall be independent of the Aeronautical telecommunications services provider. This independence shall be achieved through adequate separation, at the functional level at least, between the national supervisory authority and such providers.

(b) An approved Aeronautical Communication service provider shall facilitate for Audit and Inspections to be carried out by CARC or by a recognized representative of CARC. Audit and inspections shall include:

- (1) Site visits;
- (2) Examining the relevant records, data, procedures and any other material relevant to the provision of air navigation services;
- (3) Taking copies of or extracts from such records, data, procedures and other material;

(c) CARC will coordinate the Audit programme with the Aeronautical Telecommunication service provider.

(d) To this end, CARC shall establish and update annually an indicative inspection programme covering all aeronautical Telecommunication service provider.

171.75 Post-accident performance inspection.

- (a) This regulation applies if the Chief Commissioner informs a service provider that a telecommunication or radionavigation service of the service provider may have contributed to an aviation accident or incident.
- (b) As soon as practicable, and before any action is taken that could change the facility's performance, a performance inspection shall be performed.
- (c) The performance inspection shall be conducted by two technicians in accordance with any instructions given by the Chief Commissioner;
- (d) A report of the performance inspection shall be prepared and signed by the technicians.
- (e) If the performance inspection shows that the facility contributes to a hazard, the facility shall not be used until it is operating within the required standard technical specification.

171.77 Notification of aeronautical facility information

- (a) An aeronautical Telecommunication service provider shall, in accordance with AIS procedures:
 - (1) Forward to the provider of the AIS information:
 - (i) On the operational details of the aeronautical facility, for publication in the AIP; and
 - (ii) Concerning any change in the operational status of the aeronautical facility, for the issue of a NOTAM; and
 - (2) Check, if applicable, that the information forwarded under paragraph (1) has been accurately published; and
- (b) An applicant for an aeronautical telecommunication service certificate shall establish a procedure to ensure that the requirements of paragraph (a) above are met for each applicable aeronautical facility listed in the applicant's exposition.
- (c) The procedure required under paragraph (b) above shall include a means to confirm that:

(1) The operational details of the aeronautical facility as notified to AIS have been accurately published in the AIP; and

(2) Any change to the operational status of the aeronautical facility has been published by NOTAM.

(d) Notifying and Reporting Information Air traffic Services

(1) A CNS maintenance unit shall establish procedures to report significant information relating to the operational status of any facility service may affect the safety of air navigation to the relevant Air Traffic service unit

(1) Information requiring immediate notification to the Air traffic Service unit include:

(i) Failure or irregular operation of the part of all of the CNS system.

(ii) Failure of the normal redundant supply.

171.79 Interruption to service.

(a) If an aeronautical telecommunication service is interrupted or if the service provider knows that the service is to be interrupted, the service provider shall:

(1) Notify AIS office about the interruption, if the service is published in an AIP.

(2) Inform users of the service about the interruption, if it is practicable to do so by the service provider

171.81 Aeronautical facility check after accident or incident

(a) An Aeronautical Telecommunication Service Provider shall establish a procedure to check and accurately record the operating condition of any aeronautical facility operated under the authority of the certificate that may have been used by an aircraft, or an air traffic service, that is involved in an accident or incident.

(b) The procedure required under paragraph (a) above shall require that:

(1) The check of the aeronautical facility's operating condition is carried out as soon as practicable after notification to the holder of the aeronautical telecommunication certificate of the accident or incident; and

(2) The record of that check, and the recorded history of the aeronautical facility, is kept in a secure place for possible use by any subsequent accident or incident investigation; and

(3) The records required to be secured under paragraph (b 2) above are retained for 2 years from the date of the last entry made on that record.

171.83 Facility malfunction incidents

An aeronautical telecommunication service provider shall establish procedures:-

(a) To notify, and report facility malfunction incidents in accordance with the requirements of this Part; and

(b) To implement corrective actions to eliminate the cause of a facility malfunction incident and prevent its recurrence.

171.85 Equipment, tools and material

A service provider shall have:

- (a) The equipment, tools and material necessary to perform adequately the approved scope of work as required by the applicable equipment specification, its manual of procedure and the Regulations in this Part; and
- (b) Established procedures to control and, where necessary, calibrate test equipment at a frequency and to a standard to ensure serviceability, accuracy and traceability.

171.87 Documents and records.

(a) The aeronautical telecommunication service shall maintain the following documents including all amendments bearing the date of the development or revision:

- (1) The operations manual;
- (2) Any technical manual used by the service provider at the facility;
- (3) Any documents of a kind that relate to the provider's service.

(b) For paragraph (a), a document is maintained, if it:

- (1) Includes all amendments;
- (2) Bears the date of:
 - (i) The original of the document; or
 - (ii) The most recent revision of the document;
- (3) Is available to the personnel who shall refer to the document; and
- (4) Identifies the person who authorised the creation and any revision of the document.

(c) For paragraph (a) (2), a technical manual means a document, other than the operations manual, that contains technical information about the operation and maintenance of a facility, such as an equipment manufacturer's instruction book.

(d) A service provider shall ensure that:

- (1) A master copy of each document mentioned in this regulation is kept safely; and

- (2) Copies of documents are kept in a form that enables amendments to be made; and
 - (3) Any document that has been replaced cannot be used by mistake.
- (f) A service provider shall retain each document that:
- (1) Is given to or is created by or for the service provider; and
 - (2) Could relate to aviation safety; and
 - (3) Helps provide a history of events that relate to the design, installation, testing, operation, maintenance, modification or repair of, or changes to, each facility.
- (f) A document for paragraph (a) includes any record of a kind mentioned in the Manual of Standards that is given to, or created by or for, the provider, such as records of the operational performance of a service, changes to the configuration of a facility, records showing software upgrades, or records of commissioning procedures.
- (g) A document retained for this regulation shall be:
- (1) Stored so it can be retrieved if needed for an aviation safety investigation; and
 - (2) Retained for at least 5 years.

171.89 Automatically Recording system

- (a) All telecommunication and surveillance data used by an Air Navigation Service provider (ANSP) for the purposes of providing an air traffic service shall be automatically recorded and retained by automatic recording system of future needs if required.
- (b) The recording equipment shall provide complete, identified, intelligible and accurate recording.
- (c) The recording systems deployed at an ATS Unit shall not degrade or otherwise adversely affect the performance of the aeronautical telecommunication processing and display systems employed at that ATS Unit.

(d) The recording systems and power supply configuration shall ensure the continued availability of the recording process, without interruption.

(e) All the following aeronautical facilities shall be automatically recorded for air traffic control and surveillance systems evaluation, training, accident and incident investigations and search and rescue:

(1) Direct pilot-controller communications between aircraft stations and aeronautical stations shall be recorded.

(2) Direct (speech or data) communications between ATS Units and between ATS Units and between air traffic services units and other units and appropriate military units.

(3) Data link communications used for the provision of air traffic control services.

(4) Communication channels for the control of vehicles on the maneuvering area

(5) Surveillance data from primary and secondary radar equipment or other surveillance systems used as an aid to air traffic services.

(f) Voice communications routed via a voice communications switching system (VCSS) or other air traffic service equipment to the recording equipment, shall be ensured its continuity of recording in the event of a failure of either the VCSS or air traffic service equipment.

(g) The visual, displayed data and audible information shall be synchronized.

(h) The recording equipment shall include time-recording devices or techniques to ensure the 'time-stamping' of ATS aeronautical telecommunications using coordinated universal time (UTC) expressing each time-stamp in hours, minutes and seconds of the 24 hour day beginning at midnight, which shall be checked to ensure that the time-stamps are maintained within ± 2 seconds of UTC.

(i) Wherever data link communications are in operation, time-recording devices shall be accurate to within ± 1 second of UTC.

(j) The recordings shall be retained, in secure storage and protected from being erased, corrupted or deleted, for a period of at least thirty days from the date of the last recorded message, unless when the recordings are pertinent to accident

and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

(k) Access to the recording equipment shall be permitted to authorized persons, when directed, for the purposes of replaying and making copies of original recordings ensuring documenting the identity of the person or organization taking charge recorded data and the authority under which any recorded data leaves the site.

171.91-171.99 Reserved

Subpart C
Aeronautical Facility requirements

171.101 Scope.

This subpart sets forth minimum requirements for the certification and operation of Aeronautical facilities that are implemented and used in the air traffic services provisions and procedures related to those facilities.

171.103 Requests for IFR procedure approval.

(a) Any person who requests an Air Traffic Service procedure approval based on Aeronautical Services and Facilities shall ensure that aeronautical facilities submit the following:

- (1) A description of the Aeronautical facility and evidence that the equipment meets the performance requirements of section 171.107 and is installed in accordance with section 171.109.
- (2) A proposed procedure for operating the Aeronautical Facilities.
- (3) A proposed maintenance organization and maintenance manual that meets the requirements of section 171.101.
- (4) A statement of intention to meet the requirements of this subpart.
- (5) Ensure that the facility has an acceptable level of operational reliability and an acceptable standard of performance.

(b) A Service Provider shall correct the deficiencies, if any, and operates the facility in accordance to requirement of section 171.107 of this part.

171.105 Requirements for Aeronautical facility certification.

(a) The following are the minimum requirements that shall meet CARC approval of related Air Traffic Service procedure:

- (1) The facility's performance, as determined by air and ground inspection, shall meet the requirements of section 171.57.
- (2) The installation of the equipment shall meet the requirements of section 171.109.

(3) The holder of aeronautical telecommunication service certificate shall operate and maintain the facility in accordance with section 171.61

(4) The holder of aeronautical telecommunication service certificate shall furnish periodic reports, as set forth in section 171.57, and shall avail the facility and its operation for CARC inspection whenever necessary.

(5) The holder of aeronautical telecommunication service certificate shall obtain CARC approval for the facility withdrawal from service and shall notify CARC by not less than one month before the withdrawal of the facility.

(b) When the requirements of paragraph (a) of this section, CARC commissions the facility by issuing a certificate as a prerequisite to the approval for the IFR procedure. The certificate shall be suspended at any time the facility cease to continue to meet those requirements and the approval of the Air Traffic Service procedure will be withdrawn.

171.107 Performance requirements.

(a) The Aeronautical telecommunication facility shall comply with the specifications and perform in accordance with the "International Standards and Recommended Practices, Annex 10 as amended "Aeronautical Telecommunications", to the Convention on International Civil Aviation" based on the system to be approved:

(1) Volume I, radio Navigation aids.

(2) Volume II, Communication Procedures including those with PANS status.

(3) Volume III, Communication Systems.

(4) Volume IV, Surveillance and collisions avoidance systems.

(5) Volume V Aeronautical Radio Frequency Spectrum Utilization.

(b) Ground inspection consists of an examination of the design features of the equipment to determine that there will not be conditions that will allow unsafe operations due to component failure or deterioration.

(c) The monitor is checked periodically, during the in-service test evaluation period, for calibration and stability.

(d) if the facility are navigation aids or landing systems:

(1) Flight tests shall be conducted and scheduled to confirm the validity of the Signal-In-Space on a regular basis or after making any modification, repair or change of major and critical parts, and report the results of the flight check as provided in 171.57.

(2) Shall conduct a ground check of course accuracy each month in accordance with procedures approved by CARC, and report the results of the checks as provided in 171.57.

171.109 Installation requirements.

(a) The facility shall be of a permanent nature, located constructed and installed in accordance to accepted engineering practices, applicable electric and safety codes, and the installation shall meet CARC requirements.

(b) The facility shall have a reliable source of suitable primary power, either from a power distribution system or locally generated, with a supplemental standby system.

(c) The facility shall have dual transmitting/receiving equipment with automatic changeover to support the ATC procedures, ensuring continuity of safety critical operations.

(d) for an ATC services, the power supply for emergency equipment shall be independent of that for the main equipment.

(e) there shall be a means for determining, the performance of the system to ensure monitoring the continuous reliability and availability of the system.

(f) any critical site area of any aeronautical facility listed in the applicant's application for the approval:

(1) Physically protected by signpost on the site and

(2) Protected by written agreements with the site owner, aerodrome operator, and air traffic control unit, as appropriate, to ensure that sit restrictions are not infringed by buildings, fences, vehicle, machinery, or aircraft.

171.111 Maintenance and operations requirements.

(a) The holder of aeronautical telecommunication service certificate shall establish an adequate maintenance procedure and provide qualified maintenance personnel to maintain the facility at the level attained at the time it was commissioned. Each person who maintains a facility shall meet at least CARC personnel requirements of knowledge and skills needed in accordance with section 171.47.

(b) The holder of aeronautical telecommunication service certificate shall prepare operation and maintenance manuals approved by CARC that sets forth mandatory procedures for operations, preventive maintenance and emergency maintenance, including instructions on each of the following:

(1) Physical security of the facility.

(2) Maintenance and operations by authorized persons only.

(3) Relations between the facility and air traffic control unit facilities, with a description of the boundaries of controlled airspace over or near the facility, instructions for relaying air traffic control instructions and information (if applicable), and instructions for the operation of an air traffic advisory service.

(4) Notice to the Chief Commissioner of any suspension of service prior the suspension.

(5) Detailed and specific maintenance procedures and servicing guides stating the frequency of servicing.

(6) Keeping of station logs and other technical reports, and the submission of reports required by 171.57.

(7) Monitoring of the facilities to assure continuous operation.

(8) Names of persons to be notified in an emergency and the most expeditions methods of notification.

(9) Shutdown of the facility for routine maintenance and the issuance of "Notices to Airmen" for routine or emergency shutdowns (private use facilities may omit the "Notices to Airmen").

(10) An explanation of the kinds of activity (such as construction or grading) in the vicinity of the facility that may require shutdown or re-certification or re-approval of the facility by Flight check.

(11) Procedures for conducting a ground check of course accuracy.

(12) Commissioning of the facility.

(13) An acceptable procedure for amending or revising the manual.

(14) The following information concerning the facility:

(i) Location by latitude and longitude to the nearest second, and its position with respect to airport layouts.

(ii) The types, make, and model of the basic radio equipment that will provide the service.

(iii) The station power emission and frequency.

(iv) The hours of operation.

(v) Station identification call letters and method of station identification, whether by Morse code or recorded voice announcement, and the time spacing of the identification.

(vi) A description of the critical parts that may not be changed, adjusted, or repaired without the requirement for flight check to confirm published operations.

(d) The holder of aeronautical telecommunication service certificate shall submit a proposal to CARC for any required modification of the facility and may not allow any modifications to be made without prior approval.

(e) The holder of aeronautical telecommunication service certificate shall provide a stock of spare parts, of such a quantity to make possible the prompt replacement of components that fail or deteriorate in service.

(f) The holder of aeronautical telecommunication service certificate's maintenance personnel shall participate in initial inspections made by CARC. In the case of subsequent inspections, the holder of aeronautical telecommunication service certificate or his representative shall participate.

(g) All test equipments used for calibration, maintenance or test of Aeronautical Navigation Aids facilities shall be:

- (1) Listed and subject to regular calibration checks.
 - (2) Calibrated at the manufacture's recommended intervals, unless otherwise indicated by objective evidence or operational conditions.
- (e) The holder of aeronautical telecommunication service certificate shall verify the facility performance upon receiving one pilot report of its malfunctioning and maintenance shall be done if required.

171.113-171.119 Reserved

Subpart D
General requirements

171.121 Safety Management System

(a) The applicant shall have in place at the latest one year after entry into force of this Regulation a Safety Management System for the control and supervision of the management of Aeronautical Telecommunication Facilities which covers all Air Navigation Services.

171.123 Quality Management System

(a) An air navigation service shall have in place at the latest two years after entry into force of this Regulation a quality management system which covers all air navigation services it provides according to the following principles. It shall:

(1) Define the quality policy in such a way as to meet needs of different users as closely as possible;

(2) Set up a quality assurance programme that contains procedures required under 171.127 regarding internal quality assurance, which designed to verify that all operation are being conducted in accordance with applicable requirements, standards and procedures;

(3) Provide evidence of the functioning of the quality system by means of manuals and monitoring documents;

(4) Appoint management representatives to monitor compliance with, and adequacy of, procedures to ensure safe and efficient operational practices;

(5) Perform reviews of the quality system in place and take remedial action, as appropriate.

171.125 Quality of Service.

(a) An air navigation service provider shall provide its services in an open and transparent manner. It shall publish the conditions of access to its services and establish a formal consultation process with the users of its service on a regular basis, either individually or collectively, and at least once a year.

(b) Contingency plans: At the latest one year after certification, an air navigation service provider shall have in place contingency plans for all the services it provides in the case of events which result in significant degradation or interruption of its services.

171.127 Internal quality assurance

(a) An applicant for an aeronautical telecommunication service certificate shall establish an internal quality assurance system to ensure compliance with, and the adequacy of, the procedures required under this Part.

(b) The internal quality assurance system shall include:

(1) A safety policy and safety policy procedures, including the procedure required under paragraph 171.83 for investigating facility malfunction incidents; and

(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 internal quality assurance system; and

(3) A procedure for corrective action to ensure existing problems that have been identified within the internal quality assurance system are corrected; and

(4) A procedure for preventive action to ensure that potential causes of problems that have been identified within the internal quality assurance system are remedied; and

(5) An internal audit programme for the applicant's organization to ensure conformity with the procedures in the applicant's exposition and to achieve the goals set in the safety policy; and

(6) Management review procedures, that should include the use of statistical analysis if appropriate, to ensure the continuing suitability and effectiveness of the internal quality assurance system in satisfying the requirements of this Part.

(c) The procedure required under paragraph (b)(3) for corrective action shall specify how:

(1) To correct an existing quality problem; and

(2) To follow up a corrective action to ensure the action is effective; and

(3) To amend any procedure required under this Part as a result of a corrective action; and

- (4) Management will measure the effectiveness of any corrective action taken.
- (d) The procedure required under paragraph (b)(4) for preventive action shall specify how:
 - (1) To correct a potential quality problem; and
 - (2) To follow-up a preventive action to ensure the action is effective; and
 - (3) To amend any procedure required under this Part as a result of a preventive action; and
 - (4) Management will measure the effectiveness of any preventive action taken.
- (e) The internal audit programme required under paragraph (b)(5) shall:
 - (1) Specify the frequency and location of the audits taking into account the nature of the activity to be audited; and
 - (2) Measure the effectiveness of any preventative or corrective action taken by the personnel responsible for the activity being audited since the last audit; and
 - (3) Require preventative or corrective action to be taken by the personnel responsible for the activity being audited if problems are found by the audit; and
- (f) The procedure for management review required under paragraph (b)(6) shall:
 - (1) Specify the frequency of management reviews of the internal quality assurance system taking into account the need for the continuing effectiveness of the system; and
 - (2) Identify the senior person responsible for the management reviews referred to in paragraph (f)(1); and
- (g) The senior person responsible for the internal quality assurance system shall:
 - (1) Ensure that the safety policy and the safety policy procedures are understood, implemented, and maintained at all levels of the aeronautical telecommunication service certificate holder's organization; and

- (2) Ensure that the audits are performed by trained auditing personnel who are independent of those having direct responsibility for the activity being audited; and
- (3) Ensure that the results of the audits are reported to the personnel responsible for the activity being audited; and
- (4) Ensure that all corrective and preventative actions are followed up to review the effectiveness of those actions; and
- (5) Ensure that the results of the management review are evaluated and recorded; and
- (6) Have direct access to the chief executive on matters affecting the integrity of the facilities operated under the authority of the aeronautical telecommunications service certificate.

171.129 Security programme

(a) An Aeronautical Telecommunication service provider shall establish a security programme for the facilities listed in the applicant's exposition.

(b) The security programme required under paragraph (a) shall include such physical security requirements, practices, and procedures as may be necessary:-

- (1) To ensure that each aeronautical facility is subject to positive access control at all times to prevent unauthorized entry; and;
- (2) The security of operational data it receives or produces or otherwise employs, so that access to it is restricted only to those authorized.
- (3) To monitor an unattended aeronautical facility building to ensure that any intrusion or interference is immediately detected.

(c) The security programme required under paragraph (a) shall include procedures to notify, investigate and report security.

- (1) The procedures relating to security risk assessment and mitigation, security monitoring and improvement, security reviews and lesson dissemination;
- (2) The means designed to detect security breaches and to alert personnel with appropriate security warnings;

(3) The means of containing the effects of security breaches and to identify recovery action and mitigation procedures to prevent re-occurrence.

(d) An Aeronautical Telecommunication Service Provider shall ensure the security clearance of its personnel, if appropriate, and coordinate with the relevant civil and military authorities to ensure the security of its facilities, personnel and data.

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