



**Maldives Civil Aviation Authority**  
**Republic of Maldives**

**Maldivian Civil Aviation Regulations**

# **MCAR- 171 Aeronautical Telecommunications Certification**

**Issue 1.00, 01 July 2023**

## **Foreword**

Maldives Civil Aviation Authority, in exercise of the powers conferred on it under Articles 5 and 6 of the Maldives Civil Aviation Authority Act 2/2012 has adopted this Regulation.

This Regulation shall be cited as MCAR-171 Aeronautical Telecommunications Certification and shall come into force on 01<sup>st</sup> July 2023.

Definitions of the terms and abbreviations used in this Regulation, unless the context requires otherwise, are in MCAR-1 Definitions and Abbreviations.

### **For the Civil Aviation Authority**

Hussain Jaleel

**Chief Executive**

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## **CHAPTER 1 - GENERAL**

### **1.1 Definitions and interpretation**

- 1.1.1 Definitions of the terms and abbreviations used in this Regulation, unless the context requires otherwise, are in MCAR-1 Definitions and Abbreviations.
- 1.1.2 For purposes of this Regulation
- a) an Aeronautical Telecommunication (ATEL) service is provided using one or more facilities at one or more locations, each facility consisting of —
    - (i) one item of equipment; or
    - (ii) items of interconnected equipment at a particular location;
  - b) an Aeronautical Telecommunication (ATEL) service is interrupted if, during the course of its operation it is
    - (i) not operating because it has failed or has been suspended; or
    - (ii) operating outside its technical specification.
- 1.1.3 In this Regulation, Aeronautical Telecommunication (ATEL) service refers to an air navigation service related to the provision of any of the following:
- a) Radio Navigation Aids in accordance with the provisions of Volume I of Annex 10 to the Convention on International Civil Aviation, as adopted in this Regulation;
  - b) Communication Procedures including those with Procedures for Air Navigation Services (PANS) status in accordance with the provisions of Volume II of Annex 10 to the Convention on International Civil Aviation, as adopted in this Regulation;
  - c) Communication Systems including digital data communication systems and voice communication systems in accordance with the provisions of Volume III of Annex 10 to the Convention on International Civil Aviation, as adopted in this Regulation;
  - d) Surveillance and Collision Avoidance Systems in accordance with the provisions of Volume IV of Annex 10 to the Convention on International Civil Aviation, as adopted in this Regulation;
  - e) Aeronautical Radio Frequency Spectrum Utilization in accordance with the provisions of Volume V of Annex 10 to the Convention on International Civil Aviation, as adopted in this Regulation;
  - f) other facilities supporting Air Traffic Services (ATS) provided under MCAR 11 & MCAR 172;
  - g) other facilities supporting Aeronautical Meteorological (A-MET) services provided under MCAR 3;
  - h) other facilities supporting Aeronautical Information Services (AIS) provided under MCAR 15;
  - i) other facilities supporting Search and Rescue (SAR) services provided under MCAR 12;
  - j) other facilities supporting PANS-OPS services provided under MCAR 173.

1.1.4 In this Regulation, reference to -

“Air Traffic Electronic Safety Personnel (ATSEP)” shall be construed as reference to any qualified and certified ATEL personnel performing the installation, operation and/or maintenance of CNS/ATM systems;

“Communications, Navigation and Surveillance (CNS) services or systems” shall be construed as reference to the ATEL services as described in 1.1.3; and

“Radio Regulations” shall be construed as reference to—

- a) the Radio Regulations published by the International Telecommunication Union (ITU), as amended from time to time by the decisions embodied in the Final Acts of World Radio Communication Conferences (WRC), as adopted by Maldives Telecommunications Act 43/2015.
- b) information on the ITU processes as they relate to aeronautical radio frequency spectrum contained in the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718).

## **1.2 Applicability**

2.2.1 This Regulation prescribes—

- a) the regulatory requirements for planning, installation, commissioning, operation, maintenance and decommissioning of Aeronautical telecommunications services or systems used for the provision of air traffic services and for air navigation also referred to as Communication, Navigation, and Surveillance (CNS) services or systems; and
- b) operating and technical standards for ATEL services used for air traffic services and for air navigation.

2.2.2 This Regulation applies to a person who wishes to become, or is, an ATEL service provider, including a person who wishes to provide flight inspection or calibration services.

2.2.3 This Regulation does not apply to—

- a) Person, who is providing an ATEL service in the course of his or her duties for the Maldives National Defense Force; or
- b) Any ATEL service provided by and for the sole use of the Maldives National Defense Force.

2.2.4 An ATEL service provider shall provide services in full compliance with the—

- a) requirements and standards prescribed in this Regulation;
- b) provisions set out in ICAO Annex 10 as referred to in this Regulation;
- c) provisions set out or referred to in any relevant ICAO Documents;
- d) additional requirements, publications or documents as may be required by the MCAA;
- e) ATEL provider's organization exposition described in Chapter 4, of this Regulation;

- f) operational procedures prescribed by the ATEL service provider.

## **CHAPTER 2 - CERTIFICATION OF ATEL SERVICE PROVIDERS**

### **2.1 Requirement for certification**

No person shall provide an aeronautical telecommunication (ATEL) service except under the authority of, and in accordance with the provisions of, an ATEL service certificate issued under this Regulation.

### **2.2 Application for ATEL service provider certification**

2.2.1 Each applicant for the grant of an ATEL certificate shall—

- a) complete the application form CAA/CNS/01, providing the following information—
  - (i) the applicant's name and address; and
  - (ii) the specific services to be provided; and
  - (iii) the location at which the service will be provided; and
  - (iv) such other particulars relating to the applicant and the intended service as may be required by the MCAA, or indicated on the prescribed form; and
- b) submit the completed form to the MCAA with—
  - (i) the organisation exposition described in Chapter 4 of this Regulation; and
  - (ii) payment of the appropriate application fee prescribed in MCAR 187.

2.2.2 Each applicant for the grant of an ATEL service certificate shall permit an inspector of the MCAA to carry out such safety and regulatory compliance inspections and audits which may be necessary for the purpose of verifying the validity of any application made under this Regulation.

### **2.3 Issue of certificate**

2.3.1 Subject to paragraph 2.2, an applicant is entitled to an ATEL certificate if the MCAA is satisfied that—

- a) the applicant meets the requirements of this Regulation; and
- b) the granting of the certificate is not contrary to the interests of aviation safety.

2.3.2 The MCAA shall ensure, in the interests of aviation safety that only one certificate for the same air traffic service is current at any time.

2.3.3 An ATEL certificate shall be granted in a form prescribed by the MCAA and shall include the following—

- a) the holder's name and address of its principal place of business;
- b) the type of ATEL services to be provided;
- c) the location of services to be provided;
- d) the conditions of certification as applicable; and

e) the effective date of the certificate and as applicable, the expiry date.

2.3.4 The MCAA may, when issuing an ATEL services certificate, include any conditions as may be deemed necessary in the interest of aviation safety.

2.3.5 The MCAA may decline to grant an ATEL service certificate to an applicant, and where the MCAA so declines, the MCAA shall inform the applicant in writing, indicating the reasons for declining.

2.3.6 The MCAA may issue a replacement certificate upon a request by the certificate holder where the original certificate has been lost or destroyed, subject to payment of the appropriate fee as prescribed in MCAR 187.

## **2.4 Privileges of certificate**

2.4.1 An ATEL certificate shall specify the aeronautical telecommunication services, which the certificate holder is authorised to provide including communication, navigation and surveillance facilities and associated service.

## **2.5 Renewal of ATEL service provider certificate**

2.5.1 An application for the renewal of an ATEL certificate shall be made on a form prescribed by the MCAA.

2.5.2 The application shall be submitted to the MCAA before the application renewal date specified on the certificate or, if no such date is specified, not less than 60 days before the certificate expires.

2.5.3 The application for renewal shall be accompanied by—

- a) the appropriate fee as prescribed in *MCAR 187*; and
- b) copy of the previous certificate issued under this Regulation.

2.5.4 The renewal of an ATEL service certificate shall be subject to:

- a) compliance with the requirements specified in this Regulation and any other requirements as may be deemed appropriate by the MCAA;
- b) any other conditions as may be specified or notified by the MCAA.

## **2.6 Duration of certificate**

2.6.1 An ATEL service certificate shall remain in force until it—

- a) expires if an expiry date was included in the certificate; or
- b) is suspended or revoked in accordance with paragraph 2.9.

## **2.7 Amendment of an ATEL certificate**

2.7.1 The MCAA may amend an ATEL services certificate issued under this Regulation upon—

- a) an application made by the holder of the certificate in a form prescribed by the MCAA; or

b) the initiative of the MCAA where it is deemed necessary.

2.7.2 A holder of an ATEL services certificate applying to the MCAA for amendment of the certificate under paragraph 2.7.1 (a) shall—

a) include in the application, the proposed amendment; and

b) pay such fee as may be prescribed under MCAR 187.

2.7.3 Where the MCAA initiates amendments under paragraph 2.7.1 (b) the holder of an air traffic services certificate shall make amendments as necessary, in the organisation exposition required by Chapter 4.

2.7.4 The MCAA may amend or decline the application to amend the certificate applied for, and, where the amendment is declined, the MCAA shall inform the applicant in writing, giving reasons for declining.

## **2.8 Transfer of an ATEL certificate**

2.8.1 An ATEL services certificate issued under this Regulation is not transferable.

## **2.9 Suspension and revocation of an ATEL services certificate**

2.9.1 The MCAA may suspend provisionally, pending further investigation, any certificate issued under this Regulation, if it is considered that—

a) a relevant provision of this Regulation or any other relevant Regulation, or a condition in the certificate, has not been or is not being complied with; or

b) false or materially incorrect information was given to the MCAA in the application for the certification; or

c) it is in the public interest to do so.

2.9.2 The MCAA may, where satisfied that the results of an investigation referred to in paragraph 2.9.1 has shown sufficient ground, suspend or revoke any certificate issued under this Regulation.

2.9.3 A holder of an ATEL service certificate which has been suspended or revoked, in accordance with this Regulation shall surrender the certificate to the MCAA within 7 days from the date of suspension, or revocation.

2.9.4 Pursuant to paragraph 2.9.1 (a), if, in the event that the results of an inspection or audit conducted by the MCAA, show that a relevant provision of this Regulation or any other relevant Regulation, or a condition in the certificate, has not been or is not being complied with, the MCAA shall formally notify the certificate holder in writing, of the non-compliances, specifying the time frame within which the non-compliances should be rectified.

2.9.5 Where the time period specified in accordance with paragraph 2.9.4 has lapsed and the non-compliances have not been addressed, the failure by the ATEL service provider to comply with the relevant requirements may be taken into account when determining the need to suspend or revoke the certificate.

- 2.9.6 An ATEL service certificate that has been suspended or revoked in accordance with this Regulation, shall be renewed, where the ATEL service provider satisfies the MCAA, through an audit process, that the non-compliances have been rectified.

## **CHAPTER 3 - GENERAL REQUIREMENTS FOR PROVISION OF AERONAUTICAL TELECOMMUNICATION SERVICES**

### **3.1 Organisation Exposition**

- 3.1.1 The holder of an ATEL service provider certificate shall, at all times, maintain an organisation exposition that complies with the requirements of Chapter 4 of this Regulation.

### **3.2 ATEL organisation**

- 3.2.1 An ATEL service provider shall, at all times, maintain an appropriate organisation with a sound and effective management structure to enable it to provide, in accordance with requirements prescribed in this Regulation and the provisions of ICAO Annex 10, the aeronautical telecommunication services covered by its certificate.

### **3.3 Personnel requirements**

- 3.3.1 An ATEL service provider shall engage, employ or contract sufficient, competent and qualified personnel to provide the ATEL services required under this Regulation.
- 3.3.2 In relation to the personnel referred to paragraph 3.3.1, an ATEL service provider shall—
- a) provide the ATEL personnel with appropriate trainings in accordance with the requirements of ICAO Doc 7192 (Part E-2 ATSEP Training Manual), ICAO Doc 10057 (Manual on ATSEP Competency-based Training and Assessment), and associated guidance material; and
  - b) certify the ATEL personnel as air traffic safety electronic personnel (ATSEP) with written evidence of the scope of their authorisation before they can exercise their duties.
  - c) establish a procedure to maintain the competency of the certified ATSEP personnel.
  - d) ensure that assessment for competency is being carried out by suitably qualified and experience personnel who has the appropriate level of knowledge of CNS/ATM systems.
- 3.3.3 An ATEL service provider shall engage or contract, competent and qualified personnel to perform the installation, commissioning, operation, maintenance and decommissioning of communications, navigation and surveillance (CNS) facilities.
- 3.3.4 An ATEL service provider shall provide in its organisation exposition, an analysis of the ATSEP required to perform the ATEL services listed in its certificate taking into account the duties and workload required.
- 3.3.5 An ATEL service provider shall—
- a) define a method for determining the required number of ATSEP and the procedure for their recruitment and progression; and

- b) establish and include in its organisation exposition, job descriptions including duties and responsibilities for ATSEP involved in the provision of ATEL services.

### **3.4 Training and certification of ATEL personnel**

- 3.4.1 An ATEL service provider shall ensure that a person does not perform a function related to the installation, commissioning, operation, maintenance or decommissioning of any CNS system unless—
  - a) that person has successfully completed training in the performance of that function;
  - b) the ATEL service provider, with supported documentation, is satisfied that the person is competent in performing that function; and
  - c) that person has been certified as an ATSEP with written evidence of the scope of his or her authorisation before the person can exercise his or her duties.
- 3.4.1.1 Personnel who are not being certified as an ATSEP with written evidence of the scope of his or her authorization shall be supervised by certified personnel when performing functions related to maintenance activities on CNS equipment.
- 3.4.2 An ATEL service provider shall in accordance with the requirements specified in Appendix 1, Section 1 of this Regulation —
  - a) establish minimum qualification requirements for its ATSEP;
  - b) develop and implement a training policy, training programme and training plan for the ATSEP taking into consideration, the individual ATSEP duties and responsibilities;
  - c) establish procedures for the training and certification of ATSEP;
  - d) maintain training records for each of its ATSEP.

### **3.5 ATEL facilities, equipment, tools, material and procedures**

- 3.5.1 Before issuing a certificate to an ATEL service provider, the MCAA shall be satisfied that the service provider's facilities, equipment, tools, material and procedures meet the requirements of this Regulation.

*Note: - The requirements referred to in paragraph 3.5.1 shall comply with the specifications outlined in ICAO Annex 10 as applicable.*

### **3.6 Services records**

- 3.6.1 An ATEL service provider shall keep adequate records of all services performed on its facilities and equipment.
- 3.6.2 The records referred to in paragraph 3.6.1 shall—
  - a) indicate the operating performance of the CNS facility;
  - b) indicate the records of facility failures and faults;

- c) retain the history of operation, details of the preventive maintenance activities, periodic inspection, and tests of the CNS facility that are traceable with the identity of the authorized personnel responsible of each of the recorded activities.

3.6.3 An ATEL service provider shall provide a copy of each certificate of release to service together with a copy of any specific facility specification used for repairs or modifications carried out, to the operator of the facility.

3.6.4 An ATEL service provider shall establish a procedure for recording maintenance details and for the retention of such maintenance records.

3.6.5 The records referred in 3.6.1 shall be retained for a period of at least 3 years or if a longer period is required by MCAA, or to establish a performance history of a particular ATEL facility

### **3.7 ATEL facility requirements**

3.7.1 An ATEL service provider shall ensure that—

- a) each Aeronautical Telecommunication (ATEL) facility listed in its organisation exposition—
  - (i) is designed and installed to meet the applicable operational specification provided by the equipment manufacturer, and in accordance with the system characteristics and specification standards prescribed in ICAO Annex 10 or any other relevant documents relating to the siting and construction of equipment and installations on operational areas;
  - (ii) is commissioned to meet the applicable operational specifications for that facility;
  - (iii) conforms to the applicable system characteristics and specifications standards set out in ICAO Annex 10;
  - (iv) is operated, maintained, available and reliable in accordance with the required standards; and
  - (v) has been allocated an identification code or call sign, if a code or call sign is required under this Regulation;
- b) information on the operational status of each ATEL facility listed in its organisation exposition, that is essential for the en-route, approach, landing, and take-off phases of flight is provided to meet the operational needs of the service being provided;
- c) each ATEL facility listed in its organisation 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;
- d) each ATEL facility listed in its organisation exposition is provided with equipment redundancy or increased maintenance staffing to ensure reliability and availability of operation appropriate to the needs of the air traffic service or radio navigation service being supported;

- e) each ATEL facility listed in its organisation exposition has sufficient and suitable spares to ensure continuity of operation appropriate to the needs of the air traffic service or radio navigation service being supported;
- f) a security programme required under 3.18 is established for each ATEL facility to minimise any risk of destruction of, damage to, or interference with the operation of the facility; and
- g) any critical site area of any ATEL facility listed in the organisation exposition is—
  - (i) clearly identified on the site drawings for the ATEL facilities; and
  - (ii) physically protected by suitable signposts on the site; and
  - (iii) protected by written agreements with the site owner, aerodrome operator, and air traffic control unit, as appropriate, to ensure that site restrictions are not infringed by buildings, fences, vehicles, machinery or aircraft.

3.7.2 An ATEL service provider who intends to operate a temporary ATEL facility to carry out site tests shall establish a procedure for conducting those tests as required under 5.4.

### **3.8 Documents and records to be maintained.**

3.8.1 An ATEL service provider shall hold and maintain the following documents:

- a) any technical manual used by the service provider at the facility; and
- b) any other publications and documents as may be specified by the MCAA.

3.8.2 For the purpose of paragraph 3.8.1 (a), a technical manual means—

- a) a document, other than the organisation exposition, that contains technical information about the operation and maintenance of a facility; and
- b) document or documents that may have been created for the equipment or facility by the manufacturer.

3.8.3 An ATEL service provider shall ensure that—

- a) a master copy of each document mentioned in this Regulation is kept safely;
- b) copies of documents are kept in a form that enables amendments to be made; and
- c) any document that has been replaced cannot be used by mistake.

3.8.4 An ATEL service provider shall retain each document that—

- a) is given to, or is created by or for, contracted service providers;
- b) relates to aviation safety; and
- c) provides a history of events that relate to the design, installation, testing, operation, maintenance, modification or repair of, or changes to, each facility.

3.8.5 A “document” for purposes of this Regulation includes any record of a kind that is given to, or created by the ATEL service provider for use in the provision of services as listed in Appendix 1, Section 2 of this Regulation.

- 3.8.6 A document retained under this Regulation shall be stored for a period of not less than 3 years.
- 3.8.7 An ATEL provider shall establish a procedure for the control of the documentation required under this Regulation.

### **3.9 ATEL facility performance**

- 3.9.1 An ATEL service provider shall establish a procedure to ensure that no ATEL facility listed in its organization exposition is placed into operational service unless—
- a) the person placing the ATEL facility into operational service is trained and certified in accordance with the requirements specified under paragraph 3.4 of this Regulation;
  - b) the appropriate checks detailed in the operating and maintenance instructions required under paragraph 5.2 of this Regulation have been carried out to verify the performance of the ATEL facility; and
  - c) the ATEL facility documents and records are maintained as required under paragraph 3.8 of this Regulation.

### **3.10 Inspection, measuring and test equipment**

- 3.10.1 An ATEL service provider shall satisfy the MCAA that it has the equipment, tools and material necessary to perform adequately the approved scope of work as required by the applicable equipment specifications, its manuals and the requirements of this Regulation.
- 3.10.2 An ATEL service provider shall ensure that appropriate inspection tools, measuring and test equipment are available for the ATSEP to maintain the operation of each ATEL facility listed in its organisation exposition.
- 3.10.3 An ATEL service provider shall establish procedures to control, calibrate, and maintain all the inspection tools, measuring, and test equipment to ensure that each item of equipment has the precision and accuracy that is necessary for the measurements and tests to be performed.
- 3.10.4 The procedure required under paragraph 3.10.3 shall require that each item of test equipment required for the measurement of critical performance parameters is—
- a) calibrated before use and at intervals specified by the MCAA and in accordance with standards set out by the equipment manufacturer;
  - b) identified with a suitable indicator to show its calibration status; and
  - c) controlled to—
    - (i) safeguard against adjustments that would invalidate the calibration setting; and
    - (ii) ensure that the handling, preservation, and storage of the test equipment are such that its accuracy and fitness for use is maintained.

3.10.5 If hardware and software systems are used for the performance testing of any ATEL facility, the procedures required under paragraph 3.10.3 shall require the functions of those testing systems to be checked—

- a) before being released for use; and
- b) at intervals specified by the MCAA, to establish that those testing systems are capable of verifying the true performance of the ATEL facility.

### **3.11 Notification of ATEL facility status**

3.11.1 A person operating an ATEL facility shall, as soon as possible—

- a) inform the relevant ATS units, of any incidents affecting the operational status of an ATEL facilities used in the provision of air traffic services;
- b) forward to the aeronautical information services (AIS):
  - (i) information on the operational status of any new ATEL facility, for publication in the aeronautical information publication (AIP); and
  - (ii) information concerning any change in the operational status of any existing ATEL facility, for the issue of a NOTAM;
- c) check and ensure that the information forwarded to the AIS under paragraph 3.11.1 (b) has been accurately published; and
- d) notify the MCAA, as appropriate, of any incidents affecting the status of published information.

3.11.2 An ATEL service provider shall establish a procedure to ensure that the requirements of paragraph 3.11.1 are met for each applicable ATEL facility listed in its organisation exposition.

3.11.3 The procedure required under paragraph 3.11.2 shall include a means to confirm that—

- a) the operational details of the ATEL facility as notified to the AIS have been accurately published in the AIP; and
- b) any change to the operational status of the ATEL facility has been published by a NOTAM.

### **3.12 Interruption to services**

3.12.1 An ATEL service provider shall—

- a) establish procedures to be used in the event of interruption to CNS facilities;
- b) establish procedures to be used when upgrading CNS facilities; and
- c) specify an acceptable recovery time for each service.

### **3.13 Periodic maintenance, inspection and testing**

3.13.1 An ATEL service provider shall establish procedures for the periodic maintenance, inspection and testing of the ATEL facilities listed in its organisation exposition to verify

that each facility meets the applicable operational requirements and performance specifications for that facility.

3.13.2 The procedures required under paragraph 3.13.1 shall —

- a) include ground maintenance, inspections and tests, and if necessary, flight tests;
- b) include the criteria for establishing or changing the interval between the periodic tests for each ATEL facility listed in the organisation exposition, having regard to—
  - (i) any applicable information published by the MCAA;
  - (ii) any applicable reliability data for the ATEL facility; and
  - (iii) information on the proven reliability performance of the ATEL facility, and of other similar aeronautical facilities, and the stability of the ATEL facility's operating environment; and
- c) ensure that the grounds for establishing or changing the interval between the periodic tests and the method used to determine the interval for each ATEL facility listed in the organisation exposition are documented.

3.13.3 An ATEL service provider shall establish a programme for the conduct of periodic—

- a) ground maintenance, inspections and tests for each ATEL facility listed in its organisation exposition;
- b) flight tests for each ATEL facility listed in its organisation exposition.
- c) ground check and flight tests for each radio navigation aid listed in its organisation exposition in accordance with the maximum periodicity requirements specified in 3.13.4.

3.13.4 The maximum periodicity of ground check and flight tests of radio navigation aids referred to in paragraph 3.13.3 (c), shall be as follows:

- a) Conventional Very High Frequency Omni-directional Range (CVOR) shall be ground checked once in six months and flight tested once in 12 months;
- b) Doppler Very High Frequency Omni-directional Range (DVOR) shall be ground checked once in six months and flight tested once in 12 months;
- c) Distance Measuring Equipment (DME) shall be ground-checked once in six months and flight tested once in 12 months; and
- d) Instrument Landing System (ILS) shall be ground-checked once in three months and flight tested once in six months.

3.13.5 An ATEL service provider shall publish a NOTAM and notify the MCAA of any radio navigation aid that has not undergone the scheduled periodic flight tests.

### **3.14 ATEL facility check after accident or incident**

3.14.1 An ATEL service provider shall establish a procedure for checking and ensuring accurate recording of the operating condition of any ATEL facility operated under its

certificate that may have been used by an aircraft, or by an air traffic service unit during an occurrence involving an aircraft accident or incident.

3.14.2 The procedure required under paragraph 3.14.1 shall require that—

- a) a person is designated by the service provider to coordinate the checks;
- b) the persons carrying out the checks required in sub-paragraph (a) shall not include anyone who was the last person to work on the facility;
- c) the checking of the ATEL facility's operating condition is carried out as soon as possible after notification of the accident or incident to the holder of the ATEL service provider certificate;
- d) the record of that check, and the recorded history of the ATEL facility, is kept in a secure place for possible use by any subsequent accident or incident investigation; and
- e) the records required to be secured under sub-paragraph (d) are retained for 5 years from the date of the last entry made on that record.

### **3.15 Facility malfunction and safety incidents**

3.15.1 An ATEL service provider shall establish procedures for the reporting, collection, investigation and notification of facility malfunction and safety incidents.

3.15.2 The procedures for notification required by paragraph 3.15.1 shall include a procedure for notifying the MCAA, as soon as possible, of any facility malfunction and safety incidents.

3.15.3 The ATEL service provider shall periodically compile and review reports of facility malfunctions and safety incidents to—

- a) determine the cause of the incidents and determine any adverse trends;
- b) implement corrective and preventive actions to eliminate the cause of a facility malfunction and safety incident and prevent recurrence of the incidents; and
- c) implement any measures to improve the safety performance of the ATEL systems.

3.15.4 The ATEL service provider shall report any serious service failure or safety incident to the MCAA for investigation in order to understand how and why the incident happened, including possible organisational contributing factors and to recommend actions to prevent a recurrence.

### **3.16 Records maintenance procedures**

3.16.1 An ATEL service provider shall establish procedures to identify, collect, index, store, maintain, and dispose of the records covering—

- a) the performance and maintenance history of each ATEL facility;
- b) the establishment of the periodic test programmes for each ATEL facility;

- c) each item of test equipment required for the measurement of critical performance parameters;
- d) each reported or detected ATEL facility malfunction;
- e) each internal quality assurance review; and
- f) each person who is authorised to place ATEL facilities into operational service.

3.16.2 The procedures required under paragraph 3.16.1 shall require that accurate records of the following are maintained:

- a) for each ATEL facility, a record—
  - (i) documenting the operating performance of the ATEL facility; and
  - (ii) providing a history of the maintenance, and the periodic inspections and tests of the ATEL facility, that are traceable to the person or persons responsible for each of the recorded activities;
- a) for each ATEL facility, a record of the establishment of, or a change in, the periodic tests required under this Regulation;
- b) for each item of test equipment that is used for the measurement of an ATEL facility's critical performance parameter, a record that includes a traceable history of the location, maintenance, and the calibration checks for the item of test equipment;
- c) for each ATEL facility malfunction incident reported, a record that includes—
  - (i) details of the nature of the malfunction;
  - (ii) the findings of the investigation;
  - (iii) the follow up corrective actions; and
  - (iv) if applicable, a copy of the report submitted to the MCAA;
- d) for each person who is authorised in accordance with this Regulation to place ATEL facilities into operational service, a record that includes details of the person's experience, qualifications, training, competence assessments, and current authorisations.

3.16.3 The procedures required under paragraph 3.16.1 shall require -

- a) All records to be legible and of a permanent nature; and
- b) All ATEL facility records required under paragraph 3.16.2 to be retained for a period of at least five years.

### **3.17 Quality management system**

3.17.1 An ATEL service provider shall establish a quality management system and a quality assurance system for the control, supervision and the management of ATEL services that it provides.

- 3.17.2 The quality management system and a quality assurance system required under paragraph 3.17.1 shall be in accordance with requirements specified in Appendix 1, Section 3 of this Regulation.

### **3.18 Security programme**

- 3.18.1 An ATEL provider shall, establish a security programme to minimise the risk of destruction of damage to, or interference with the operation of ATEL systems.
- 3.18.2 The security programme required under paragraph 3.18.1 shall be in accordance with the requirements specified in Appendix 1, Section 4 of this Regulation.
- 3.18.3 In preparing an ATEL provider security programme, the ATEL provider shall take into consideration, the guidance contained in the NCASP.

### **3.19 Common reference systems for use in ATEL**

- 3.19.1 Subject to the standard units of measurement specified under MCAR-5, an ATEL service provider shall use—
- a) The Gregorian calendar and Coordinated Universal Time (UTC) expressed in hours' minutes and seconds of the 24-hour day where midnight is designated as 2400 for the end of the day and 0000 for the beginning of the day, as the temporal reference system;
  - b) Mean Sea Level (MSL) as the vertical reference system; and
  - c) World Geodetic System: 1984 (WGS-84) as the horizontal (geodetic) reference system.

## **CHAPTER 4 - REQUIREMENTS FOR THE ORGANIZATION EXPOSITION**

### **4.1 General**

- 4.1.1 An applicant for the grant of an aeronautical telecommunication service certificate shall prepare and submit to the MCAA, an organisation exposition for acceptance.
- 4.1.2 The organisation exposition shall—
- a) be prepared in a format that is easy to revise;
  - b) include a list of amendment pages and the list of effective pages;
  - c) be organised in a manner that facilitates evaluation and certification process and in accordance with requirements specified under regulations 4.2 and 4.3;
  - d) be signed by the accountable manager of the ATEL service organisation.

### **4.2 Contents of the Organization Exposition**

- 4.2.1 An ATEL service provider's organisation exposition shall contain all information and instructions necessary to enable the ATEL provider's personnel perform their duties.
- 4.2.2 The ATEL service provider's organisation exposition shall include—
- a) the ATEL provider's organisation structure;
  - b) the ATEL services provided or to be provided and their hours of operation;
  - c) the personnel requirements including:
    - (i) recruitment policies and terms of service;
    - (ii) ATSEP job descriptions including duties and responsibilities and minimum entry requirements;
  - d) training policies, training programmes and training plans including the methods to be used for competency assessment or testing of staff;
  - e) the Quality Management System and the system for the management of safety;
  - f) contingency plans and/or arrangements in the event of system failure;
  - g) the list of ATEL facilities to be operated under the certification;
  - h) the security programme for ATEL facilities;
  - i) the technical description of the ATEL systems used in the provision of air navigation services including technical specifications of the facilities and equipment;
  - j) the system for installation ATEL systems including the procedures;
  - k) the operation and maintenance programme and the operation and maintenance plan, including the procedures to be used to make changes to the operation and maintenance plan;
  - l) faults and defect reporting;

- m) the system for the conduct of flight inspections and calibration of equipment;
- n) mechanisms for coordination to ensure interoperability and seamless operations in the regional upper airspace;
- o) the system for maintaining documents and records;
- p) additional requirements as specified in Appendix 1, Section 5 of this Regulation.

### **4.3 Formatting and administration of the Exposition**

4.3.1 Each page of the organisation exposition shall indicate the following elements—

- a) the title of the exposition;
- b) the date of the original document or the date of any subsequent amendment;
- c) the issuing authority; and
- d) page number.

### **4.4 Amendment of the Organization Exposition**

4.4.1 For the purpose of maintaining the accuracy of the information in the exposition, the—

- a) holder of an ATEL service certificate may whenever necessary, amend the organisation exposition and submit the amendment to the MCAA for acceptance;
- b) MCAA may direct a holder of an aeronautical telecommunication service certificate to amend the organisation exposition in a way specified in the direction.

4.4.2 A holder of an aeronautical telecommunication service certificate shall—

- a) ensure that the exposition continues to provide a current description of the ATEL organisation, services, and facilities;
- b) ensure that any amendments made to the exposition meet the applicable requirements of this Regulation;
- c) comply with the amendment procedure described in the exposition;
- d) provide the MCAA with a copy of each amendment to the exposition as soon as practicable after its incorporation into the exposition, except that, for the holder's operational manual or manuals, the holder shall forward to the MCAA—
  - (i) a copy of each amendment, at least 30 working days in advance of the effective date; and
  - (ii) an amendment of an urgent or immediate nature, without delay, and no later than the date on which it is effective.
- e) comply with any amendment direction the MCAA may consider necessary in the interests of aviation safety.

4.4.3 When submitting the amended exposition to the MCAA for acceptance, a holder of an ATEL services certificate shall ensure that the replaced pages are annotated with a

vertical line in the outer margin to indicate the portion, which has been revised as follows:

- a) a vertical line beside text or diagram indicates that the item has been amended;
- b) the specific editorial or typographical changes shall not otherwise be marked;
- c) a vertical line beside a blank space in between text indicates that a previous item has been removed; and
- d) the date of amendment shall appear at the foot of the page.

4.4.4 A holder of an aeronautical telecommunication services certificate shall ensure that no changes are made to the organisation exposition except in accordance with this Regulation.

4.4.5 A holder of an aeronautical telecommunication services certificate may notify urgent changes or temporary instructions affecting the information in the exposition by issuing of supplementary procedures, in which case, such supplementary procedures shall be deemed to form a part of the main text of the exposition until either incorporated therein by a routine amendment or cancelled.

4.4.6 A holder of an ATEL services certificate shall make available copies of the changes or temporary instructions issued from time to time through supplementary procedures in terms of 4.4.5 above, to the units providing the aeronautical telecommunication services.

4.4.7 The person in charge of a unit providing an ATEL services shall be responsible for ensuring that any changes or temporary instructions issued through supplementary procedures are incorporated into the exposition until they are either published in the exposition or cancelled.

#### **4.5 Documentation forming part of the Organization Exposition**

4.5.1 The procedures required to be included in the organisation exposition under 4.2 of this Regulation may be published as stand-alone documents and such documents shall by reference in the organisation exposition be considered to form part of the organisation exposition.

4.5.2 The stand-alone documents referred to in paragraph 4.5.1 may include but not limited to—

- a) operational procedures relating to specific ATEL services;
- b) ATEL equipment and facility specifications, operation and maintenance procedures.

## **CHAPTER 5 - OPERATING REQUIREMENTS**

### **5.1 Continued compliance**

- 5.1.1 An ATEL service provider shall have in place a programme for monitoring the performance of the services it provides to verify that the services provided continue to comply with the requirements specified for ATEL facilities and services.
- 5.1.2 Notwithstanding the generality of paragraph 5.1.1, the programme for monitoring the performance of ATEL services shall continue to comply with the requirements specified in this Regulation and in Appendix 1, Section 6 of this Regulation.
- 5.1.3 An ATEL service provider shall in accordance with paragraph 5.1.1—
- a) continue to meet the standards and comply with the certification requirements prescribed in this Regulation;
  - b) continue to meet the requirements of this Regulation and the requirements for communication, navigation and surveillance systems contained in Annex 10 to the Convention on International Civil Aviation as adopted in this Regulation, and associated ICAO documents; and
  - c) continue to comply with all procedures specified in its organisation exposition and associated technical manuals and procedures.
- 5.1.4 An ATEL service provider shall provide to the inspectors of the MCAA and any person authorised by the MCAA, unrestricted access to its services, facilities and documents for the purpose of carrying out such safety and regulatory inspections and audits which may be necessary for ensuring continued compliance.

### **5.2 Operating and maintenance instructions**

- 5.2.1 An ATEL service provider shall—
- a) have in place, operating and maintenance instructions that set out the procedures for operating and maintaining each ATEL facility listed in its organisation exposition; and
  - b) provide the operating and maintenance instructions required under paragraph 5.2.1 (a) to its ATEL personnel for their use and guidance.
- 5.2.2 The operating and maintenance instructions required under paragraph 5.2.1 shall include—
- a) details of the critical performance parameters for each ATEL facility;
  - b) the associated minimum performance levels for those critical performance parameters referred to in sub paragraph (a);
  - c) details of the test equipment required for the measurement of those critical performance parameters referred to in sub paragraph (a); and
  - d) details of the mandatory inspection and test procedures for the operation and maintenance of each ATEL facility.

### **5.3 Deviations**

- 5.3.1 If an emergency, including a disruption, necessitates immediate action for the protection of life, property and the environment and the action involves an aircraft operation, the holder of an ATEL service provider certificate may, subject to limitations of its certificate, deviate from any requirement of this Regulation.
- 5.3.2 The holder of an ATEL service provider certificate who deviates from a requirement of this Regulation in accordance with paragraph 5.3.1 shall—
- a) provide a written report to the MCAA as soon as possible, but in any case, not later than 7 days, after the emergency; and
  - b) include in the report required under sub paragraph (a) the cause, nature, extent, and duration of the deviation.

### **5.4 Temporary ATEL facility**

- 5.4.1 Where a temporary ATEL facility is operated for the purpose of a site test, an ATEL service provider shall not be required to comply with certification requirements specified in Chapter 3 of this Regulation.
- 5.4.2 The ATEL service provider operating a temporary facility for the purpose of a site test in accordance with paragraph (a) shall—
- a) establish procedures for conducting those tests;
  - b) ensure that the operation of the facility does not cause interference with any other operating ATEL facility;
  - c) forward information regarding operation of the temporary facility to the AIS for the issuance of a NOTAM; and
  - d) ensure that the NOTAM required in (c) above, has been published before operating the temporary facility.

### **5.5 Limitations on ATEL service provider**

- 5.5.1 Except for the operation of a temporary ATEL facility for site tests in accordance with 5.4 of this Regulation, an ATEL service provider shall not permit an ATEL facility to continue in operational service if there is any reason to suspect or doubt the integrity of the information being provided by the facility.
- 5.5.2 An ATEL service provider shall not operate a radio transmitting ATEL facility on an aeronautical radio frequency except under a radio apparatus licence granted by the Communications Authority of the Maldives.
- 5.5.3 Except where a deviation is required under paragraph 5.3 of this Regulation or a site test is carried out in accordance with paragraph 5.4 of this Regulation, an ATEL service provider shall not operate an ATEL facility under the authority of that certificate unless—
- a) the ATEL facility is listed in the service provider's organisation exposition;

- b) the performance of the ATEL facility meets the applicable information published for that facility in the organisation exposition;
- c) the performance of the ATEL facility meets the standards applicable to that facility;
- d) the integrity monitoring system in place for the ATEL facility is fully functional;
- e) all the periodic maintenance for the ATEL facility is completed according to the programmes established under this Regulation;
- f) the ATEL facility is included in the service provider's security programme and the requirements of the security programme for the ATEL facility are being complied with; and
- g) the destruction, damage, or interference with the ATEL facility is not likely to endanger the safety of an aircraft in flight.

## **5.6 Interface arrangement for support services**

- 5.6.1 An ATEL service provider shall formalise interface arrangements, where applicable, with external organisations in the form of service level agreements.
- 5.6.2 The service level agreements required under paragraph 5.6.1 shall detail—
- a) the interface and functional specifications of the support service;
  - b) the service level of the support service such as continuity, availability, accuracy, integrity and recovery time of failure of service; and
  - c) the monitoring and reporting of the operational status of the service by the service provider.

## **5.7 Operation and maintenance programme and plan**

- 5.7.1 An ATEL service provider shall establish an overall operation and maintenance programme to ensure continuous operation and monitoring of the ATEL services it provides.
- 5.7.2 The operation and maintenance programme shall ensure that all ATEL facilities—
- a) are maintained for normal operations on a routine basis;
  - b) meet the required level of continuity, reliability and availability;
  - c) provide for the timely and appropriate detection and warning of system failures and degradations;
- 5.7.3 The operation and maintenance programme shall include:
- a) documentation on the consequences of system, sub-system and equipment failures and degradations; and
  - b) measures to control the probability of failures and degradations.
- 5.7.4 In addition to the overall operation and maintenance programme, the ATEL service provider shall establish an operation and maintenance plan for each facility.

5.7.5 The operation and maintenance plan shall include—

- a) a procedure for the periodic maintenance, inspection and testing of each ATEL facility to verify that the facility meets the operational and performance specifications of that facility including procedures for:
  - (i) details of routine ground testing of ATEL facilities;
  - (ii) details of any flight test, if necessary;
- b) the intervals between the periodic maintenance, inspection and the testing of each ATEL facility including intervals between flight tests and the basis for those intervals;
- c) a procedure for making changes to the operation and maintenance plan including changes to the intervals referred to in (b) above and the reasons that may give rise to the changes;
- d) the operation and maintenance instructions for each ATEL facility;
- e) an analysis of the number of personnel required to operate and maintain each ATEL facility taking into account the workload required;
- f) the corrective plan and procedures for each ATEL facility, including, whether the repair of modules and component are undertaken in-house or by equipment manufacturers; and
- g) the spare support plan for each ATEL facility.

5.7.6 The routine ground testing of ATEL facilities referred to in paragraph 5.7.5 (a) may not be required where the system established allows for—

- a) continuous monitoring of all ATEL systems from a centralised management control room; and
- b) immediate detection and alerting of malfunctions or deviations from specified performance requirements.

## **5.8 Safety case**

5.8.1 An ATEL service provider shall ensure that a safety case, or equivalent, is conducted for critical systems before commissioning.

5.8.2 The safety case, required in paragraph 5.8.1 shall be conducted—

- a) before commissioning of new equipment or service; or
- b) whenever there is a proposed change to an existing equipment or service.

5.8.3 The safety case shall be conducted in accordance with safety management principles and the requirements specified in Appendix 1, Section 7 of this Regulation.

## **5.9 Commissioning of new facilities**

5.9.1 An ATEL service provider shall ensure that each new CNS facility is—

- a) commissioned to meet the specification standards for that facility; and

- b) installed in accordance with the requirements specified in ICAO Annex 10 before commissioning.

5.9.2 The ATEL service provider shall ensure that the system performance of the new ATEL facility has been validated by the necessary tests, and that all parties involved with the operations and maintenance of the ATEL facility, including its maintenance contractors have accepted and are satisfied with the results of the tests.

5.9.3 The ATEL service provider shall develop procedures to be followed for the commissioning of new facilities.

5.9.4 The ATEL service provider shall ensure that procedures required in paragraph 5.9.3 include documentation of tests conducted on the facility prior to the commissioning of the facility, including:

- a) tests conducted for the purpose of ensuring that the facility complies with the applicable standards set out in ICAO Annex 10; and
- b) flight tests conducted in compliance with this Regulation.

## **5.10 Radio site approval**

5.10.1 A person may not install a radio site, unless that person has obtained prior approval from the MCAA.

5.10.2 An application to install a radio site shall be submitted to the MCAA in a form prescribed by the MCAA and in accordance with requirements specified in Appendix 1, Section 8 of this Regulation.

5.10.3 The approval to install a radio site shall be granted if the MCAA is satisfied that—

- a) the facility or equipment is solely intended for purpose of air navigation; and
- b) that the applicant is competent to install or operate the equipment; and
- c) the equipment is fit for its intended purpose.

5.10.4 The person applying for an approval to install a radio site shall notify the MCAA of the type of the facility to be installed, the service to be provided and the availability of such facility and service for use by any aircraft.

5.10.5 The MCAA may approve a person or organisation to provide particular services in connection with approved equipment.

5.10.6 The MCAA may require the flight calibration and commissioning of such equipment by an authorised person or organisation.

5.10.7 Notwithstanding paragraph 5.10.4, the MCAA may require that the type, and availability of any service which is available for use by aircraft, be published in a NOTAM or in the AIP.

## **5.11 Frequencies, identification codes and call signs**

5.11.1 A person may not operate—

- a) a radio navigation aid, unless the radio navigation aid has been assigned an operating frequency and identification code by the MCAA;
- b) a radio communication transmitter on an aeronautical radio frequency spectrum, unless it has been assigned an operating frequency and call sign by the MCAA, and a radio apparatus licence has been granted by the Communications Authority of Maldives (CAM).

5.11.2 The MCAA shall allocate an identification code for a navigation aid or call sign for an aeronautical radio communication facility if satisfied that the allocation of such code or call sign is not contrary to the interest of aviation safety.

## **5.12 Protection of radio sites**

- 5.12.1 An ATEL service provider shall ensure that radio sites are protected in accordance with requirements specified in Appendix 1, Section 9 of this Regulation and the related standards prescribed by ICAO.
- 5.12.2 A person may not allow a structure or object, whether natural or artificial, which has the potential of interfering or degrading radio signals for the purpose of aviation safety, to come in existence or to move or be moved within the surfaces and slopes of radio navigation aids sites.

## **5.13 Interference with radio signals**

- 5.13.1 An ATEL provider shall notify the MCAA as soon as possible, of any electromagnetic interference to any facility providing radio signals, or any source of interference degrading radio signals.
- 5.13.2 The MCAA shall upon being notified of the interference with radio signals in terms of paragraph 5.13.1, require the Communications Authority of Maldives to investigate, or cause to be investigated, all reports of interference, and to take further action as may be required to avoid recurrence.
- 5.13.3 The ATEL service provider shall—
  - a) ensure that there is no intentional transmission of unnecessary or anonymous radio signals, messages or data by any of its radio stations;
  - b) have in place:
    - (i) procedures for reporting of any frequency interference occurrences to the MCAA and the Communications Authority of Maldives;
    - (ii) procedures for investigation of radio frequency interference occurrences and for following up to prevent recurrence
  - c) make arrangements with the relevant Communications Authority of the State to address occurrence of radio frequency interference.

#### **5.14 Information provided by ATEL facility**

- 5.14.1 A person may not allow a facility providing radio signals for the purpose of aviation safety to continue in operation, if there is any reasonable cause to suspect that the information being provided by that facility is erroneous.

#### **5.15 Test transmissions**

- 5.15.1 An ATEL service provider may make a test transmission if the transmission is necessary to test a service, ATEL facility or equipment.
- 5.15.2 An ATEL service provider making a test transmission in accordance with paragraph 5.15.1, shall within a reasonable time before commencing the transmission, inform the users of the intention to carry out the transmission.
- 5.15.3 The ATEL service provider shall notify the MCAA of its intention to conduct a test transmission for the purpose of evaluating a radio site, or the operational viability of an ATEL facility or equipment for the purpose of aviation safety.
- 5.15.4 Pursuant to paragraph 5.15.3, the ATEL provider shall ensure that—
- a) the MCAA is notified as to the purpose and duration of such test transmissions; and
  - b) no test transmission is carried out unless prior approval is received from the MCAA;
  - c) the test transmissions are made in accordance with requirements specified in Appendix 1, Section 10 of this Regulation.

#### **5.16 Management system**

- 5.16.1 An ATEL service provider shall establish, implement, and maintain a system for the management of safety in accordance with requirements specified in Appendix 1, Section 11 of this Regulation.
- 5.16.2 The system for the management of safety shall form an integral part of the ATS management system required under MCAR 172.

#### **5.17 Station (site) logs**

- 5.17.1 An ATEL service provider shall keep site logs for all facilities used to provide an ATEL service in accordance with requirements described in Appendix 1, Section 12 of this Regulation.

## **CHAPTER 6 - STANDARDS FOR ATEL FACILITIES AND SERVICES**

### **6.1 Radio navigation aids**

- 6.1.1 An ATEL service provider shall ensure that radio navigation aids used for air navigation comply with the requirements set out in Volume I of Annex 10 to the Convention on International Civil Aviation as amended from time to time.

### **6.2 Communication procedures including those with PANS status**

- 6.2.1 An ATEL service provider shall ensure that communication procedures, including those with Procedures for Air Navigation Services (PANS) status, used in the provision of air navigation services and for air navigation, comply with the requirements set out in Volume II of Annex 10 to the Convention on International Civil Aviation as amended from time to time.

### **6.3 Communication systems**

- 6.3.1 An ATEL service provider shall ensure that digital data communication systems used in the provision of air navigation services and for air navigation, comply with the requirements set out in Volume III, Part 1, of Annex 10 to the Convention on International Civil Aviation as amended from time to time.
- 6.3.2 An ATEL service provider shall ensure that voice communication systems used in the provision of air navigation services and for air navigation, including air-to-ground, ground-to-air and ground-to-ground communication systems, comply with the requirements set out in Volume III, Part 2, of Annex 10 to the Convention on International Civil Aviation as amended from time to time.

### **6.4 Surveillance and collision avoidance systems**

- 6.4.1 An ATEL service provider shall ensure that surveillance and collision avoidance systems used in the provision of air navigation services and for air navigation, comply with the requirements set out in Volume IV of Annex 10 to the Convention on International Civil Aviation as amended from time to time.

### **6.5 Aeronautical radio frequency spectrum utilisation**

- 6.5.1 An ATEL service provider shall ensure that the utilisation of aeronautical radio frequency spectrum provided for air navigation services and for air navigation, comply with the standards set out in Volume V of Annex 10 to the Convention on International Civil Aviation as amended from time to time.

### **6.6 Other facilities used to provide ATS, AIS, SAR, MET and PANS-OPS**

- 6.6.1 An ATEL service provider shall ensure that all other facilities including auxiliary facilities used in the provision of air navigation services and for air navigation comply with the specifications prescribed for those facilities.

## **6.7 Human Factors considerations**

- 6.7.1 An ATEL service provider shall ensure that human factor principles are observed in the design and operation of aeronautical telecommunication services in accordance with requirements specified in Appendix 1, Section 13 of this Regulation.

## **APPENDIX 1 - ADDITIONAL REQUIREMENTS AND INFORMATION**

The requirements and information in this Appendix are supplementary to the related regulations.

### **1. Training and certification of ATEL personnel (Reg. 3.4 refers)**

1.1. When establishing the minimum qualification, training and certification requirements for its personnel, the ATEL service provider shall take into consideration, the duties and responsibilities of the ATSEP. The following are some of the duties that normally govern the day-to-day practical work of the ATSEP:

- a) Carrying out technical duties related to developmental work concerning the electromechanical, electronic and computerized equipment of CNS/ATM systems, and testing prototypes;
- b) Providing technical support in the design and layout of specific interface circuitry for air navigation and surveillance systems;
- c) Preparing and contributing to cost estimates, technical and training specifications for air traffic control and safety equipment;
- d) Providing or assisting with the technical supervision of construction, installation and operation of ground-based CNS/ATM system/equipment;
- e) Ensuring that system/equipment standards and specifications are met;
- f) Applying the knowledge and skills of air traffic safety engineering principles and practices, in order to identify and solve problems arising in the course of their work;
- g) Developing, modifying and debugging system software;
- h) Modifying CNS/ATM systems/equipment in order to improve capability, reliability and integrity, or to facilitate air traffic control procedures and airspace designation;
- i) Controlling and monitoring CNS/ATM system/equipment;
- j) Calibrating ground-based air navigation and surveillance system/equipment to ensure maximum accuracy, and safety of flight, take-off and landing operations;
- k) Certifying CNS/ATM systems/equipment; and
- l) Providing technical training.

#### ***Minimum academic qualifications***

1.2. The minimum academic qualification for ATEL personnel performing operation and maintenance functions associated with aeronautical telecommunication facilities is a university degree or diploma in any of the following engineering fields:

- a) Aviation Electronics Technology;
- b) Communications Engineering;

- c) Electrical and Electronics Engineering;
- d) Computer and Networking Engineering;

Additional qualification in the following area is essential:

- e) Information Technology.

- 1.3. The MCAA may determine and accept qualifications and practical experience providing equivalence to the requirements listed in paragraph 5.2 above.
- 1.4. For those personnel that carry out or supervise electrical and mechanical trade work only, the minimum qualification is an electrical or mechanical trade qualification, as relevant.
- 1.5. Where an ATEL service provider considers that the operation and maintenance of a particular type of facility is not technically complex, lesser qualifications may be acceptable for those personnel who operate and maintain that type of facility. In this case, the minimum academic qualifications shall be as follows:
  - a) a minimum educational level of successful completion of secondary school; and
  - b) a minimum of 1600 hours of post-secondary, college or military education, specialized in electronic technology.

***Training programme – progression of ATSEP training***

- 1.6. The training programme for ATSEP shall cover the following levels of training:
  - a) Basic *training* – to acquire fundamental knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment;
  - b) Qualification *training* – to acquire job category related knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment involving the following five disciplines:
    - (i) Communications systems training;
    - (ii) Navigation Aids (NAVAIDS) training
    - (iii) Surveillance systems training;
    - (iv) Data processing training;
    - (v) Power Supply training;
  - c) System/*Equipment rating training* – to acquire system/equipment knowledge and skills leading to recognized competency. This shall include the On-the-Job Training (OJT), which is the practical integration of previously acquired knowledge and skills, under the supervision of a qualified On-the-Job-Training Instructor (OJTI), in an operational environment;
  - d) Continuation *training* – training given to personnel, designed to augment existing knowledge and skills and/or to prepare for new technologies. This includes refresher, and conversion training. Refresher and emergency training are also called the “recurrent training”

- (i) Refresher *Training*: Designed to review, reinforce or upgrade existing knowledge and skills, including team skills;
  - (ii) Emergency *Training*: Includes training in emergencies, in unusual situations and in degraded system performance. Most of the training is site specific or may make use of incident/accident analysis;
  - (iii) Conversion *Training*: Designed to provide knowledge and skills appropriate to change in either job category (new discipline or new type rating), environment (new procedures) or systems (upgrade or change);
- e) Developmental *training* – training designed to provide additional knowledge and skills demanded by a change in the job profile e.g., Flight Inspection, System Monitoring and Control, Training Instructor, Installation/Engineering Technologist, etc.

*Note: Further guidance on ATSEP training is provided in ICAO Doc 7192, Part E-2 – ATSEP Training Manual. Guidance on ATSEP Competency training is provided in ICAO Doc 10057 – Manual on ATSEP Competency-based Training and Assessment*

***Personnel training and certification - authorizing certificate***

- 1.7. An ATEL provider shall provide personnel with an authorising certificate which:
- a) establishes the identity of the personnel;
  - b) details the scope of the authorisation granted to the personnel by listing the facilities, or types of facilities, which a person is authorised to operate and/or maintain; and
  - c) includes the effective date, and the period of time for which each of the authorisations remain valid.
- 1.8. An ATEL provider shall not grant an authorising certificate with respect to a particular facility or a class of facilities unless it has established that the personnel:
- a) have undergone a competency-based course of instruction or on-the-job training specific to that facility or that class of facility;
  - b) have been assessed to be competent in the operation and maintenance of the facility or the class of facility by an assessor who:
    - (i) has been trained and accredited in workplace assessment and training at an appropriate technical training facility or institution;
    - (ii) holds formal recognition of competency in the unit being assessed, at or above the level being assessed; and
    - (iii) have current knowledge of the workplace and job/role of the person being assessed.

***Note:*** *If an assessor does not have all the competencies required, he/she may be paired with another assessor who has the additional competencies to conduct assessments.*

***Refresher training and recency checking procedure***

- 1.9. An ATEL provider shall have a process for refresher training and recency checking of personnel to ensure the on-going retention of personnel competency on the types of facility for which an authorising certificate has been granted.

## **2. Documents and records to be maintained (Reg. 3.8 refers)**

### *Documents to be held by the ATEL service provider*

- 2.1. An ATEL service provider shall hold and maintain certain documentation essential to the safe provision of ATEL and air navigation services.
- 2.2. Documents that are essential and should be maintained by the ATEL service provider include but are not limited to:
- a) The primary legislation;
  - b) The ATEL services regulation;
  - c) The ATS regulations;
  - d) ICAO Annex 10 Volumes I to V and the related ICAO documents, as amended from time to time;
  - e) MCAR 11, as amended from time to time;
  - f) the functional specification and technical specification of services and facilities that are operated and/or maintained by the service provider;
  - g) records of the configuration of facilities;
  - h) facility operation and maintenance plans;
  - i) interface agreements with other organisations;
  - j) facility technical manuals or instructions;
  - k) local instructions and technical procedures; and
  - l) safety cases.

### ***Document and data control processes***

- 2.3. An ATEL service provider shall establish a document control system which covers the authorisation, standardization, publication, distribution and amendment of all documentation issued by the organisation or required by the organisation for the provision of ATEL services.
- 2.4. The processes in 6.3 above should ensure that:
- a) authorisation of documents and records is made by a designated authority appropriate to the provider's management and safety accountability structures;
  - b) the currency of documents and records can be readily determined and that only current versions are available for operational use;
  - c) documents are made available at locations where they are needed by the ATEL service provider personnel;

- d) a master copy of the relevant documents and records is securely held;
- e) archival of documents and records is done whenever they have been superseded.

2.5. All documents that are related to and referenced in the Organisation exposition are to be indexed in that manual.

***Records system and procedures***

2.6. An ATEL service provider shall establish a system for records which covers identification, collection, indexing, storage, security, maintenance, access and disposal of records necessary for the provision of ATEL services.

2.7. The records system should provide an accurate chronicle of activities for the purpose of reconstruction of events for air safety investigation, and for system safety analysis. Records kept include:

- a) records of design, manufacturing, procurement, installation, testing, commissioning, modification, and decommissioning;
- b) records of the designated authorities for the design, operation and maintenance for each system;
- c) records of hazard analysis and risk assessments;
- d) records of facility performance and facility maintenance history including performance parameter values, test facilities utilised, identity of authorised technicians conducting operation and maintenance, changes to maintenance procedures;
- e) records of facility failures and faults;
- f) records of defect reports and associated defect investigations;
- g) records of technician's competencies, including details of experience, qualifications, training, competency assessments, and facility authorisations.

**3. Quality management system (Reg. 3.17 refers)**

3.1. An ATEL service provider shall ensure that its organizational structure and associated accountabilities, resources, processes and procedures, establish and promote a system of continuous quality assurance and improvement while delivering ATEL services.

3.2. The ATEL service providers quality management system and the system for the management of safety should be complementary with the quality system focusing on compliance with prescribed quality standards while the safety system focuses on safety performance.

3.3. Both the ATEL service provider's quality management system and the system for the management of safety shall:

- a) be planned and managed;
- b) depend upon measurement and monitoring of performance indicators;

- c) involve all organizational functions related to the delivery of ATEL services; and
  - d) strive for continuous improvement of the ATEL services provided.
- 3.4. The ATEL service provider's system for the management of safety and the quality assurance function shall utilise similar risk management and assurance processes. The objective of the system for the management of safety is to identify safety-related hazards, manage safety risk and measure safety performance during delivery of services with the aim of eliminating hazards or providing effective controls to mitigate safety risks. The quality assurance function on the other hand, aims at identifying ineffective processes and procedures that must be redesigned for efficiency and effectiveness.
- 3.5. Given the complementary aspects of the safety and quality systems, an ATEL provider shall ensure that:
  - a) The system for the management of safety is supported by QMS processes such as auditing, inspection, investigation, root cause analysis, process design, statistical analysis and preventive measures;
  - b) QMS anticipates safety issues that exist despite the organization's compliance with standards and specifications; and
  - c) quality principles, policies and practices are linked to the objectives of safety management.
- 3.6. ATEL organizations may experience changes due to introduction of new systems, equipment, policies, programmes, services and equipment standards. Quality management practices require that the impact on the quality of services resulting from such change be evaluated, and new procedures and processes be put in place. Sound management of changes is therefore critical to the maintenance of the ATEL service provider's quality assurance system.
- 3.7. In managing change in the quality assurance system, an ATEL service provider shall take into account the following considerations:
  - a) *Criticality of systems and activities.* Changes to equipment and activities associated with relatively high impact on the established processes and procedures must be evaluated to ensure that necessary measures are taken to redesign the procedures and processes.
  - b) *Stability of systems and operational environments.* Planned changes under the direct control of the organization may be associated with the introduction of new equipment or services or increased air traffic levels. ATEL service providers should also review their processes and procedures more frequently in instances where frequent systemic or environmental changes occur.
  - c) *Past performance.* Past performance of critical systems may be a reliable indicator of future performance. An ATEL service provider shall employ trend analyses to track the performance of the quality assurance processes and procedures over time and to factor this information into the planning of future activities under situations of change.

#### **4. Security programme (Reg. 3.18 refers)**

- 4.1. An ATEL security programme shall specify the physical security requirements, practices, and procedures to be followed for the purposes of minimising the risk of destruction of damage to, or interference with the operation of ATEL systems.
- 4.2. The security programme shall specify such physical security requirements, practices, and procedures as may be necessary for—
  - a) ensuring that entrances to permanent ATEL facilities are subject to positive access control at all times, so as to prevent unauthorised entry;
  - b) protecting personnel on duty;
  - c) preventing damage to facility or equipment;
  - d) monitoring ATEL facilities to ensure that any intrusion or interference is avoided.
- 4.3. The security programme shall be managed as a secure document.
- 4.4. At the request of the CAA, the ATEL service provider shall make available the security program for inspection and review by CAA inspector or authorised personnel.

#### **5. ATEL service provider organisation exposition (Reg. 4.2 refers)**

- 5.1. In addition to the requirements specified under regulation 4.2, an ATEL service provider's organisation exposition shall include the functional specifications and performance values of services.
- 5.2. The functional specifications and performance values of services shall be derived or measured from either or both of—
  - a) the configuration of each service; and
  - b) the known performance of each service.
- 5.3. The functional specifications and performance values of services shall include:
  - a) the functional specification of each ATEL service/system;
  - b) availability, reliability, accuracy and integrity values or characteristics for each ATEL system and the method used to calculate each of the values.
- 5.4. The technical description of the ATEL systems shall include:
  - a) the kind and location of each facility; and
  - b) the technical specification of each kind of facility; and
  - c) how each facility interconnects with any other facility or service; and
  - d) the way in which the service provider monitors each facility to ensure that it is operating in accordance with its technical specification.
- 5.5. The operation and maintenance programme shall include:
  - a) the procedures used for maintenance, including the procedures used for repair;
  - b) a description of the system used to schedule maintenance;

- c) the interval between performance inspections and the method used to determine the interval;
- d) operating and maintenance instructions for the facility;
- e) the system for determining the key personnel required to implement operations and maintenance programme and plans including analysis of ATEL personnel numbers and their qualifications;
- f) if one or more flight inspections are necessary:
  - (i) the standards and procedures used for flight inspections; and
  - (ii) the interval between flight inspections; and
  - (iii) the identity of the person or persons who will conduct flight inspections.

5.6. The ATEL provider's organisation exposition shall contain procedures or methods:

- a) for the conduct of flight inspection service including equipment calibration;
- b) for recording the way in which each telecommunication or radio navigation service and each related facility is configured at any time;
- c) to be used to ensure that the design of each facility and each item of equipment provides a safe service;
- d) to be used to ensure that the design of, or changes to a service or facility is authorised by a person who is qualified and competent to do so;
- e) to be used to specify any changes to a service or facility, and to design, test and implement those changes;
- f) for commissioning and decommissioning of ATEL services or facilities;
- g) for maintaining records of the operational performance of the ATEL services;
- h) for monitoring the performance of each service and facility, and for comparing the results with the appropriate technical specification;
- i) to be used if a service fails or a facility fault occurs, including the way in which the failure or fault is to be reported and rectified;
- j) for reporting and rectifying any defects found during operation and maintenance of the facility;
- k) to be used to:
  - (i) detect and correct any latent defects in equipment; and
  - (ii) change software to adapt to any changes to the configuration of hardware; and
  - (iii) change the design of equipment or facilities to adapt to any change to the functional or technical specification.

*Note: The term **flight inspection** as used in this Regulation means, a test of the accuracy, coverage or any other aspect of the performance of a service or facility conducted by using test equipment on board an aircraft in flight.*

## **6. Continued compliance (Reg. 5.1 refers)**

- 6.1. An ATEL service provider shall have in place, a programme for monitoring the performance of the services it provides to verify that the services provided comply with the standards specified for ATEL facilities and services.
- 6.2. The programme required shall include:
  - a) internal safety inspections and audits of each ATEL facility listed in the ATEL service providers organisation exposition;
  - b) testing and calibration, as applicable, of each equipment listed in its organisation exposition.
- 6.3. An ATEL service provider:
  - a) shall review its procedures and processes related to each ATEL operation through an internal audit process using specified procedures;
  - b) may conduct internal audits of its organization through an entity that is external to the service provider to ensure independence and objectivity of the internal audit results;
  - c) shall develop and use checklists, questionnaires and where appropriate, confidential interviews in conducting internal audit of its services.
- 6.4. In conducting internal safety audits and inspection of its services, an ATEL service provider shall focus on any matters, including but not limited to, management functions, staffing, compliance with regulations and standards, levels of competency and training.

## **7. Safety case (Reg. 5.8 refers)**

- 7.1. A safety risk assessment shall be conducted as part of the safety case before commissioning of critical systems.
- 7.2. The safety risk assessment in a safety case shall:
  - a) identify all potential safety hazards associated with the operation of each service, in normal and abnormal modes of operation;
  - b) assess the safety risk of each hazard;
  - c) identify the means of mitigation of unacceptable safety risks.
- 7.3. Existing services and/or facilities having a demonstrated history of safe operation for more than two years at the date of initial certification do not need to be covered by a baseline safety case.
- 7.4. A safety case shall be prepared to support a proposed new equipment or service, or a proposed change to an existing equipment or service, if:

- a) the effect of the change would not be in accordance with the certificate issued to the ATEL service provider; or
- b) the proposed change requires prior notification to and /or approval by the CAA in accordance with the ATEL service regulations.

## **8. Radio site approval (Reg. 5.10 refers)**

- 8.1. Any radio site, whether temporary or permanent shall receive prior approval from the CAA.
- 8.2. An application for approval shall be made to the CAA on the prescribed form.
- 8.3. The application shall indicate the type of radio site and duration of the service it shall provide.
- 8.4. Safety assessment documentation (safety case) shall be submitted with the application for any new service, and shall:
  - a) contain argument and evidence that the system meets or exceeds the appropriate standard of safety;
  - b) reflect one of the following two situations;
    - (i) the safety of the existing, on-going, operation; or
    - (ii) a change to the existing operation, such as a new project or procedure;
  - c) be presented in a reasonable format as long as its scope is well defined and it provides the necessary arguments and evidence required for its purpose.
- 8.5. Private radiotelephony base station applications shall be accompanied by proof of competency in the use of aeronautical voice radio equipment.
- 8.6. A private radiotelephony base station application referred to in paragraph (12.5) is not subject to a safety case, but should be accompanied by a write-up/submission justifying the application.
- 8.7. Handheld or mobile radio equipment used within the confines of an aerodrome are deemed to be a base station.

## **9. Protection of radio sites (Reg. 5.12 refers)**

- 9.1. If safeguarding is not undertaken then it is likely that a gradual degradation of the integrity of the radio signal will take place. Degradation of radio signals may be assumed when:
  - a) reports or complaints are received from pilots or ATC regarding poor coverage or increased background noise; or
  - b) results of flight calibration of radio navigation aids such as ILS and VOR indicate worsening of the signals received or transmitted.
- 9.2. The degradation of radio signals can be avoided by proactively safeguarding the technical sites in accordance with prescribed standards. The ATEL service provider shall be responsible for the protection and technical safeguarding of all its radio sites

In accordance with the provisions contained in Volume I of Annex 10 to the Convention on International Civil Aviation.

9.3. Technical safeguarding shall consist of two processes:

- a) *Physical protection*: Most physical objects act as reflectors or diffractors of radio signals. A combination of object size, design, material, proximity and incident radio wavelength, can make them particularly efficient reflectors or diffractors.
- b) *Technical site safeguarding*: a process applied as part of the technical safeguarding of radio sites. The process seeks to prevent any development nearby radio sites, which may degrade the electromagnetic signals.

9.4. Each radio site has a technical area to be safeguarded associated with it. On an aeronautical chart, a frame, representing this area, is drawn around the location of such equipment. If a proposed development falls within that frame or volume, further analysis, or reasoned outright rejection shall be considered. The size and shape of the frame is dependent upon the type of equipment and its aerial system.

9.5. The ATEL service provider shall obtain specific criteria from the manufacturer or supplier of their equipment regarding the area to be safeguarded for specific equipment and apply criteria pertinent to its own technical sites. The criteria used to safeguard specific equipment shall be made available to an inspector or authorised person of the CAA upon request.

9.6. The following is a list of ATEL facilities/equipment that shall be safeguarded. The list not exclusive:

- a) ILS including the ILS Localiser and ILS Glide Path
- b) DME
- c) VOR;
- d) DME;
- e) RADAR sites including surface movement radar;
- f) Multi-lateration (MLAT);
- g) Automatic Dependent Surveillance – Broadcast (ADS-B);
- h) VHF Direction Finder (VDF);
- i) VHF / UHF Receivers / Transmitters;
- j) Radar and Radio Link Routes;
- k) 75 MHz Marker Beacons;
- l) NDB

9.7. The ATEL service provider shall ensure that:

- a) safeguarding maps for its radio sites are registered with the National Authorities;
- b) there are arrangements in place for receiving from the Local Planning Authorities copies of applications for developments in and within the vicinity of the radio sites for which it is responsible;

- c) the MCAA is provided with evidence of adequate technical safeguarding of each radio site for which it is responsible.

9.8. The ATEL service provider shall, if it is determined that the quality of service of a radio signal is reduced below acceptable limits, withdraw such radio equipment from operational use until corrective measures have been taken.

## **10. Test transmissions (Reg. 5.15 refers)**

10.1. An ATEL service provider shall ensure that:

- a) the test transmissions contain information indicating that it is a test transmission; and
- b) frequencies allocated for the purpose of testing are valid for the duration of the test only; and
- c) the operation of a temporary ATEL facility does not cause any interference with any other operational facility; and
- d) transmissions for site evaluation or testing purposes are limited to a period not exceeding 30 days; and
- e) a temporary facility radiates for a period not exceeding 90 days; and
- f) when a Morse identification signal is radiated during a test transmission, the code "TST" (Tango Sierra Tango) is used; and
- g) any voice transmission indicates that it is a test transmission.

## **11. Management system (Reg. 5.16 refers)**

- (a) An organisation to which this Regulation applies shall implement and maintain a system for safety management that includes;
  - (1) clearly defined lines of responsibility and accountability throughout the organisation, including a direct safety accountability of the accountable manager;
  - (2) a description of the overall philosophies and principles of the organisation with regard to safety, referred to as the safety policy;
  - (3) the identification of aviation safety hazards entailed by the activities of the organisation, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness;
  - (4) maintaining personnel trained and competent to perform their tasks;
  - (5) documentation of all management system key processes, including a process for making personnel aware of their responsibilities and the procedure for amending this documentation;
  - (6) a function to monitor compliance of the organisation with the relevant requirements. Compliance monitoring shall include a feedback system of findings to the accountable manager to ensure effective implementation of corrective actions as necessary; and

- (7) any additional requirements that are prescribed in this Regulation or any other Regulation applicable to the organisation.
- (b) The management system shall correspond to the size of the organisation and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in these activities.
- (c) Where the organisation holds one or more additional organisation certificates within the scope of Maldives Civil Aviation Authority Act 2/2012 and its implementing regulations, the management system should be integrated with that required under the additional certificate(s) held.

**AMC1 11(a)(1) Complex Organisations**

The management system of an organisation should encompass safety by including a safety manager and a safety review board in the organisational structure.

- (a) Safety manager
  - (1) The safety manager should act as the focal point and be responsible for the development, administration and maintenance of an effective safety management system.
  - (2) The functions of the safety manager should be to:
    - (i) facilitate hazard identification, risk analysis and management;
    - (ii) monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan;
    - (iii) provide periodic reports on safety performance;
    - (iv) ensure maintenance of safety management documentation;
    - (v) ensure that there is safety management training available and that it meets acceptable standards;
    - (vi) provide advice on safety matters; and
    - (vii) ensure initiation and follow-up of internal occurrence/accident investigations.
  - (3) If more than one person is designated for the safety management function, the accountable manager should identify the person who acts as the unique focal point (i.e. the 'safety manager').
- (b) Safety review board
  - (1) The safety review board should be a high-level committee that considers matters of strategic safety in support of the accountable manager's safety accountability.
  - (2) The board should be chaired by the accountable manager and be composed of heads of functional areas.
  - (3) The safety review board should monitor:
    - (i) safety performance against the safety policy and objectives;
    - (ii) that any safety action is taken in a timely manner; and
    - (iii) the effectiveness of the organisation's safety management processes.
- (c) The safety review board should ensure that appropriate resources are allocated to achieve the established safety performance.
- (d) The safety manager or any other relevant person may attend, as appropriate, safety

review board meetings. He/she may communicate to the accountable manager all information, as necessary, to allow decision making based on safety data.

### **GM1 11(a)(1) Safety Manager**

#### **SAFETY MANAGER**

- (a) Depending on the size of the organisation and the nature and complexity of its activities, the safety manager may be assisted by additional safety personnel for the performance of all safety management related tasks.
- (b) Regardless of the organisational set-up it is important that the safety manager remains the unique focal point as regards the development, administration and maintenance of the organisation's safety management system.

#### **COMPETENCIES OF THE SAFETY MANAGER**

- (c) The safety manager as defined under AMC1 100.2(a)(1) is expected to support, facilitate and lead the implementation and maintenance of the safety management system, fostering an organisational culture for an effective safety management, risk management and occurrence reporting. The competencies for a safety manager should thus include, but not be limited to, the following:
  - (1) Knowledge of:
    - (i) ICAO standards and Maldivian requirements and provisions on safety management;
    - (ii) basic safety investigation techniques; and
    - (iii) human factors in aviation.
  - (2) Relevant and documented work experience, preferably in a comparable position, in:
    - (i) management systems including compliance monitoring systems and safety management;
    - (ii) risk management; and
    - (iii) the operations of the organisation.
  - (3) Other suitable competencies
    - (i) the promotion of a positive safety culture;
    - (ii) interpersonal, influencing and leadership skills;
    - (iii) oral and written communication skills;
    - (iv) data management, analytical and problem-solving skills;
    - (v) professional integrity.

### **GM2 11(a)(1) Safety Action Group**

- a) A safety action group may be established as a standing group or as an ad-hoc group to assist or act on behalf of the safety review board.
- b) More than one safety action group may be established depending on the scope of the task and specific expertise required.
- c) The safety action group should report to and take strategic direction from the safety review board and should be comprised of managers, supervisors and personnel from operational areas.

- d) The safety action group should:
  - 1) monitor operational safety;
  - 2) define actions to mitigate the identified safety risks;
  - 3) assess the impact on safety of operational changes; and
  - 4) ensure that safety actions are implemented within agreed timescales.
- e) The safety action group should review the effectiveness of previous safety recommendations and safety promotion.

**GM3 11(a)(1) Meaning of the Terms 'Accountability' and 'Responsibility'**

In the English language, the notion of accountability is different from the notion of responsibility. Whereas 'accountability' refers to an obligation which cannot be delegated, 'responsibility' refers to an obligation that can be delegated.

**AMC1 11(a)(2) Safety Policy**

- a) The safety policy should:
  - 1) be endorsed by the accountable manager;
  - 2) reflect organisational commitments regarding safety and its proactive and systematic management;
  - 3) be communicated, with visible endorsement, throughout the organisation; and
  - 4) include safety reporting principles.
- b) The safety policy should include a commitment:
  - 1) to improve towards the highest safety standards;
  - 2) to comply with all applicable legislation, meet all applicable standards and consider best practices;
  - 3) to provide appropriate resources;
  - 4) to enforce safety as one primary responsibility of all managers; and
  - 5) not to blame someone for reporting something which would not have been otherwise detected.
- c) Senior management should:
  - 1) continually promote the safety policy to all personnel and demonstrate their commitment to it;
  - 2) provide necessary human and financial resources for its implementation; and
  - 3) establish safety objectives and performance standards.

**GM1 11(a)(2) Safety Policy**

The safety policy is the means whereby the organisation states its intention to maintain and, where practicable, improve safety levels in all its activities and to minimise its contribution to the risk of an aircraft accident as far as is reasonably practicable.

The safety policy should state that the purpose of safety reporting and internal investigations is to improve safety, not to apportion blame to individuals.

**AMC1 11(a)(3) Safety Risk Management**

- a) Hazard identification processes
  - 1) Reactive and proactive schemes for hazard identification should be the formal means of collecting, recording, analysing, acting on and generating feedback about hazards and the associated risks that affect the safety of the operational activities of the organisation.
  - 2) All reporting systems, including confidential reporting schemes, should include an effective feedback process.
- b) Risk assessment and mitigation processes
  - 1) A formal risk management process should be developed and maintained that ensures analysis (in terms of likelihood and severity of occurrence), assessment (in terms of tolerability) and control (in terms of mitigation) of risks to an acceptable level.
  - 2) The levels of management who have the authority to make decisions regarding the tolerability of safety risks, in accordance with (b)(1), should be specified.
- c) Internal safety investigation
  - 1) The scope of internal safety investigations should extend beyond the scope of occurrences required to be reported to the competent authority.
- d) Safety performance monitoring and measurement
  - 1) Safety performance monitoring and measurement should be the process by which the safety performance of the organisation is verified in comparison to the safety policy and objectives.
  - 2) This process should include:
    - i) safety reporting, addressing also the status of compliance with the applicable requirements;
    - ii) safety studies, that is, rather large analyses encompassing broad safety concerns;
    - iii) safety reviews including trends reviews, which would be conducted during introduction and deployment of new technologies, change or implementation of procedures, or in situations of structural change in operations;
    - iv) safety audits focussing on the integrity of the organisation's management system, and periodically assessing the status of safety risk controls; and
    - v) safety surveys, examining particular elements or procedures of a specific operation, such as problem areas or bottlenecks in daily operations, perceptions and opinions of operational personnel and areas of dissent or confusion.

- e) The management of change  
The organisation should manage safety risks related to a change. The management of change should be a documented process to identify external and internal change that may have an adverse effect on safety. It should make use of the organisation's existing hazard identification, risk assessment and mitigation processes.
- f) Continuous improvement  
The organisation should continuously seek to improve its safety performance. Continuous improvement should be achieved through:
  - 1) proactive and reactive evaluations of facilities, equipment, documentation and procedures through safety audits and surveys;
  - 2) proactive evaluation of individuals' performance to verify the fulfilment of their safety responsibilities; and
  - 3) reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk.
- g) The emergency response plan (ERP)
  - 1) An ERP should be established that provides the actions to be taken by the organisation or specified individuals in an emergency. The ERP should reflect the size, nature and complexity of the activities performed by the organisation.
  - 2) The ERP should ensure:
    - i) an orderly and safe transition from normal to emergency operations;
    - ii) safe continuation of operations or return to normal operations as soon as practicable; and
    - iii) coordination with the emergency response plans of other organisations, where appropriate.

**GM1 11(a)(3) Internal Safety Reporting Scheme**

- a) The overall purpose of the internal safety reporting scheme is to use reported information to improve the level of the safety performance of the organisation and not to attribute blame.
- b) The objectives of the scheme are to:
  - 1) enable an assessment to be made of the safety implications of each relevant incident and accident, including previous similar occurrences, so that any necessary action can be initiated; and
  - 2) ensure that knowledge of relevant incidents and accidents is disseminated, so that other persons and organisations may learn from them.
- c) The scheme is an essential part of the overall monitoring function and it is complementary to the normal day-to-day procedures and 'control' systems and is not intended to duplicate or supersede any of them. The scheme is a tool to identify those instances where routine procedures have failed.

- d) All occurrence reports judged reportable by the person submitting the report should be retained as the significance of such reports may only become obvious at a later date.

### **GM3 11(a)(3) Safety Risk Assessment — Risk Register**

The results of the assessment of the potential adverse consequences or outcome of each hazard may be recorded by the organisation in a risk register, an example of which is provided below.

Hazard		Incident Sequence Description	Existing Controls	Outcome (Pre-Mitigation)			Additional Mitigation required	Outcome (Post-Mitigation)			Actions and Owners	Monitoring and Review Requirements
No.	Description			S	L	R		S	L	R		

KEY: S = Severity; L = Likelihood; R = Risk

### **GM4 11(a)(3) Safety Risk Management — Interfaces**

- a) Hazard identification and risk assessment start with an identification of all parties involved in the arrangement, including independent experts and non-approved organisations. It extends to the overall control structure, assessing, in particular, the following elements across all subcontract levels and all parties within such arrangements:
- 1) coordination and interfaces between the different parties;
  - 2) applicable procedures;
  - 3) communication between all parties involved, including reporting and feedback channels;
  - 4) task allocation responsibilities and authorities; and
  - 5) qualifications and competency of key personnel.
- b) Safety risk management focuses on the following aspects:
- 1) clear assignment of accountability and allocation of responsibilities;
  - 2) only one party is responsible for a specific aspect of the arrangement — no overlapping or conflicting responsibilities, in order to eliminate coordination errors;
  - 3) existence of clear reporting lines, both for occurrence reporting and progress reporting;
  - 4) possibility for staff to directly notify the organisation of any hazard suggesting an obviously unacceptable safety risk as a result of the potential consequences of this hazard.

### **AMC1 11(a)(4) Training and Communication on Safety**

- a) Training

- 1) All personnel should receive safety training as appropriate for their safety responsibilities.
  - 2) Adequate records of all safety training provided should be kept.
- b) Communication
- 1) The organisation should establish communication about safety matters that:
    - i) ensures that all personnel are aware of the safety management activities as appropriate for their safety responsibilities;
    - ii) conveys safety critical information, especially relating to assessed risks and analysed hazards;
    - iii) explains why particular actions are taken; and
    - iv) explains why safety procedures are introduced or changed.
  - 2) Regular meetings with personnel where information, actions and procedures are discussed may be used to communicate safety matters.

**GM1 11(a)(4) Training and Communication on Safety**

The safety training programme may consist of self-instruction via the media (newsletters, flight safety magazines), classroom training, e-learning or similar training provided by training service providers.

**AMC1 11(a)(5) Management System Documentation — General**

- a) The organisation's management system documentation should at least include the following information:
- 1) a statement signed by the accountable manager to confirm that the organisation will continuously work in accordance with the applicable requirements and the organisation's documentation, as required by applicable regulations;
  - 2) the organisation's scope of activities;
  - 3) the titles and names of:
    - i) the accountable manager, who has the authority for ensuring that all activities can be financed in accordance with the applicable requirements;
    - ii) person or group of persons nominated by the organisation, with the responsibility of ensuring the organisation remains in compliance with the applicable regulations;
  - 4) an organisation chart showing the lines of responsibility between the persons referred to in (3);
  - 5) a general description and location of the facilities;
  - 6) procedures specifying how the organisation ensures compliance with the applicable requirements;

- 7) the amendment procedure for the organisation's management system documentation.
- b) The organisation's management system documentation may be included in a separate manual or in (one of) the manual(s), as required by the applicable regulations. A cross-reference should be included.

**AMC2 11(a)(5) Safety Management Manual**

- a) The safety management manual (SMM) should be the key instrument for communicating the approach to safety for the whole of the organisation. The SMM should document all aspects of safety management, including the safety policy, objectives, procedures and individual safety responsibilities.
- b) The contents of the safety management manual should include all of the following:
  - 1) scope of the safety management system;
  - 2) safety policy and objectives;
  - 3) safety accountability of the accountable manager;
  - 4) safety responsibilities of key safety personnel;
  - 5) documentation control procedures;
  - 6) hazard identification and risk management schemes;
  - 7) safety action planning;
  - 8) safety performance monitoring;
  - 9) incident investigation and reporting;
  - 10) emergency response planning;
  - 11) management of change (including organisational changes with regard to safety responsibilities);
  - 12) safety promotion.
- c) The SMM may be contained in (one of) the manual(s) of the organisation.

**GM 11(a)(5) Management System Documentation — General**

- a) It is not required to duplicate information in several manuals. The information may be contained in any of the organisation's manuals (e.g. operations manual, aerodrome manual, maintenance organisation exposition, etc.), which may also be combined.
- b) The organisation may also choose to document some of the information required to be documented in separate documents (e.g. procedures). In this case, it should ensure that manuals contain adequate references to any document kept separately. Any such documents are then to be considered an integral part of the organisation's management system documentation.

**AMC1 11(a)(6) Compliance Monitoring — General**

- a) Compliance monitoring

The implementation and use of a compliance monitoring function should enable the organisation to monitor compliance with the relevant requirements of this Regulation and other applicable regulations.

- 1) The organisation should specify the basic structure of the compliance monitoring function applicable to the activities conducted.
  - 2) The compliance monitoring function should be structured according to the size of the organisation and the complexity of the activities to be monitored.
- b) Organisations should monitor compliance with the procedures they have designed to ensure safe activities. In doing so, they should as a minimum, and where appropriate, monitor compliance with:
- 1) privileges of the organisation;
  - 2) manuals, logs, and records;
  - 3) training standards;
  - 4) management system procedures and manuals; and
  - 5) required resources.
- c) Organisational set up
- 1) To ensure that the organisation continues to meet the requirements of this Regulation and other applicable regulations, the accountable manager should designate a compliance monitoring manager. The role of the compliance monitoring manager is to ensure that the activities of the organisation are monitored for compliance with the applicable regulatory requirements, and any additional requirements as established by the organisation, and that these activities are carried out properly under the supervision of the relevant head of functional area.
  - 2) The compliance monitoring manager should be responsible for ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved.
  - 3) The compliance monitoring manager should:
    - i) have direct access to the accountable manager;
    - ii) not be one of the other persons referred to in AMC1 100.2(a)(5)(a)3;
    - iii) be able to demonstrate relevant knowledge, background and appropriate experience related to the activities of the organisation, including knowledge and experience in compliance monitoring; and
    - iv) have access to all parts of the organisation, and as necessary, any contracted organisation.
  - 4) In the case of a non-complex organisation, this task may be exercised by the accountable manager provided he/she has demonstrated having the related competence as defined in (c)(3)(iii).

- 5) In the case the same person acts as compliance monitoring manager and as safety manager, the accountable manager, with regards to his/her direct accountability for safety, should ensure that sufficient resources are allocated to both functions, taking into account the size of the organisation and the nature and complexity of its activities.
  - 6) The independence of the compliance monitoring function should be established by ensuring that audits and inspections are carried out by personnel not responsible for the function, procedure or products being audited.
  - 7) If more than one person is designated for the compliance monitoring function, the accountable manager should identify the person who acts as the unique focal point (i.e. the 'compliance monitoring manager').
- d) Compliance monitoring documentation
- 1) Relevant documentation should include the relevant part(s) of the organisation's management system documentation.
  - 2) In addition, relevant documentation should also include the following:
    - i) terminology;
    - ii) specified activity standards;
    - iii) a description of the organisation;
    - iv) the allocation of duties and responsibilities;
    - v) procedures to ensure regulatory compliance;
    - vi) the compliance monitoring programme, reflecting:
      - (A) schedule of the monitoring programme;
      - (B) audit procedures;
      - (C) reporting procedures;
      - (D) follow-up and corrective action procedures; and
      - (E) recording system.
    - vii) the training syllabus referred to in (e)(2);
    - viii) document control.
- e) Training
- 1) Correct and thorough training is essential to optimise compliance in every organisation. In order to achieve significant outcome of such training, the organisation should ensure that all personnel understand the objectives as laid down in the organisation's management system documentation.
  - 2) Those responsible for managing the compliance monitoring function should receive training on this task. Such training should cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting and recording.
  - 3) Time should be provided to train all personnel involved in compliance management and for briefing the remainder of the personnel.

- 4) The allocation of time and resources should be governed by the volume and complexity of the activities concerned.

**GM1 11(a)(6) Compliance Monitoring — General**

- a) The organisational set-up of the compliance monitoring function should reflect the size of the organisation and the nature and complexity of its activities. The compliance monitoring manager may perform all audits and inspections himself/herself or appoint one or more auditors by choosing personnel having the related competence as defined in AMC1 2.37(a)(6) point (c)(3)(iii), either from, within or outside the organisation.
- b) Regardless of the option chosen it must be ensured that the independence of the audit function is not affected, in particular in cases where those performing the audit or inspection are also responsible for other functions for the organisation.
- c) In case external personnel are used to perform compliance audits or inspections:
  - 1) any such audits or inspections are performed under the responsibility of the compliance monitoring manager; and
  - 2) the organisation remains responsible to ensure that the external personnel has relevant knowledge, background and experience as appropriate to the activities being audited or inspected; including knowledge and experience in compliance monitoring.
- d) The organisation retains the ultimate responsibility for the effectiveness of the compliance monitoring function, in particular for the effective implementation and follow-up of all corrective actions.

**12. Station (site) logs (Reg. 5.17 refers)**

- 12.1. An ATEL service provider shall maintain a site log for all facilities used to provide an ATEL service.
- 12.2. The site log shall record all occurrences and actions relating to operation, maintenance, modification, failure, faults, and removal from and restoration to service.
- 12.3. Entries in site logs shall include the date/time of the entry and the occurrence and must be signed by the technician or other person making the entry.
- 12.4. Site log records shall be retained for at least five years.

**13. Human Factors considerations (Reg. 6.7 refers)**

- 13.1. Human factors principles shall be observed in the design and approval of surveillance radar, transponder and collision avoidance systems.

*Note. Guidance material on Human Factors principles can be found in Doc 9683, Human Factors Training Manual and Circular 249 (Human Factors Digest No. 11 — Human Factors in CNS/ATM Systems)*