REPUBLIC OF MAURITIUS
DEPARTMENT OF CIVIL AVIATION
Sir Seewoosagur Ramgoolam International Airport, Plaine Magnien

MAURITIUS CIVIL AVIATION REQUIREMENTS

MCAR - ATS

Air Traffic Services

ISSUE 1 | REV 2

03 April 2025

FOREWORD

Regulation 87 of the Civil Aviation Regulations 2007 as amended stipulates that the operator and, where appropriate, the commander of any aircraft in or over Mauritius shall comply with the rules of the air and air traffic control as contained in the Fourteenth Schedule or in the Mauritius Civil Aviation Requirements published by the Authority, whichever is applicable.

The Standards in this MCAR, together with the Standards in MCAR ROA "Rules of the Air", govern the application of the Procedures for Air Navigation Services — Air Traffic Management (Doc 4444, PANS-ATM) and the Regional Supplementary Procedures — Rules of the Air and Air Traffic Services, contained in Doc 7030, in which latter document will be found subsidiary procedures of regional application.

MCAR ATS pertains to the establishment of airspace, units and services necessary to promote a safe, orderly and expeditious flow of air traffic. A clear distinction is made between air traffic control service, flight information service and alerting service. Its purpose, together with MCAR ROA "Rules of the Air", is to ensure that flying on air routes is carried out under uniform conditions designed to improve the safety and efficiency of air operation.

MCAR ATS-Issue 1 Rev 0 was issued under the provisions of Regulation 135 of the Civil Aviation Regulations as amended and replaces the requirements prescribed in Civil Air Navigation Requirements of Mauritius (CANRM), Section 2: Air Navigation, Series A: Air Traffic Management, Part II Air Traffic Services, issue 2-rev 0, dated 04 November 2014.

MCAR ATS-Issue 1 Rev 0 was based on the provisions of ICAO Annex 11 "Air Traffic Services", 15th edition July 2018, amendment 52 dated 5 November 2020.

This MCAR ATS, Issue 1 Rev 1 is based on the provisions of ICAO Annex 11 "Air Traffic Services", 15th edition, amendment 53 dated 28 of November 2024.

This MCAR-ATS Issue 1 Rev 1 will be effective as from 28 of November 2024.

This MCAR-ATS Issue 1 Rev 2 will be effective as from 03 of April 2025.

I POKHUN
Director of Civil Aviation

ISSUE AND REVISION SYSTEM

THE REVISIONS TO THIS REQUIREMENT WILL BE INDICATED BY A VERTICAL BAR ON THE LEFT SIDE, IN FRONT OF THE LINE, SECTION OR FIGURE THAT HAS BEEN AFFECTED. AN ISSUE WILL BE THE REPLACEMENT OF THE COMPLETE DOCUMENT.

THESE REVISIONS MUST BE RECORDED ON THE RECORD OF REVISIONS TABLE OF THIS DOCUMENT, INDICATING THE RESPECTIVE NUMBER, DATE IT WAS ENTERED AND SIGNED BY THE PERSON ENTERING THE REVISION.

RECORD OF REVISIONS

REV NO.	DATE	INSERTED BY
Issue 1, rev. 0	24 February 2023	ANS Inspector
Revision 1	08 November 2024	ANS Inspector
Revision 2	03 April 2025	ANS Inspector

NOTE

The content of this document is arranged as follows:

The main requirements appear first, followed by the related acceptable means of compliance (AMC), and guidance material (GM) paragraph(s).

All elements (i.e. Requirement, AMC and GM) are colour-coded and can be identified according to the illustration below:

Requirements

Acceptable Means of Compliance

Guidance Material

TABLE OF CONTENT

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GENERAL REQUIREMENTS

ATS.001 General Applicability

This MCAR ATS Requirement applies to Air Traffic Services providers whether they are service providers from the State of Mauritius or an independent Air Traffic Services providers. The Standards in MCAR ATS apply in those parts of the airspace under the jurisdiction of Mauritius wherein air traffic services are provided and wherever Mauritius accepts the responsibility of providing air traffic services over the high seas or in airspace of undetermined sovereignty. Mauritius accepting such responsibility may apply these Standards in a manner consistent with that adopted for airspace under its jurisdiction.

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SECTION A

TECHNICAL REQUIREMENTS

CHAPTER 1

GENERAL

ATS.005 Establishment of ATS authority

(1) Air traffic services provisions

The air traffic services provider shall provide the air traffic services as follows:

(a) in the entire airspace over the Mauritian territory which they have jurisdiction including territorial water except the special use airspace,

(b) over those portions of the airspace and those aerodromes where air traffic services will be provided,

(c) in the airspace delegated to Mauritius by another State,

(d) in the airspace over high seas for which the responsibility has been delegated by ICAO as per Regional Air Navigation Agreement.

The ATS provider shall arrange for such services to be established and provided in accordance with the provisions of this MCAR.

(2) Air traffic services provisions over the high seas

Those portions of the airspace over the high seas or in airspace of undetermined sovereignty where air traffic services will be provided shall be determined on the basis of regional air navigation agreements. The air traffic service provider having accepted the responsibility to provide air traffic services in such portions of airspace, shall establish and provide the services in accordance with the provisions of this MCAR.

(3) Authority responsible for establishing and providing ATS

When it has been determined that air traffic services will be provided, these services shall be provided by the authority responsible for providing such services delegated by the State of Mauritius.

(4) Publication of the established services

Where air traffic services are established, information shall be published as necessary to permit the utilization of such services.

GM ATS.005 Establishment of authority

(1) Air traffic services provisions

The delegation of such a responsibility for the provision of air traffic services over its territory, it does so without derogation of its national sovereignty. The providing State's responsibility is limited to technical and operational considerations and does not extend beyond those pertaining to the safety and expedition of aircraft using the concerned airspace. The providing State in providing air traffic services within the territory of the delegating State will do so in accordance with the requirements of the latter which is expected to establish such facilities and services for the use of the providing State as are jointly agreed to be necessary. It is further expected that the delegating State would not withdraw or modify such facilities and services without prior consultation with the providing State. Both the delegating and providing States may terminate the agreement between them at any time.

(2) Air traffic services provisions over the high seas

(a) The phrase "regional air navigation agreements" refers to the agreements approved by the Council of ICAO normally on the advice of Regional Air Navigation Meetings.

(b) Mauritius as a Contracting State has accepted the responsibility for providing air traffic services over the high seas and in the case of airspace of undetermined sovereignty may apply this MCAR for airspace under its jurisdiction.

(3) Authority responsible for establishing and providing ATS

(a) The authority responsible for establishing and providing the services may be a State or a suitable Agency.

(b) Situations which arise in respect of the establishment and provision of air traffic services to either part or whole of an international flight are as follows:

(i) Situation 1: A route, or portion of a route, contained within airspace under the sovereignty of a State establishing and providing its own air traffic services.

(ii) Situation 2: A route, or portion of a route, contained within airspace under the sovereignty of a State which has, by mutual agreement, delegated to another State, responsibility for the establishment and provision of air traffic services.

(iii) Situation 3: A portion of a route contained within airspace over the high seas or in airspace of undetermined sovereignty for which a State has accepted the responsibility for the establishment and provision of air traffic services.

For the purpose of this MCAR, the State which designates the authority responsible for establishing and providing the air traffic services is:

(i) in Situation 1: the State having sovereignty over the relevant portion of the airspace,

(ii) in Situation 2: the State to whom responsibility for the establishment and provision of air traffic services has been delegated,

(iii) in Situation 3: the State which has accepted the responsibility for the establishment and provision of air traffic services.

ATS.010 Objectives of the air traffic services

The objectives of the air traffic services shall be to:

(1) prevent collisions between aircraft,

(2) prevent collisions between aircraft on the manoeuvring area and obstructions on that area,

(3) expedite and maintain an orderly flow of air traffic,

(4) provide advice and information useful for the safe and efficient conduct of flights,

(5) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

ATS.015 Divisions of the air traffic services

The air traffic services shall comprise three services identified as follows.

(1) The air traffic control service, to accomplish objectives (1), (2) and (3) of ATS.010, this service being divided in three parts as follows:

(a) Area control service: the provision of air traffic control service for controlled flights, except for those parts of such flights described in ATS.015 (1) (b) and (c), in order to accomplish objectives (1) and (3) of ATS.010,

(b) Approach control service: the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish objectives (1) and (3) of ATS.010,

(c) Aerodrome control service: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in ATS.015 (b), in order to accomplish objectives (1), (2) and (3) of ATS.010.

(2) The flight information service, to accomplish objective (4) of ATS.010.

(3) The alerting service, to accomplish objective (5) of ATS.010.

ATS.020 Determination of the need for air traffic services

(1) The need for the provision of air traffic services shall be determined by consideration of the following:

(a) the types of air traffic involved,

(b) the density of air traffic,

(c) the meteorological conditions,

(d) such other factors as may be relevant.

(2) The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for air traffic services in that area.

GM ATS.020 Determination of the need for air traffic services

(a) Due to the number of elements involved, it has not been possible to develop specific data to determine the need for air traffic services in a given area or at a given location. For example:

(i) a mixture of different types of air traffic with aircraft of varying speeds (conventional jet, etc.) might necessitate the provision of air traffic services, whereas a relatively greater density of traffic where only one type of operation is involved would not,

(ii) meteorological conditions might have considerable effect in areas where there is a constant flow of air traffic (e.g. scheduled traffic), whereas similar or worse meteorological conditions might be relatively unimportant in an area where air traffic would be discontinued in such conditions (e.g. local VFR flights),

(iii) open stretches of water, mountainous, uninhabited or desert areas might necessitate the provision of air traffic services even though the frequency of operations is extremely low.

ATS.025 Designation of the portions of the airspace and controlled aerodromes where air traffic services will be provided

(1) When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes shall be designated in relation to the air traffic services that are to be provided.

(2) The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:

(a) Flight information regions.

Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.

(b) Control areas and control zones

(i) Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights shall be designated as control areas or control zones.

(1) Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights shall be designated as Classes B, C, or D airspace.

(2) Where designated within a flight information region, control areas and control zones shall form part of that flight information region.

(c) Controlled aerodromes.

Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic shall be designated as controlled aerodromes.

ATS.030 Classification of airspaces

(1) ATS airspaces shall be classified and designated in accordance with the following:

(a) **Class A**. IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other.

(b) **Class B**. IFR and VFR flights are permitted, all flights are provided with air traffic control service and are separated from each other.

(c) **Class C**. IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

(d) **Class D**. IFR and VFR flights are permitted, and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights.

(e) **Class E**. IFR and VFR flights are permitted, IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones.

(f) **Class F**. IFR and VFR flights are permitted, all participating IFR flights receive an air traffic advisory service, and all flights receive flight information service if requested.

(g) **Class G**. IFR and VFR flights are permitted and receive flight information service if requested.

(2) The Air Traffic Services provider shall select those airspace classes appropriate to their needs.

(3) The requirements for flights within each class of airspace shall be as shown in the table in Appendix 4. (See Appendix 4)

GM ATS.030 Classification of airspaces

(1) (f) Where air traffic advisory service is implemented, this is considered normally as a temporary measure only until such time as it can be replaced by air traffic control. (See also the PANS-ATM (Doc 4444), Chapter 9.)

(3) Where the ATS airspaces adjoin vertically, i.e. one above the other, flights at a common level would comply with requirements of, and be given services applicable to, the less restrictive class of airspace. In applying these criteria, Class B airspace is therefore considered less restrictive than Class A airspace, Class C airspace less restrictive than Class B airspace, etc.

ATS.035 Performance-based navigation (PBN) operations

(1) Navigation specifications prescribed by the Authority

(a) In applying performance-based navigation, navigation specifications shall be applied by the ATS services as prescribed in table 1 below .

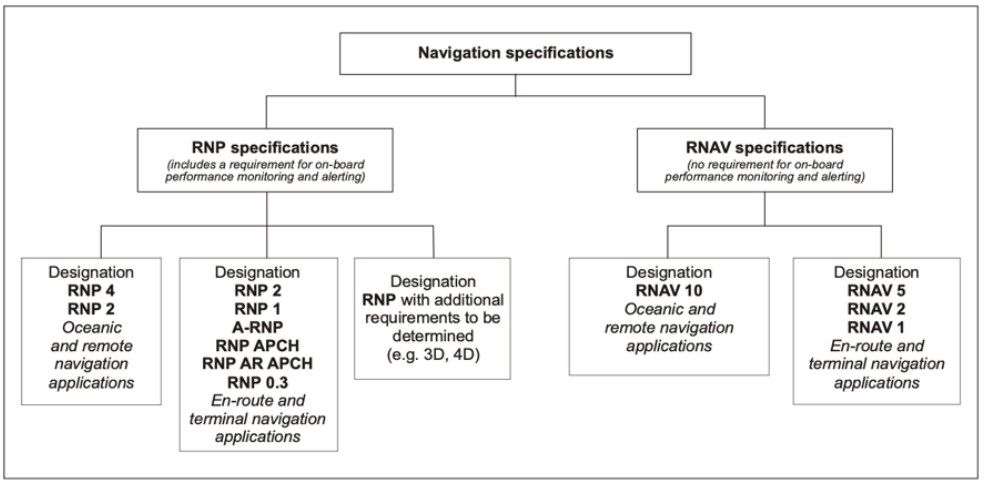

Table 1

(b) When applicable, the navigation specification(s) for designated areas, tracks or ATS routes shall be prescribed on the basis of regional air navigation agreements.

(c) In designating a navigation specification, limitations may apply as a result of navigation infrastructure constraints or specific navigation functionality requirements.

(2) Performance-based navigation operations

Performance-based navigation operations shall be implemented as soon as practicable by the ATS.

(3) Prescribed navigation specification

The prescribed navigation specification shall be appropriate to the level of communications, navigation and air traffic services provided in Mauritius airspace.

GM ATS.035 Performance-based navigation (PBN) operations

Applicable guidance on performance-based navigation and implementation is published in the Performance-based Navigation (PBN) Manual (Doc 9613).

ATS.040 Performance-based communication (PBC) operations

(1) In applying performance-based surveillance (PBS), RSP specifications shall be specified by Mauritius ATS and approved by the Authority. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

(2) The prescribed RCP specification shall be appropriate to the air traffic services provided.

GM ATS.040 Performance-based communication (PBC) operations

(1) In prescribing an RCP specification, limitations may apply as a result of communication infrastructure constraints or specific communication functionality requirements.

(2) Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

ATS.045 Performance-based surveillance (PBS) operations

(1) In applying performance-based surveillance (PBS), RSP specifications shall be specified by Mauritius ATS and approved by the Authority. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

(2) The prescribed RSP specification shall be appropriate to the air traffic services provided.

(3) Where an RSP specification has been prescribed by Mauritius for performance-based surveillance, ATS units shall be provided with equipment capable of performance consistent with the prescribed RSP specification(s).

GM ATS.045 Performance-based surveillance (PBS) operations

(1) In prescribing an RSP specification, limitations may apply as a result of surveillance infrastructure constraints or specific surveillance functionality requirements.

(3) Information on the PBCS concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

ATS.050 Establishment and designation of the units providing air traffic services

The air traffic services shall be provided by units established and designated as follows:

(1) Flight information centres

Flight information centres shall be established to provide flight information service and alerting service within flight information regions, unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility.

(2) Air traffic control units

Air traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

GM ATS.050 Establishment and designation of the units providing air traffic services

(1) This does not preclude delegating to other units the function of providing certain elements of the flight information service.

(2) The services to be provided by various air traffic control units are indicated in MCAR ATS.245.

ATS.055 Specifications for flight information regions, control areas and control zones

(1) Delineation of airspace

The delineation of airspace, wherein air traffic services are to be provided, shall be related to the nature of the route structure and the need for efficient service rather than to national boundaries.

(2) Flight information regions

(a) Flight information regions shall be delineated to cover the whole of the air route structure to be served by such regions.

(b) A flight information region shall include all airspace within its lateral limits, except as limited by an upper flight information region.

(c) Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in Appendix 3 to MCAR ROA “Rules of the Air”.

(3) Control areas

(a) Control areas including, inter alia, airways and terminal control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in that area.

(b) A lower limit of a control area shall be established at a height above the ground or water of not less than 700 ft.

(i) The lower limit of a control area should, when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a greater height than the minimum specified in (3)(a) above.

(ii) When the lower limit of a control area is above 3 000 ft MSL it shall coincide with a VFR cruising level of the tables in Appendix 3 to MCAR ROA “Rules of the Air”.

(c) An upper limit of a control area shall be established when either:

(i) air traffic control service will not be provided above such upper limit; or

(ii) the control area is situated below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area.

When established, such upper limit shall coincide with a VFR cruising level of the tables in Appendix 3 to MCAR ROA “Rules of the Air”.

(4) Flight information regions or control areas in the upper airspace

Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, shall be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

(5) Control zones

(a) The lateral limits of control zones shall encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions.

(b) The lateral limits of a control zone shall extend to at least 5 NM from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

(c) If a control zone is located within the lateral limits of a control area, it shall extend upwards from the surface of the earth to at least the lower limit of the control area.

(d) If a control zone is located outside of the lateral limits of a control area, an upper limit should be established.

(e) If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit should be established at a level which can easily be identified by pilots. When this limit is above 3 000 ft MSL it should coincide with a VFR cruising level of the tables in Appendix 3 to MCAR ROA "Rules of the Air".

GM ATS.055 Specifications for flight information regions, control areas and control zones

(1) Delineation of airspace

(a) Agreements to permit the delineation of airspace lying across national boundaries are advisable when such action will facilitate the provision of air traffic services (see ATS.005 (1). Agreements which permit delineation of airspace boundaries by straight lines will, for example, be most convenient where data processing techniques are used by air traffic services units.

(b) Where delineation of airspace is made by reference to national boundaries there is a need for suitably sited transfer points to be mutually agreed upon.

(2) Flight information regions

In cases where an upper flight information region is established the procedures applicable therein need not be identical with those applicable in the underlying flight information region.

(3) Control areas

(a) In a control area other than one formed by a system of airways, a system of routes may be established to facilitate the provision of air traffic control.

(b) This does not imply that the lower limit has to be established uniformly in a given control area (see Figure A-5 of the Air Traffic Services Planning Manual (Doc 9426), Part I, Section 2, Chapter 3).

(c) This implies that the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 700 ft above ground or water.

(5) Control zones

(a) Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.

(b) A control zone may include two or more aerodromes situated close together.

(c) An upper limit higher than the lower limit of the overlying control area may be established when desired.

(e) This implies that, if used, the selected VFR cruising level be such that expected

local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 700 ft above ground or water.

ATS.060 Identification of air traffic services units and airspaces

(1) Identification of a control centre

The ATS provider shall identified an area control centre or flight information centre by the name of a nearby town or city or geographic feature.

(2) Identification of an aerodrome control tower or approach control unit

The ATS provider shall identified an aerodrome control tower or approach control unit by the name of the aerodrome at which it is located.

(3) Identification of a control zone, control area or FIR

The ATS provider shall identified a control zone, control area or flight information region by the name of the unit having jurisdiction over such airspace.

ATS.065 Establishment and identification of ATS routes

(1) Separation between adjacent ATS routes

The ATS provider shall ensure that when ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.

(2) Establishment of low-level traffic special routes

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

(3) Identification of ATS routes

The ATS provider shall identify ATS routes by designators.

(4) Designators for ATS routes

The ATS provider shall select the designators for ATS routes other than standard departure and arrival routes in accordance with the principles set forth in Appendix 1 of this MCAR.

(5) Standard departure and arrival routes identification

The ATS provider shall identify standard departure and arrival routes and associated procedures in accordance with the principles set forth in Appendix 3 of this MCAR.

GM ATS.065 Establishment and identification of ATS routes

(1) Guidance material relating to the establishment of ATS routes is contained in the Air Traffic Services Planning Manual (Doc 9426).

(2) Guidance material relating to the establishment of ATS routes defined by VOR is contained bellow in paragraph 4.

(3) The spacing between parallel tracks or between parallel ATS route centre lines based on performance-based navigation will be dependent upon the relevant navigation specification required.

(4) Material relating to a method of establishing ATS routes defined by VOR:

(a) Introduction

(i) This guidance material results from comprehensive studies, carried out in Europe in 1972 and the United States in 1978, which were in general agreement. Details of the European studies are contained in Circular 120 — Methodology for the Derivation of Separation Minima Applied to the Spacing between Parallel Tracks in ATS Route Structures.

(ii) In applying the guidance material in (c) and (d), it should be recognized that the data on which it is based are generally representative of navigation using VOR meeting the full requirements of Doc 8071 — Manual on Testing of Radio Navigation Aids, Volume I. Any additional factors, such as those due to particular operational requirements, frequency of aircraft passings or information available regarding the actual track-keeping performance of aircraft within a given portion of airspace should be taken into account.

(iii) Attention is also invited to the basic assumptions in (d)(ii) and to the fact that the values given in (d)(i) represent a conservative approach. Before applying these values, account should therefore be taken of any practical experience gained in the airspace under consideration, as well as the possibility of achieving improvements in the overall navigation performance of aircraft.

(iv) States are encouraged to keep ICAO fully informed of the results of the application of this guidance material.

(b) Determination of VOR system performance values

The large variability of the values which are likely to be associated with each of the factors that make up the total VOR system, and the limitation of presently available methods to measure all these effects individually with the required precision, have led to the conclusion that an assessment of the total system error provides a more realistic method for determining the VOR system performance. The material contained in (c) and (d) shall be applied only after study of Circular 120 especially with respect to the environmental conditions. Guidance material on overall VOR system accuracy is also contained in Annex 10, Volume I, Attachment C.

(c) Determination of protected airspace along VOR-defined routes

The material of this section has not been derived by means of the collision-risk/target level of safety method.

The word “containment” as used in this section is intended to indicate that the protected airspace provided will contain the traffic for 95 per cent of the total flying time (i.e. accumulated over all aircraft) for which the traffic operates along the route in question. Where, for example 95 per cent containment is provided, it is implicit that for 5 per cent of the total flying time traffic will be outside the protected airspace. It is not possible to quantify the maximum distance which such traffic is likely to deviate beyond the protected airspace.

(i) For VOR-defined routes where radar or ADS-B is not used to assist aircraft in remaining within the protected airspace, the following guidance is provided. However, when the lateral deviations of aircraft are being controlled with the aid of radar or ADS-B monitoring, the size of the protected airspace required may be reduced, as indicated by practical experience gained in the airspace under consideration.

(ii) As a minimum, protection against activity in airspace adjacent to the routes should provide 95 per cent containment.

(iii) The work described in Circular 120 indicates that a VOR system performance based on the probability of 95 per cent containment would require the following protected airspace around the centre line of the route to allow for possible deviations:

(1) VOR routes with 50 NM or less between VORs: ± 4 NM,

(2) VOR routes with up to 150 NM between VORs: ± 4 NM up to 25 NM from the VOR then expanding protected airspace up to ± 6 NM at 75 NM from the VOR.

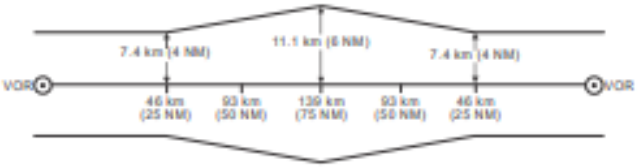

Figure A-1

(iv) If the appropriate ATS authority considers that a better protection is required, e.g. because of the proximity of prohibited, restricted or danger areas, climb or descent paths of military aircraft, etc., it may decide that a higher level of containment should be provided. For delineating the protected airspace, the following values should then be used:

(1) for segments with 50 NM or less between VORs, use the values in line A of the table below,

(2) for segments with more than 50 NM and less than 150 NM between the VORs use the values given in line A of the table up to 25 NM, then expand linearly to the value given in line B at 75 NM from the VOR.

	Percentage containment					
	95	*96*	*97*	*98*	*99*	*99.5*
A (km)	±7.4	±7.4	±8.3	±9.3	±10.2	±11.1
(NM)	±4.0	±4.0	±4.5	±5.0	±5.5	±6.0
B (km)	±11.1	±11.1	±12.0	±12.0	±13.0	±15.7
(NM)	±6.0	±6.0	±6.5	±6.5	±7.0	±8.5

For example, the protected area for a route of 120 NM between VORs and for which 99.5 per cent containment is required shall have the following shape:

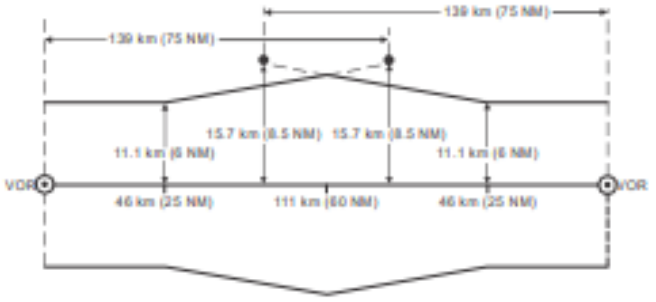

Figure A-2

(v) If two segments of a VOR-defined ATS route intersect at an angle of more than 25 degrees, additional protected airspace should be provided on the outside of the turn and also on the inside of the turn as necessary. This additional space is to act as a buffer for increased lateral displacement of aircraft, observed in practice, during changes of direction exceeding 25 degrees. The amount of airspace added varies with the angle of intersection. The greater the angle, the greater the additional airspace to be used. Guidance is provided for protected airspace required at turns of no more than 90 degrees. For the exceptional circumstances which require an ATS route with a turn of more than 90 degrees, States should ensure that adequate protected airspace is provided on both the inside and outside of such turns.

(vi) The following examples have been synthesized from the practices of two States which use templates to facilitate the diagramming of airspace for planning purposes. Design of the turning area templates took into account factors such as aircraft speed, bank angle in turns, probable wind velocity, position errors, pilot delays and an intercept angle of at least 30 degrees to achieve the new track and provides at least 95 per cent containment.

(vii) A template was used to establish the additional airspace required on the outside of turns to contain aircraft executing turns of 30, 45, 60, 75 and 90 degrees. The simplified figures below represent the outer limits of this airspace with the fairing curves removed to allow easy construction. In each case, the additional airspace is shown for aircraft flying in the direction of the large arrow. Where routes are used in both directions, the same additional airspace should be provided on the other outside boundary.

(viii) Figure 3 illustrates the application of two segments intersecting at a VOR, at an angle of 60 degrees.

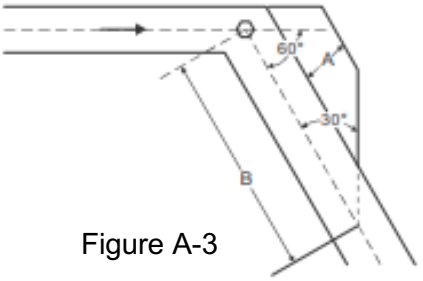

Figure A-3

(ix) Figure A-4 illustrates the application for two segments meeting at a VOR intersection at an angle of 60 degrees beyond the point where boundary splay is required in order to comply with (c)(iii) and Figure A-1.

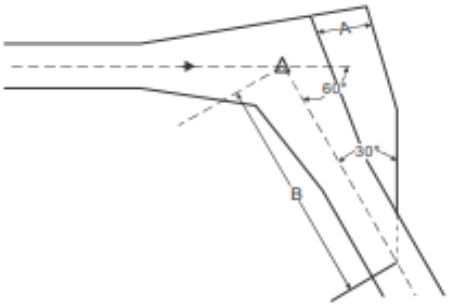

Figure A-4

(x) The following table outlines the distances to be used in sample cases when providing additional protected airspace for route segments at and below FL 450, intersecting at a VOR or meeting at a VOR intersection not more than 75 NM from each VOR. Refer to Figures A-3 and A-4

Angle of intersection	*30°*	*45°*	*60°*	*75°*	*90°*
VOR					
*Distance "A" (km)	5	9	13	17	21
(NM)	3	5	7	9	11
*Distance "B" (km)	46	62	73	86	92
(NM)	25	34	40	46	50
Intersection					
*Distance "A" (km)	7	11	17	23	29
(NM)	4	6	9	13	16
*Distance "B" (km)	66	76	88	103	111
(NM)	36	41	48	56	60

*Distances are rounded up to the next whole kilometre/nautical mile.

Note.— For behaviour of aircraft at turns, see Circular 120, 4.4.

(xi) Figure A-5 illustrates a method to construct the required additional protected airspace on the inside of turns for turns of 90 degrees or less:

(1) Locate a point on the airway centre line, equal to the radius of turn plus the along-track tolerance prior to the nominal turning point.

(2) From this point, drop a perpendicular line to intersect the edge of the airway on the inside of the turn.

(3) From this point on the inner edge of the airway, construct a line to intersect the airway centre line beyond the turn at an angle of half of the angle of turn.

(4) The resulting triangle on the inside of the turn depicts the additional airspace which should be protected for the change of direction. For any turn of 90 degrees or less, the extra space on the inside will serve for aircraft approaching the turn from either direction.

Criteria for the calculation of the along-track tolerance are contained in PANS-OPS (Doc 8168), Volume II. Guidance on the calculation of radius of turn is provided in Section 7.

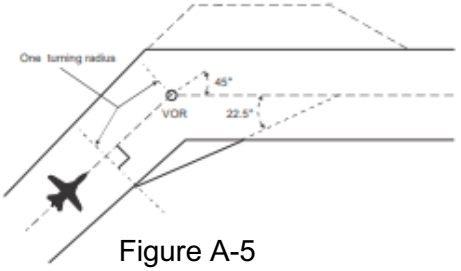

Figure A-5

(xii) For turns at VOR intersections, the principles of construction for extra airspace on the inside of a turn as described in (xi) above can be applied. Depending on the distance of the intersection from one or both VORs, one or both airways may have a splay at the intersection. Depending upon the situation, the extra airspace may be inside, partially inside, or outside of the 95 per cent containment. If the route is used in both directions, the construction should be completed separately for each direction.

(xiii) Measured data for routes longer than 150 NM between VORs are not yet available. To determine protected airspace beyond 75 NM from the VOR, the use of an angular value of the order of 5 degrees as representing the probable system performance would appear satisfactory. The following figure illustrates this application.

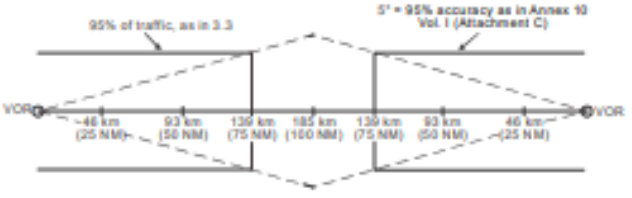

Figure A-6

(d) Spacing of parallel routes defined by VORs

The material of this section has been derived from measured data using the collision-risk/target

level of safety method.

(i) The collision risk calculation, performed with the data of the European study mentioned in (a)(i) indicates that, in the type of environment investigated, the distance between route centre lines (S in Figure A-7) for distances between VORs of 150 NM or less should normally be a minimum of:

(1) 18 NM for parallel routes where the aircraft on the routes fly in opposite direction, and

(2) 16.5 NM for parallel routes where the aircraft on the two routes fly in the same direction.

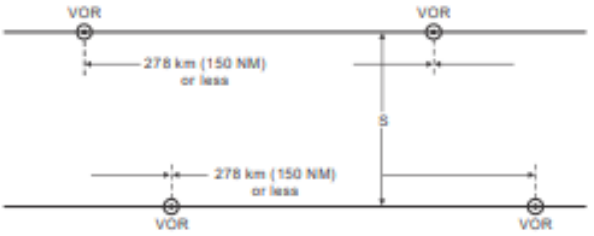

Figure A-7

Two route segments are considered parallel when:

- they have about the same orientation, i.e. the angular difference does not exceed 10 degrees,
- they are not intersecting, i.e. another form of separation must exist at a defined distance from the intersection,
- traffic on each route is independent of traffic on the other route, i.e. it does not lead to restrictions on the other route.

(ii) This spacing of parallel routes assumes:

(1) aircraft may either during climb or descent or during level flight be at the same flight levels on the two routes,

(2) traffic densities of 25 000 to 50 000 flights per busy two-month period,

(3) VOR transmissions which are regularly flight checked in accordance with Doc 8071 — Manual on Testing of Radio Navigation Aids, Volume I, and have been found to be satisfactory in accordance with the procedures in that document for navigational purposes on the defined routes, and

(4) no real-time radar or ADS-B monitoring or control of the lateral deviations is exercised.

(iii) Preliminary work indicates that, in the circumstances described in (*1*) to (*2*) below, it may be possible to reduce the minimum distance between routes. However, the figures given have not been precisely calculated and, in each case, a detailed study of the particular circumstances is essential:

(1) if the aircraft on adjacent routes are not assigned the same flight levels, the distance between the routes may be reduced; the magnitude of the reduction will depend on the vertical separation between aircraft on the adjacent tracks and on the percentage of climbing and descending traffic, but is not likely to be more than 3 NM.

(2) if the traffic characteristics differ significantly from those contained in Circular 120, the minima contained in (d)(i) may require adjustment. For example, for traffic densities of about 10 000 flights per busy two-month period, a reduction of 0.5 to 1.0 NM may be possible.

(3) the relative locations of the VORs defining the two tracks and the distance between the VORs will have an effect on the spacing, but this has not been quantified.

(iv) Application of radar or ADS-B monitoring and control of the lateral deviations of the aircraft may have a large effect on the minimum allowable distance between routes. Studies on the effect of radar monitoring indicate that:

(1) further work is necessary before a fully satisfactory mathematical model can be developed.

(2) any reduction of separation is closely related to:

(a) traffic (volume, characteristics),

(b) coverage and data processing, availability of an automatic alarm,

(c) monitoring continuity,

(d) sector workload, and

(e) radiotelephony quality.

(v) According to these studies and taking into account the experience some States have accumulated over many years with parallel route systems under continuous radar control, it can be expected that a reduction to the order of 8 to 10 NM, but most probably not less than 7 NM, may be possible as long as radar monitoring workload is not increased substantially by that reduction. Actual operations of such systems using reduced lateral spacing have shown that:

(1) it is very important to define and publish change-over points (see also (f)).

(2) large turns should be avoided when possible, and

(3) where large turns cannot be avoided, required turn profiles should be defined for turns larger than 20 degrees.

Even where the probability of total radar or ADS-B failure is very small, procedures to cover that case should be considered.

(e) Spacing of adjacent VOR-defined routes that are not parallel

The material of this section is intended to provide guidance for situations where non-intersecting VOR-defined routes are adjacent and have an angular difference exceeding 10 degrees.

The material of this section has not been derived by means of the collision-risk/target level of safety method.

(i) For adjacent non-intersecting VOR-defined routes that are not parallel, the collision-risk/target level of safety method is not, at its present state of development, fully appropriate. For this reason, use shall be made of the material in (c).

(ii) The protected airspace between such routes should not be less than that which will provide, without overlap, the 99.5 per cent containment values given in the table in (c)(iv) (see example in Figure A-8).

(iii) Where there is an angular difference of more than 25 degrees between route segments, additional protected airspace, as indicated in (c)(v) to (c)(x), shall be provided.

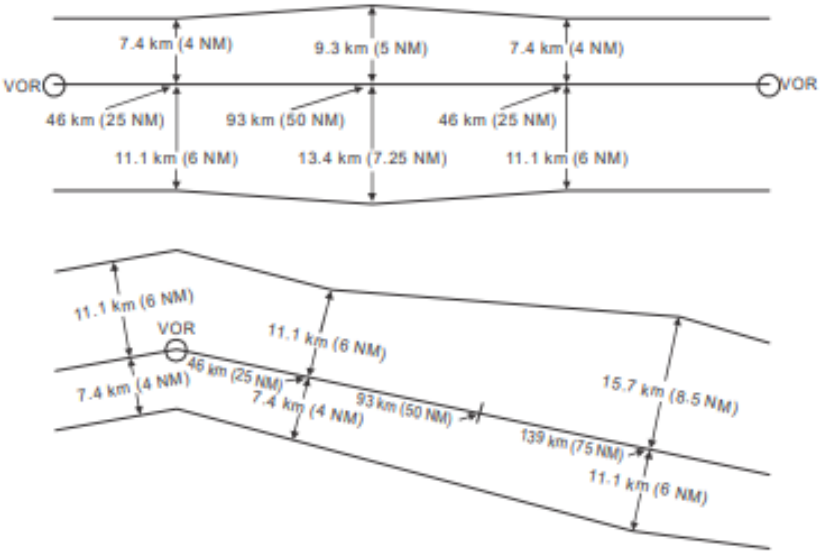

Figure A-8

(f) Change-over points for VORs

(i) When considering the establishment of points for changeover from one VOR to another for primary navigational guidance on VOR-defined ATS routes, the air traffic services provider shall bear in mind that:

(1) the establishment of change-over points shall be made on the basis of performance of the VOR stations concerned, including an evaluation of the interference protection criteria. The process should be verified by flight checking (see the Manual on Testing of Radio Navigation Aids (Doc 8071), Volume I),

(2) where frequency protection is critical, flight inspection should be undertaken at the highest altitudes to which the facility is protected.

(ii) Nothing in (i) above shall be interpreted as placing a restriction on the service ranges of VOR installations meeting the specifications in Annex 10, Volume I, 3.3.

(g) Calculation of radius of turn

(i) The method used to calculate turn radii and the turn radii indicated below are applicable to aircraft performing a constant radius turn. The material has been derived from the turn performance criteria developed for RNP 1 ATS routes and can be used in the construction of the required additional protected airspace on the inside of turns also for ATS routes other than those defined by VOR.

(ii) Turn performance is dependent on two parameters — ground speed and bank angle. Due to the effect of the wind component changing with the change of heading, the ground speed and hence bank angle will change during a constant radius turn. However, for turns not greater than approximately 90 degrees and for the speed values considered below, the following formula can be used to calculate the achievable constant radius of turn, where the ground speed is the sum of the true airspeed and the wind speed:

$$\text{Radius of turn} = \frac{(\text{Ground speed})^2}{\text{Constant 'G'} * \text{TAN(bank angle)}}$$

(iii) The greater the ground speed, the greater will be the required bank angle. To ensure that the turn radius is representative for all foreseeable conditions, it is necessary to consider extreme parameters. A true airspeed of 550 kt is considered probably the greatest to be encountered in the upper levels. Combined with maximum anticipated wind speeds in the medium and upper flight levels of 200kt [99.5 per cent values based on meteorological data], a maximum ground speed of 750 kt should be considered. Maximum bank angle is very much a function of individual aircraft. Aircraft with high wing loadings flying at or near their maximum flight level are highly intolerant of extreme angles. Most transport aircraft are certified to fly no slower than 1.3 times their stall speed for any given configuration. Because the stall speed rises with TAN (bank angle), many operators try not to cruise below 1.4 times the stall speed to protect against gusts or turbulence. For the same reason, many transport aircraft fly at reduced maximum angles of bank in cruise conditions. Hence, it can be assumed that the highest bank angle which can be tolerated by all aircraft types is in the order of 20 degrees.

(iv) By calculation, the radius of turn of an aircraft flying at 750 kt ground speed, with a bank angle of 20 degrees, is 22.51 NM (41.69 km). For purposes of expediency, this has been reduced to 22.5 NM (41.6 km). Following the same logic for the lower airspace, it is considered that up to FL 200 the maximum figures to be encountered are a true airspeed of 400 kt, with a tailwind of 200 kt. Keeping the maximum bank angle of 20 degrees, and following the same formula, the turn would be defined along a radius of 14.45 NM (26.76 km). For expediency, this figure may be rounded up to 15 NM (27.8 km).

(v) Given the above, the most logical break point between the two ground speed conditions is between FL 190 and FL 200. In order to encompass the range of turn anticipation algorithms used in current flight management systems (FMS) under all foreseeable conditions, the turn radius at FL 200 and above should be defined as 22.5 NM (41.6 km) and at FL 190 and below as 15 NM (27.8 km).

ATS.070 Establishment of change-over points

(1) Establishment of change over points distance

The ATS provider shall established change-over points on ATS route segments defined by reference to very high frequency omnidirectional radio ranges where this will assist accurate navigation along the route segments. The establishment of change-over points should be limited to route segments of 60 NM or more, except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.

(2) Parameters on the establishment of change-over points

The ATS provider shall ensure that unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment shall be the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.

GM ATS.070 Establishment of change-over points

Guidance on the establishment of change-over points is contained in GM ATS.065 (4)(f).

ATS.075 Establishment and identification of significant points

(1) Establishment of significant points regarding progress of aircraft.

The ATS provider shall established significant points for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.

(2) Identification of significant points

The ATS provider shall identified significant points by designators.

(3) Principles for establishing and identifying significant points

The ATS provider shall established significant points and identified in accordance with the principles set forth in Appendix 2 of this MCAR.
(See Appendix 2)

ATS.080 Establishment and identification of standard routes for taxiing aircraft

(1) Establishment of standard routes for taxiing on an aerodrome

The ATS provider shall ensure that where necessary, standard routes for taxiing aircraft shall be established on an aerodrome between runways, aprons and maintenance

areas. Such routes should be direct, simple and where practicable, designed to avoid traffic conflicts.

(2) Identification of standard routes for taxiing aircraft

The ATS provider shall ensure that standard routes for taxiing aircraft shall be identified by designators distinctively different from those of the runways and ATS routes.

ATS.085 Coordination between the operator and air traffic services

(1) ATS unit's responsibilities regarding operators needs

Air traffic services units, in carrying out their objectives, shall have due regard for the requirements of the operators consequent on their obligations as specified in Annex 6, and, if so required by the operators, shall make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.

(2) Aircraft position information to the operator

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

ATS.090 Coordination between military authorities and air traffic services

(1) Cooperation between ATS provider and military authorities

Air traffic services authorities shall establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft.

(2) Activities potentially hazardous to civil aircraft

The ATS provider shall coordinate activities potentially hazardous to civil aircraft in accordance with ATS.095.

(3) Exchanged information between ATS units and military units

The ATS provider shall make arrangements to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.

(a) Provide information to military units

Air traffic services units shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, air traffic services authorities shall designate any areas or

routes where the requirements of MCAR ROA "Rules of the Air" concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all pertinent data is available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

(b) Special procedures shall be established in order to ensure that:

(i) air traffic services units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary,

(ii) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

GM ATS.090 Coordination between military authorities and air traffic services

For aircraft subjected to unlawful interference, see ATS.120 (3) and ATS.125 (1)(c).

ATS.095 Coordination of activities potentially hazardous to civil aircraft

(1) Arrangements for activities potentially hazardous to civil aircraft

The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of Mauritius or over the high seas, shall be coordinated with the appropriate air traffic services authorities. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of MCAR AIS.

(a) Coordination of potentially hazardous activities for aircraft with the appropriate ATS authority

If the appropriate ATS authority is not that of the State where the organization planning the activities is located, initial coordination should be effected through the ATS authority responsible for the airspace over the State where the organization is located.

(2) Objective of the coordination of potentially hazardous activities

The ATS provider shall ensure that the objective of the coordination shall be to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.

(a) Criteria for the coordination of potentially hazardous activities.

In determining these arrangements, the following should be applied:

(i) the locations or areas, times and durations for the activities shall be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist,

(ii) the size of the airspace designated for the conduct of the activities should be kept as small as possible,

(iii) direct communication between the appropriate ATS authority or air traffic services unit and the organization or unit conducting the activities should be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.

(3) Safety risk assessment for activities potentially hazardous

The appropriate ATS authority shall ensure that a safety risk assessment is conducted, as soon as practicable, for activities potentially hazardous to civil aircraft and that appropriate risk mitigation measures are implemented.

(a) Establishment of procedures to enable units to contribute to the risk assessment

The ATS provider shall establish procedures to enable the organization or unit conducting or identifying activities potentially hazardous to civil aircraft to contribute to the safety risk assessment in order to facilitate consideration of all relevant safety significant factors.

(4) Publication of activities

The ATS provider shall be responsible for initiating the promulgation of information regarding the activities.

(5) Activities potentially hazardous to civil aircraft taken place on the daily basis

If activities potentially hazardous to civil aircraft take place on a regular or continuing basis, special committees shall be established as required to ensure that the requirements of all parties concerned are adequately coordinated.

(6) Hazardous effects of laser beams in flight operations

The ATS provider shall take adequate steps to prevent emission of laser beams from adversely affecting flight operations.

(7) Added airspace capacity

In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, the ATS provider shall establish procedures providing for a flexible use of airspace reserved for military or other special activities. The procedures shall permit all airspace users to have safe access to such reserved airspace.

GM ATS.095 Coordination of activities potentially hazardous to civil aircraft

(3) Safety risk assessment for activities potentially hazardous

Such risk mitigation measures may include, but would not be limited to, airspace restriction or temporary withdrawal of established ATS routes or portions thereof.

Guidance on safety risk management can be found in the Safety Management Manual (SMM) (Doc 9859).

(3)(a) Establishment of procedures to enable units to contribute to the risk assessment

Guidance on collaborative decision-making (CDM) processes for safety risk assessment and promulgation through NOTAM that could involve military authorities can be found in the Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations (Doc 9554).

(6) Hazardous effects of laser beams in flight operations

Guidance material regarding the hazardous effects of laser emitters on flight operations is contained in the Manual on Laser Emitters and Flight Safety (Doc 9815).

See also Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operations, Chapter 5.

ATS.100 Aeronautical Data

(1) Determination and reporting of aeronautical data

The ATS provider shall make sure that determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

(2) Digital data error detection

The ATS provider shall use digital data error detection techniques during the transmission and/or storage of aeronautical data and digital data sets.

GM ATS.100 Aeronautical Data

(1) Determination and reporting of aeronautical data

Specifications concerning the accuracy and integrity classification of air traffic services-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.

(2) Digital data error detection

Detailed specifications concerning digital data error detection techniques are contained in PANS-AIM (Doc 10066).

ATS.105 Coordination between meteorological and air traffic services authorities

(1) Arrangements between meteorological and air traffic services authority

The ATS provider shall make arrangements with the meteorological authority to ensure that aircraft receive the most up-to-date meteorological information for aircraft

operations, and for air traffic services personnel:

(a) in addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon,

(b) to report as soon as possible to the associated meteorological office meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report,

(c) to report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, the area control centre and flight information centre shall report the information to the associated meteorological watch office and volcanic ash advisory centres (VAACs).

(2) Inclusion of volcanic ash information in NOTAM and SIGMET messages

Close coordination shall be maintained between the area control centre, flight information centre and the associated meteorological watch office to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

GM ATS.105 Coordination between meteorological and air traffic services authorities

(1) Arrangements between meteorological and air traffic services authority

VAACs are designated by regional air navigation agreements in accordance with Annex 3, Chapter 3, 3.5.1. See 4.2.3 regarding transmission of special air-reports.

ATS.110 Coordination between aeronautical information services and air traffic services authorities

(1) Arrangements between aeronautical information services and air traffic services

To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and air traffic services providers responsible for air traffic services to report to the responsible aeronautical information services unit, with a minimum of delay:

(a) information on aerodrome conditions,

(b) the operational status of associated facilities, services and navigation aids within their area of responsibility,

(c) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft, and

(d) any other information considered to be of operational significance.

(2) Precise coordination prior introducing changes to the air navigation system

Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation. To ensure timely provision of the information to the aeronautical information service, close coordination between those services concerned is therefore required.

(3) Aeronautical Information Regulation and Control (AIRAC)

Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Regulation and Control (AIRAC) system, as specified in MCAR AIS. The predetermined, internationally agreed AIRAC effective dates shall be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.

(4) Responsibility of the air traffic services for the provision of raw aeronautical information

The air traffic services responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do so while taking into account accuracy and integrity requirements necessary to meet the needs of the end-user of aeronautical data.

GM ATS.110 Coordination between aeronautical information services and air traffic services authorities

(3) Aeronautical Information Regulation and Control (AIRAC)

Detailed specifications concerning the AIRAC system are contained in PANS-AIM (Doc 10066), Chapter 6.

(4) Responsibility of the air traffic services for the provision of raw aeronautical information

(a) Specifications concerning the accuracy and integrity classification of air traffic services-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.

(b) Specifications for the issue of a NOTAM, SNOWTAM and ASHTAM are contained in MCAR AIS.

(c) Reports of volcanic activity comprise the information detailed in MCAR MET.

(d) AIRAC information is distributed by the aeronautical information service at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.

(e) The schedule of the predetermined, internationally agreed AIRAC common effective dates at intervals of 28 days and guidance for the AIRAC use are contained in the Aeronautical Information Services Manual (Doc 8126, Chapter 2, 2.6).

ATS.115 Minimum flight altitudes

Minimum flight altitudes shall be determined and promulgated by the air traffic services provider for each ATS route and control area over its territory. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned, which will require an Authority approval.

GM ATS.115 Minimum flight altitudes

The requirements for publication of minimum flight altitudes and of the criteria used to determine them are contained in PANS-AIM (Doc 10066), Appendix 2. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volume II.

ATS.120 Service to aircraft in the event of an emergency

(1) Maximum consideration to aircraft in emergency

(a) The air traffic services provider shall give maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances to an aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference and bomb threat.

(2) Unlawful interference

When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

(3) Informing of an unlawful interference

When an occurrence of unlawful interference or bomb threat with an aircraft takes place or is suspected, ATS units shall, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by Mauritius and exchange necessary information with the operator or its designated representative.

AMC ATS.120 Service to aircraft in the event of an emergency

(1) Maximum consideration to aircraft in emergency

The air traffic services provider should ensure that in communications between ATS units and aircraft in the event of an emergency, Human Factors principles be observed.

GM ATS.120 Service to aircraft in the event of an emergency

(1) Maximum consideration to aircraft in emergency

(a) The air traffic services provider shall be aware that an aircraft to indicate that it is in a state of emergency, and if it is equipped with an appropriate data link capability and/or an SSR transponder, might operate the equipment as follows:

(i) on Mode A, Code 7700, or

(ii) on Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference, and/or

(iii) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; and/or

(iv) transmit the appropriate emergency message via CPDLC.

Guidance material on Human Factors principles can be found in the Human Factors Training Manual (Doc 9683).

(3) Informing of an unlawful interference

(a) A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference. See ATS.125.

(b) Procedures relating to the handling of strayed or unidentified aircraft are contained in ATS.125.

(c) The PANS-ATM (Doc 4444), Chapter 15, 15.1.3 contains more specific procedures related to unlawful interference.

ATS.125 In-flight contingencies

(1) Strayed or unidentified aircraft

(a) Assistance to strayed aircrafts

As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in ATS.125 (a)(i) and ATS.125 (a)(ii) to assist the aircraft and to safeguard its flight. The air traffic services unit shall provide navigational assistance if the unit becomes aware of an aircraft straying, or about to stray, into an area where there is a risk of interception or other hazard to its safety.

(i) Aircraft's position is not known

If the aircraft's position is not known, the air traffic services unit shall:

(1) attempt to establish two-way communication with the aircraft, unless such communication already exists,

(2) use all available means to determine its position,

(3) inform other ATS units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances,

(4) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft,

(5) request from the units referred to in *(3)* and *(4)* and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

(ii) Aircraft's position is established

When the aircraft's position is established, the air traffic services unit shall:

(1) advise the aircraft of its position and corrective action to be taken,

(2) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

(b) Procedure for unidentified aircraft

As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:

(1) attempt to establish two-way communication with the aircraft,

(2) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft,

(3) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft,

(4) attempt to obtain information from other aircraft in the area.

(i) Informing the civil or military unit

The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

(c) Informing about strayed or unidentified aircraft

When the ATS unit considers that a strayed or unidentified aircraft may be the subject of unlawful interference, the ATS provider shall immediately inform the appropriate authority designated by Mauritius, in accordance with locally agreed procedures.

(2) Interception of civil aircraft

(a) Appropriate ATS steps when an aircraft is being intercepted

As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

(i) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists,

(ii) inform the pilot of the intercepted aircraft of the interception,

(iii) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft,

(iv) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary,

(v) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft,

(vi) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

(b) Intercepted aircraft out of the ATS area of responsibility

As soon as an air traffic services unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

(i) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with ATS.125 (2),

(ii) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

GM ATS.125 In-flight contingencies

(1) The terms “strayed aircraft” and “unidentified aircraft” in this paragraph have the following meanings:

Strayed aircraft. An aircraft which has deviated significantly from its intended track, or which reports that it is lost.

Unidentified aircraft. An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.

An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.

A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.

The requirements in (a)(i)(iv) and (a)(i)(v) apply also to ATS units informed in accordance with (a)(i)(iii).

ATS.130 Time in air traffic services

(1) Use of Coordinated Universal Time (UTC).

Air traffic services units shall use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

(2) Clocks in the air traffic services units.

Air traffic services units shall be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

(3) Clocks tolerance and verification.

Air traffic services unit clocks and other time-recording devices shall be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

(4) Standard time station.

The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

(5) Provide pilots with the correct time.

Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

ATS.135 Establishment of requirements for carriage and operation of pressure altitude reporting transponders

The air traffic services provider shall establish procedures for the carriage and operation of pressure-altitude reporting transponders within defined portions of airspace, which shall go in accordance with the Authority requirements for this matter.

GM ATS.135 Establishment of requirements for carriage and operation of pressure altitude reporting transponders

This provision is intended to improve the effectiveness of air traffic services as well as airborne collision avoidance systems.

ATS.140 Fatigue management

(1) Establishment of a Fatigue Management System

The air traffic services provider shall establish a Fatigue Risk Management System (FRMS) in the provision of air traffic control services. This shall be based upon scientific principles, knowledge and operational experience, with the aim of ensuring that air traffic controllers perform at an adequate level of alertness.

To that aim, the ATS provider shall establish:

(a) A procedure or policies that prescribe scheduling limits in accordance with Appendix 5 of this MCAR; which must be approved by the Authority, or
(See Appendix 5)

If the use of a Fatigue Risk Management System (FRMS) to manage fatigue has been authorized by the Authority, the FRMS shall be implemented in accordance with Appendix 6 of this MCAR.
(See Appendix 6)

(2) Managing fatigue related safety risks

The air traffic services provider for the purposes of managing its fatigue-related safety risks, shall establish one of the following:

(a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the prescriptive limitation established in accordance with ATS.140 (1)(a), or

(b) a FRMS, in compliance and accordance with ATS.140 (1)(b), for the provision of all air traffic control services; or

(c) a FRMS, in compliance and accordance with ATS.140 (1)(b), for a defined part of its air traffic control services in conjunction with schedules in compliance with the prescriptive limitation established by Mauritius in accordance with ATS.140 (1)(a) for the remainder of its air traffic control services.

(3) Prescriptive limitation regulations

When the air traffic services provider complies with prescriptive limitation regulations in the provision of part or all of its air traffic control services in accordance with ATS.140 (2)(a), the ATS provider shall:

(a) show the Authority evidence that the limitations are not exceeded and that non-duty period requirements are met,

(b) demonstrate the Authority that the air traffic controllers have been familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management,

(c) establish a process to allow variations from the prescriptive limitation regulations to address any additional risks associated with sudden, unforeseen operational circumstances; and

(d) may request variations to these regulations using an established process in order to address strategic operational needs in exceptional circumstances, based on the air traffic services provider demonstrating that any associated risk is being managed to a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management requirements.

(4) FRMS Implementation

When an air traffic services provider implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services in accordance with ATS.140 (2)(b), the ATS provider shall:

(a) have processes to integrate FRMS functions with its other safety management functions; and

(b) have an approved FRMS, according to a documented process, that provides a level of safety acceptable to the Authority.

GM ATS.140 Fatigue management

Guidance on the development and implementation of fatigue management regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

(3) Complying with the prescriptive limitations regulations does not relieve the air traffic services provider of the responsibility to manage its risks, including fatigue-related risks, using its SMS in accordance with the provisions of Annex 19.

(4) Provisions on the protection of safety information, which support the continued availability of information required by an FRMS, are contained in Annex 19.

ATS.145 Safety management

(1) Establishment of a Safety Management System (SMS)

The air traffic services provider shall implement a safety management system acceptable to the State of Mauritius that, as a minimum:

(a) identifies safety hazards,

(b) ensures the implementation of remedial action necessary to maintain agreed safety performance,

(c) provides for continuous monitoring and regular assessment of the safety performance,

(d) aims to a continuous improvement of the overall performance of the safety management system, and

(e) shall Implement the SMS in accordance with the elements of the structure that is on GM ATS.145 (1) (e).

(2) Lines of safety accountability throughout the air traffic services provider

The safety management system shall clearly define lines of safety accountability throughout the air traffic services provider, including a direct accountability for safety on the part of senior management.

(3) Significant safety-related changes to the ATS

Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum, a new procedure, airspace reorganization, new equipment, activities potentially hazardous to civil aircraft and any other activity that may impact safety shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met, and users have been consulted. When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.

GM ATS.145 Safety management

Annex 19 includes the safety management provisions applicable to ATS providers. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859) and associated procedures are contained in the PANS-ATM (Doc 4444).

(1) (e) Establishment of a Safety Management System (SMS)

The framework for the SMS shall, as minimum, include the following components and elements:

1. Safety policy and objectives
   1.1 Management commitment and responsibility
   1.2 Safety accountabilities
   1.3 Appointment of key safety personnel
   1.4 Coordination of emergency response planning
   1.5 SMS documentation

2. Safety risk management
   2.1 Hazard identification
   2.2 Safety risk assessment and mitigation

3. Safety assurance
   3.1 Safety performance monitoring and measurement
   3.2 The management of change
   3.3 Continuous improvement of the SMS

4. Safety promotion
   4.1 Training and education
   4.2 Safety communication.

(3) Significant safety-related changes to the ATS

When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety risk assessment may rely on operational judgement.

ATS.150 Common reference systems

(1) Horizontal reference system

The air traffic services provider shall use the World Geodetic System — 1984 (WGS-84) as the horizontal (geodetic) reference system for air navigation. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

(2) Vertical reference system

Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used by the air traffic services provider as the vertical reference system for air navigation.

(3) Temporal reference system

(a) Temporal reference system for air navigation

The Gregorian calendar and Coordinated Universal Time (UTC) shall be used by the air traffic services provider as the temporal reference system for air navigation.

(b) Different Temporal reference system used

When a different temporal reference system is used by the air traffic services provider, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).

GM ATS.150 Common reference systems

(1) Horizontal reference system

Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).

(2) Vertical reference system

The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

ATS.155 Language proficiency

(1) Language used in radiotelephony communications

The air traffic services provider shall ensure that air traffic controllers speak and understand the language used for radiotelephony communications as specified in MCAR APL.

(2) Languages between ATS units

Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for such communications.

ATS.160 Contingency arrangements

(1) Contingency plan development

The air traffic services provider shall develop and promulgate a contingency plan for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plan shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services providers responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

(2) ATS Contingency procedures

The air traffic services provider shall develop and implement air traffic control contingency procedures that, at a minimum, include problems with radio communications and emergency separation.

(a) Radio communications contingencies shall include:

(i) Ground-ground communication failures

(ii) Air-ground radio communication failures

(iii) CPDLC failures

(iv) Blocked frequency

(v) Unauthorized use of the ATC frequency

(b) Emergency separation contingencies shall include:

(i) Short-term conflict alert procedures (STCA)

(ii) Procedures for aircraft equipped with on-board Anti Collision Avoidance System (ACAS)

(iii) Minimum Safety Altitude Warning (MSAW) Procedures

(iv) Change of the radiotelephone call sign of aircraft

GM ATS.160 Contingency arrangements

Guidance material relating to the development, promulgation and implementation of contingency plans is contained below.

Material relating to contingency planning

(1) Introduction

(a) Guidelines for contingency measures for application in the event of disruptions of air traffic services and related supporting services were first approved by the Council on 27 June 1984 in response to Assembly Resolution A23-12, following a study by the Air Navigation Commission and consultation with States and international organizations concerned, as required by the Resolution. The guidelines were subsequently amended and amplified in the light of experience gained with the application of contingency measures in various parts of the world and in differing circumstances.

(b) The purpose of the guidelines is to assist in providing for the safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and in preserving the availability of major world air routes within the air transportation system in such circumstances.

(c) The guidelines have been developed in recognition of the fact that circumstances before and during events causing disruptions of services to international civil aviation vary widely and that contingency measures, including access to designated aerodromes for humanitarian reasons, in response to specific events and circumstances must be adapted to these circumstances. They set forth the allocation of responsibility among States and ICAO for the conduct of contingency planning and the measures to be taken into consideration in developing, applying and terminating the application of such plans.

(d) The guidelines are based on experience which has shown, inter alia, that the effects of disruption of services in particular portions of airspace are likely to affect significantly the services in adjacent airspace, thereby creating a requirement for international coordination, with the assistance of ICAO as appropriate. Hence, the role of ICAO in the field of contingency planning and coordination of such plans is described in the guidelines. They also reflect the experience that ICAO's role in contingency planning must be global and not limited to airspace over the high seas and areas of undetermined sovereignty, if the availability of major world air routes within the air transportation system is to be preserved. Finally, they further reflect the fact that international organizations concerned, such as the International Air Transport

Association (IATA) and the International Federation of Airline Pilots' Associations (IFALPA), are valuable advisers on the practicability of overall plans and elements of such plans.

(2) Status of contingency plans

Contingency plans are intended to provide alternative facilities and services to those provided for in the regional air navigation plan when those facilities and services are temporarily not available. Contingency arrangements are therefore temporary in nature, remain in effect only until the services and facilities of the regional air navigation plan are reactivated and, accordingly, do not constitute amendments to the regional plan requiring processing in accordance with the "Procedure for the Amendment of Approved Regional Plans". Instead, in cases where the contingency plan would temporarily deviate from the approved regional air navigation plan, such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

(3) Responsibility for developing, promulgating and implementing contingency plans

(a) Mauritius as responsible for providing air traffic services and related supporting services in particular portions of airspace is also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end Mauritius shall develop, promulgate and implement appropriate contingency plans. Such plans shall be developed in consultation with other States and airspace users concerned and with ICAO, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

(b) The responsibility for appropriate contingency action in respect of airspace over the high seas continues to rest with Mauritius who is responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to (an)other State(s).

(c) Similarly, the responsibility for appropriate contingency action in respect of airspace where the responsibility for providing the services has been delegated by another State continues to rest with the State providing the services until, and unless, the delegating State terminates temporarily the delegation. Upon termination, the delegating State assumes responsibility for appropriate contingency action.

(d) ICAO will initiate and coordinate appropriate contingency action in the event of disruption of air traffic services and related supporting services affecting international civil aviation operations provided by Mauritius, for some reason, the authorities cannot adequately discharge the responsibility referred to in (3)(a). In such circumstances, ICAO will work in coordination with States responsible for airspace adjacent to that affected by the disruption and in close consultation with international organizations concerned. ICAO will also initiate and coordinate appropriate contingency action at the request of States.

(4) Preparatory action

(a) Time is essential in contingency planning if hazards to air navigation are to be reasonably prevented. Timely introduction of contingency arrangements requires decisive initiative and action, which again presupposes that contingency plans have,

as far as practicable, been completed and agreed among the parties concerned before the occurrence of the event requiring contingency action, including the manner and timing of promulgating such arrangements.

(b) For the reasons given in (4)(a) above, Mauritius shall take preparatory action, as appropriate, for facilitating timely introduction of contingency arrangements. Such preparatory action shall include:

(i) preparation of general contingency plans for introduction in respect of generally foreseeable events such as industrial action or labour unrest affecting the provision of air traffic services and/or supporting services. In recognition of the fact that the world aviation community is not party to such disputes, States providing services in airspace over the high seas or of undetermined sovereignty should take appropriate action to ensure that adequate air traffic services will continue to be provided to international civil aviation operations in non-sovereign airspace. For the same reason, Mauritius providing air traffic services in its own airspace or, by delegation, in the airspace of (an)other State(s) should take appropriate action to ensure that adequate air traffic services will continue to be provided to international civil aviation operations concerned, which do not involve landing or take-off in the State(s) affected by industrial action.

(ii) assessment of risk to civil air traffic due to military conflict or acts of unlawful interference with civil aviation as well as a review of the likelihood and possible consequences of natural disasters or public health emergencies. Preparatory action shall include initial development of special contingency plans in respect of natural disasters, public health emergencies, military conflicts or acts of unlawful interference with civil aviation that are likely to affect the availability of airspace for civil aircraft operations and/or the provision of air traffic services and supporting services. It should be recognized that avoidance of particular portions of airspace on short notice will require special efforts by States responsible for adjacent portions of airspace and by international aircraft operators with regard to planning of alternative routings and services, and the air traffic services provider of Mauritius shall therefore, as far as practicable, endeavour to anticipate the need for such alternative actions.

(iii) monitoring of any developments that might lead to events requiring contingency arrangements to be developed and applied. Mauritius shall consider designating persons/administrative units to undertake such monitoring and, when necessary, to initiate effective follow-up action. and

(iv) designation/establishment of a central agency which, in the event of disruption of air traffic services and introduction of contingency arrangements, would be able to provide, 24 hours a day, up-to-date information on the situation and associated contingency measures until the system has returned to normal. A coordinating team shall be designated within, or in association with, such a central agency for the purpose of coordinating activities during the disruption.

(c) ICAO will be available for monitoring developments that might lead to events requiring contingency arrangements to be developed and applied and will, as necessary, assist in the development and application of such arrangements. During the emergence of a potential crisis, a coordinating team will be established in the Regional Office(s) concerned and at ICAO Headquarters in Montreal, and arrangements will be made for competent staff to be available or reachable 24 hours a day. The tasks of these teams will be to monitor continuously information from all relevant sources, to arrange for the

constant supply of relevant information received by the State aeronautical information service at the location of the Regional Office and Headquarters, to liaise with international organizations concerned and their regional organizations, as appropriate,

and to exchange up-to-date information with States directly concerned and States which are potential participants in contingency arrangements. Upon analysis of all available data, authority for initiating the action considered necessary in the circumstances will be obtained from the State(s) concerned.

(5) Coordination

(a) A contingency plan shall be acceptable to providers and users of contingency services alike, i.e. in terms of the ability of the providers to discharge the functions assigned to them and in terms of safety of operations and traffic handling capacity provided by the plan in the circumstances.

(b) Accordingly, States which anticipate or experience disruption of air traffic services and/or related supporting services shall advise, as early as practicable, the ICAO Regional Office accredited to them, and other States whose services might be affected. Such advice should include information on associated contingency measures or a request for assistance in formulating contingency plans.

(c) Detailed coordination requirements shall be determined by Mauritius and/or ICAO, as appropriate, keeping the above in mind. In the case of contingency arrangements not appreciably affecting airspace users or service provided outside the airspace of the Mauritius, coordination requirements are naturally few or non-existent. Such cases are believed to be few.

(d) In the case of multi-State ventures, detailed coordination leading to formal agreement of the emerging contingency plan shall be undertaken with each State which is to participate. Such detailed coordination should also be undertaken with those States whose services will be significantly affected, for example by re-routing of traffic, and with international organizations concerned who provide invaluable operational insight and experience.

(e) Whenever necessary to ensure orderly transition to contingency arrangements, the coordination referred to in this section should include agreement on a detailed, common NOTAM text to be promulgated at a commonly agreed effective date.

(6) Development, promulgation and application of contingency plans

(a) Development of a sound contingency plan is dependent upon circumstances, including the availability, or not, of the airspace affected by the disruptive circumstances for use by international civil aviation operations. Sovereign airspace can be used only on the initiative of, or with the agreement or consent of, the authorities of Mauritius regarding such use. Otherwise, the contingency arrangements must involve bypassing the airspace and should be developed by adjacent States or by ICAO in cooperation with such adjacent States. In the case of airspace over the high seas or of undetermined sovereignty, development of the contingency plan might involve, depending upon circumstances, including the degree of erosion of the alternative services offered, temporary reassignment by ICAO of the responsibility for providing air traffic services in the airspace concerned.

(b) Development of a contingency plan presupposes as much information as possible on current and alternative routes, navigational capability of aircraft and availability or

partial availability of navigational guidance from ground-based aids, surveillance and communications capability of adjacent air traffic services units, volume and types of aircraft to be accommodated and the actual status of the air traffic services, communications, meteorological and aeronautical information services. Following are the main elements to be considered for contingency planning depending upon circumstances:

(i) re-routing of traffic to avoid the whole or part of the airspace concerned, normally involving establishment of additional routes or route segments with associated conditions for their use.

(ii) establishment of a simplified route network through the airspace concerned, if it is available, together with a flight level allocation scheme to ensure lateral and vertical separation, and a procedure for adjacent area control centres to establish longitudinal separation at the entry point and to maintain such separation through the airspace.

(iii) reassignment of responsibility for providing air traffic services in airspace over the high seas or in delegated airspace.

(iv) provision and operation of adequate air-ground communications, AFTN and ATS direct speech links, including reassignment, to adjacent States, of the responsibility for providing meteorological information and information on status of navigation aids.

(v) special arrangements for collecting and disseminating in-flight and post-flight reports from aircraft.

(vi) a requirement for aircraft to maintain continuous listening watch on a specified pilot-pilot VHF frequency in specified areas where air-ground communications are uncertain or non-existent and to broadcast on that frequency, preferably in English, position information and estimates, including start and completion of climb and descent.

(vii) a requirement for all aircraft in specified areas to display navigation and anti-collision lights at all times.

(viii) a requirement and procedures for aircraft to maintain an increased longitudinal separation that may be established between aircraft at the same cruising level.

(ix) a requirement for climbing and descending well to the right of the centre line of specifically identified routes.

(x) establishment of arrangements for controlled access to the contingency area to prevent overloading of the contingency system. and

(xi) a requirement for all operations in the contingency area to be conducted in accordance with IFR, including allocation of IFR flight levels, from the relevant Table of Cruising Levels in Appendix 3 of MCAR ROA “Rules of the Air”, to ATS routes in the area.

(c) Notification, by NOTAM, of anticipated or actual disruption of air traffic services and/or related supporting services should be dispatched to users of air navigation services as

early as practicable. The NOTAM should include the associated contingency arrangements. In the case of foreseeable disruption, the advance notice should in any case not be less than 48 hours.

(d) Notification by NOTAM of discontinuance of contingency measures and reactivation of the services set forth in the regional air navigation plan should be dispatched as early as practicable to ensure an orderly transfer from contingency conditions to normal conditions.

ATS.165 Identification and delineation of prohibited, restricted and danger areas

(1) Identification of the areas

Each prohibited area, restricted area, or danger area established by the air traffic services provider shall, upon initial establishment, be given an identification and full details shall be promulgated.

(2) Identifying the area

The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.

(3) Composing the identification of the area

The identification shall be composed of a group of letters and figures as follows:

(a) nationality letters for location indicators assigned to the State or territory which has established the airspace,

(b) a letter **P** for prohibited area, **R** for restricted area and **D** for danger area as appropriate, and

(c) a number, unduplicated within the State or territory concerned.

(4) Avoiding confusion of the areas

To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

(5) Size of the areas

When a prohibited, restricted or danger area is established, the area shall be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.

GM ATS.165 Identification and delineation of prohibited, restricted and danger areas

(1) See PANS-AIM (Doc 10066), Appendix 2, ENR 5.1

(3) Nationality letters are those contained in Location Indicators (Doc 7910).

ATS.170 Instrument flight procedure design service

The air traffic services provider shall put in place an instrument flight procedure design service in accordance with Appendix 7 of this MCAR.
(See Appendix 7)

ATS.175 Human factors principles in ATS

The air traffic services provider shall develop and implement policies and procedures based on human factors principles.

GM ATS.175 Human factors principles in ATS

Guidelines on human factors principles are contained in ICAO Doc. 9758 “Human factors guidelines for air traffic management (ATM) systems”, policies and procedures as a minimum shall include:

(1) Anthropocentric automation

(2) Situational awareness

(3) Error handling, etc.

ATS.180 Recruitment and retention

The air traffic services provider shall develop and implement policies and procedures to enable recruitment and retention of appropriately qualified and experienced ATS staff.

ATS.185 ATS Operational Procedures Manual

The air traffic service provider shall develop and implement an ATS Operational Procedures Manual for the different ATC units, which shall be approved by the Authority and as a minimum have the structure established in GM ATS.185.

GM ATS.185 ATS Operational Procedures Manual

The ATS operational procedures manual as a minimum shall contain the following structure:

(1) Front page (cover)

(2) Preamble

(3) Table of contents

(4) Generalities

(5) ATS operational procedures

(6) Methods and separation minima

(7) ATS surveillance services

(8) Flight information services

(9) Alert services

(10) Coordination

(11) ATS messages

(12) Phraseology and aeronautical symbols (can be in a separate manual)

(13) Emergencies, communication failures and contingency procedures

ATS.190 ATS Functions and responsibilities

The Air Traffic Services provider shall establish the functions and responsibilities of the air traffic services staff, which shall be approved by the proper authority and as a minimum comply with the structure established in GM ATS.190.

GM ATS.190 ATS Functions and responsibilities

This shall include as a minimum the following structure:

(1) Identification of the post

(2) Qualification of the post

(3) Purpose of the post

(4) Duties and responsibilities of the post

ATS.195 ATS Training programme

(1) Training programme and training plan

The air traffic services provider shall develop and implement a training programme and a training plan for its ATS staff, which shall be approved by the Authority and as a minimum shall include initial, specialized, OJT and recurrent training.

(2) OJT requirements

The air traffic services provider shall ensure that the ATS personnel is required to complete in a satisfactorily manner OJT before controlling duties and responsibilities are assigned.

(3) Supplementary training

The ATS provider shall provide supplementary training to air traffic controllers to ensure that they are competent in the use of new or updated equipment, procedures, and communication systems.

(4) Recurrent training

The ATS provider shall provide recurrent training to air traffic controllers in the areas of aerodrome, approach and area/oceanic at least once every two years. Recurrent training shall be needed for air traffic controllers who have lost the privilege of a rating.

(5) Training records

The air traffic services provider shall develop a system or methodology for maintaining training records for its ATS staff.

GM ATS.195 ATS Training programme

The ATS provider shall establish this programme through a training manual that as a minimum contains the following structure:

(1) Qualification and experience requirements

(2) Course content:

(a) Initial training

(b) Advanced/Specialized Training

(c) OJT

(d) Recurrent training

(e) Supplementary training

(f) Course syllabus

(3) OJT process

(4) Familiarization process in the workplace

(5) Training Records System

ATS.200 ATO Certification/Acceptance

The ATS provider shall ensure that a recognized competency-based instruction for air traffic controllers be given by an approved training organization (ATO), which shall be certified or accepted by the Authority.

ATS.205 Meteorological conditions for aerodrome control service

The air traffic services provider shall not provide aerodrome control service when according to the MET office report the meteorological conditions are below IMC minimums.

ATS.210 Incident and accident notification

(1) Notification of occurrence

The air traffic services provider shall establish a procedure for notifying the Authority when a serious incident or accident happens; this notification must be done within 24 hours after the event had happen. The following information shall be included as a minimum:

(a) Type of incident (AIRPROX, procedure or installation),

(b) Aircraft identification,

(c) Time and place of the incident,

(d) Brief explanation of the incident

(2) Review of safety related reports

The air traffic services provider shall establish a procedure for reviewing in a systematic way safety-related reports, including the internal investigation of air traffic incident reports and the follow up actions of the investigation.

ATS.215 Safety Reviews

(1) Conducting safety reviews

The ATS provider shall conduct on regular and systematic basis safety reviews of the ATS units, which shall be conducted:

(a) at least once a year, and

(b) by personnel qualified through training, experience and expertise, and having a full understanding of the MCARs related to air navigation services, relevant SARPs, PANS, safe operating practices and Human Factors principles.

(2) Safety reviews scope

The scope of the safety reviews shall include at least the following:

(a) regulatory issues,

(b) operational and technical issues, and

(c) licensing and training issues.

ATS.220 License and medical certificate

The air traffic services provider shall establish a system or procedure for ensuring that all air traffic controllers hold their Operational Authority and medical certificate up to date while providing the service.

GM ATS.220 License and medical certificate

This Standard can be addressed by establishing a system or a procedure (electronic application or written procedure) for controlling the expiration date of the license and medical certificate.

ATS.225 Runway safety programme

The ATS provider shall establish and implement a runway safety programme, that as a minimum includes:

(1) Aids for the air traffic controller's memory,

(2) Procedures for runway crossing,

(3) Closed runway procedures, and

(4) Phraseology

ATS.230 Regulations, ICAO Documents, and technical publications

The air traffic services provider shall have regulations/requirements, ICAO documents and other technical publications available for all technical personnel.

GM ATS.230 Regulations, ICAO Documents, and technical publications

This documentation can be either in hardcopy or softcopy.

ATS.235 Distracting devices

The air traffic services provider shall establish a policy or a procedure, to ensure or prohibit ATS staff from carrying and using distracting devices while performing their duties in the workplace.

GM ATS.235 Distracting devices

Distracting devices while ATS staff is performing duties in the workplace refers to the following:

(1) Eat food and/or drinks.

(2) Use of equipment, such as:

(a) Cellphones

(b) Tablets

(c) Personal Computers

(d) Television

(e) Not relevant reading (Books, newspapers, magazines, etc.)

(f) And any other equipment that is considered distracting.

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CHAPTER 2

Air Traffic Control Service

ATS.240 Application

The air traffic services provider shall provide air traffic control services to:

(1) to all IFR flights in airspace Classes A, B, C, D and E,

(2) to all VFR flights in airspace Classes B, C and D,

(3) to all special VFR flights,

(4) to all aerodrome traffic at controlled aerodromes.

ATS.245 Provision of air traffic control service

The parts of air traffic control service described in ATS.015 (1) shall be provided by the air traffic service provider units as follows:

(1) Area control service:

(a) by an area control centre, or

(b) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control centre is established.

(2) Approach control service:

(a) by an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service,

(b) by an approach control unit when it is necessary or desirable to establish a separate unit.

(3) Aerodrome control service:

by an aerodrome control tower.

GM ATS.245 Provision of air traffic control service

The task of providing specified services on the apron, e.g. apron management service, may be assigned to an aerodrome control tower or to a separate unit.

ATS.250 Operation of air traffic control service

(1) Available information for the air traffic services provider

The air traffic services provider in order to provide air traffic control service shall:

(a) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft,

(b) determine from the information received, the relative positions of known aircraft to each other,

(c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic,

(d) coordinate clearances as necessary with other units:

(i) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units,

(ii) before transferring control of an aircraft to such other units.

(2) Information on aircraft movements

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

AMC ATS.250 Operation of air traffic control service

(1) Devices that record background communication and the aural environment at air traffic controller workstations

Air traffic control units should be equipped with devices that record background communication and the aural environment at air traffic controller workstations, capable of retaining the information recorded during at least the last twenty-four hours of operation.

GM ATS.250 Operation of air traffic control service

Provisions related to the non-disclosure of recordings and transcripts of recordings from air traffic control units are contained in Annex 13, 5.12.

ATS.255 Clearances to provide separation

Clearances issued by air traffic control units shall provide separation:

(1) between all flights in airspace Classes A and B,

(2) between IFR flights in airspace Classes C, D and E,

(3) between IFR flights and VFR flights in airspace Class C,

(4) between IFR flights and special VFR flights,

(5) between special VFR flights when so prescribed by the appropriate ATS authority,

except that, when requested by an aircraft and if so, prescribed by the appropriate ATS authority for the cases listed under (2) above in airspace Classes D and E, a flight may be cleared without separation being so provided in respect of a specific portion of the flight conducted in visual meteorological conditions.

ATS.260 Separation methods

Separation by an air traffic control unit shall be obtained by at least one of the following:

(1) vertical separation, obtained by assigning different levels selected from:

(a) the appropriate table of cruising levels in Appendix 3 of MCAR ROA "Rules of the Air",

(b) a modified table of cruising levels, when so prescribed in accordance with Appendix 3 of MCAR ROA "Rules of the Air" for flight above FL 410,

except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances,

(2) horizontal separation, obtained by providing:

(a) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance, or

(b) lateral separation, by maintaining aircraft on different routes or in different geographical areas,

(3) composite separation:

Consisting of a combination of vertical separation and one of the other forms of separation contained in (2) above, using minima for each which may be lower than, but not less than half of, those used for each of the combined elements when applied individually. Composite separation shall only be applied on the basis of regional air navigation agreements.

(4) Establishment of a program in RVSM airspace

For all airspace where a reduced vertical separation minimum of 1000 ft is applied between FL 290 and FL 410 inclusive, a programme shall be instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the continued application of this vertical separation

minimum meets the safety objectives. The scope of regional monitoring programmes shall be adequate to conduct analyses of aircraft group performance and evaluate the stability of altimetry system error.

(5) RCP/RSP specifications

Where RCP/RSP specifications are applied, programmes shall be instituted for monitoring the performance of the infrastructure and the participating aircraft against the appropriate RCP and/or RSP specifications, to ensure that operations in the applicable airspace continue to meet safety objectives. The scope of monitoring programmes shall be adequate to evaluate communication and/or surveillance performance, as applicable.

(6) RVSM Approval

The air traffic services provider shall establish and implement a procedure to verify that:

(a) aircraft are approved for operation in RVSM airspace, and

(b) the information is exchanged with the Regional Monitoring Agency (RMA) on a regular basis.

AMC ATS.260 Separation methods

(1) Sharing data from monitoring programmes

Arrangements should be put in place, through interregional agreement, for the sharing between regions of data and/or information from monitoring programmes.

GM ATS.260 Separation methods

(3) Guidance material relating to the implementation of composite lateral/vertical separation is contained in the Air Traffic Services Planning Manual (Doc 9426).

(4) Guidance material relating to vertical separation and monitoring of height-keeping performance is contained in the Manual on a 1000 ft Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).

(5) Guidance material relating to RCP and RSP specifications and monitoring of communication and surveillance performance is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

ATS.265 Separation minima

(1) Selection of separation minima

The air traffic services provider shall select the separation minima for application within a given portion of airspace as follows:

(a) the separation minima shall be selected from those prescribed by the provisions of

the PANS-ATM (Doc 4444) and the Regional Supplementary Procedures as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered by current ICAO provisions, other separation minima shall be established as necessary by:

(i) the ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of Mauritius,

(ii) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty, or where the air traffic control services have been delegated to Mauritius ATS.

(b) the selection of separation minima shall be made in consultation between the appropriate ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:

(i) traffic will pass from one into the other of the neighbouring airspaces,

(ii) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

(2) Notification of selected separation minima

The air traffic services provider shall notify details of the selected separation minima and of their areas of application:

(a) to the ATS units concerned, and

(b) to pilots and operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

GM ATS.265 Separation minima

(a) Details of current separation minima prescribed by ICAO are contained in the PANS ATM (Doc 4444) and the Regional Supplementary Procedures (Doc 7030).

(b) The purpose of this provision is to ensure, in the first case, compatibility on both sides of the line of transfer of traffic, and, in the other case, adequate separation between aircraft operating on both sides of the common boundary.

ATS.270 Responsibility for control

(1) Responsibility for control of individual flights

A controlled flight shall be under the control of only one air traffic control unit at any given time.

(2) Responsibility for control within a given block of airspace

Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

ATS.275 Transfer of responsibility for control

(1) Place or time of transfer

The responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

(a) Between two units providing area control service

The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control centre having control of the aircraft or at such other point or time as has been agreed between the two units.

(b) Between a unit providing area control service and a unit providing approach control service

The responsibility for the control of an aircraft shall be transferred from an unit providing area control service to a unit providing approach control service, and vice versa, at a point or time agreed in a letter of agreement between the two units.

(c) Between a unit providing approach control service and an aerodrome control tower

(i) Arriving aircraft

The responsibility for the control of an arriving aircraft shall be transferred from the unit providing approach control service to the aerodrome control tower, when the aircraft:

(1) is in the vicinity of the aerodrome, and:

(a) it is considered that approach and landing will be completed in visual reference to the ground, or

(b) it has reached uninterrupted visual meteorological conditions, or

(2) is at a prescribed point or level, as specified in letters of agreement or ATS unit instructions; or

(3) has landed

(ii) Departing aircraft

The responsibility for control of a departing aircraft shall be transferred from the aerodrome control tower to the unit providing approach control service:

(1) when visual meteorological conditions prevail in the vicinity of the aerodrome:

(a) prior to the time the aircraft leaves the vicinity of the aerodrome, or

(b) prior to the aircraft entering instrument meteorological conditions, or

(c) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions,

(2) when instrument meteorological conditions prevail at the aerodrome:

(a) immediately after the aircraft is airborne, or

(b) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions.

(d) Between control sectors/positions within the same air traffic control unit

The responsibility for control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same air traffic control unit at a point, level or time, as specified in ATS unit instructions.

(2) Coordination of transfer

(a) Transferring traffic without consent

Responsibility for control of an aircraft shall not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which shall be obtained in accordance with ATS.275 (2)(b), ATS.275 (2)(b)(i), ATS.275 (2)(b)(ii), ATS.275 (2)(c).

(b) Communicating current flight plan

The transferring control unit shall communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

(i) Transfer of control using radar/ADS-B

Where transfer of control is to be effected using radar or ADS-B data, the control information pertinent to the transfer shall include information regarding the position and, if required, the track and speed of the aircraft, as observed by radar or ADS-B immediately prior to the transfer.

(ii) Transfer of control using ADS-C

Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer shall include the four-dimensional position and other information as necessary.

(c) Communication from accepting control unit

The accepting control unit shall:

(i) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by letter of agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and

(ii) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

(d) Notifying the establishment of two-way communication

The accepting control unit shall notify the transferring control unit when it has established two-way voice and/or data link communications with and assumed control of the aircraft concerned, unless otherwise specified by agreement between the two control units concerned.

(e) Coordination procedures in letters of agreement

Applicable coordination procedures, including transfer of control points, shall be specified in letters of agreement and ATS unit instructions as appropriate.

GM ATS.275 Transfer of responsibility for control

(1)(c) Between a unit providing approach control service and an aerodrome control tower

Even though there is an approach control unit, control of certain flights may be transferred directly from an area control centre to an aerodrome control tower and vice versa, by prior arrangement between the units concerned for the relevant part of approach control service to be provided by the area control centre or the aerodrome control tower, as applicable.

ATS.280 Air traffic control clearances

The ATS provider shall base solely the air traffic control clearances on the requirements for providing air traffic control service.

(1) Contents of clearances

(a) An air traffic control clearance shall indicate:

(i) aircraft identification as shown in the flight plan,

(ii) clearance limit,

(iii) route of flight,

(iv) level(s) of flight for the entire route or part thereof and changes of levels if required.

(v) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

(b) Standard departure and arrival route

The air traffic services provider shall establish standard departure and arrival routes and associated procedures when necessary to facilitate:

(i) the safe, orderly and expeditious flow of air traffic,

(ii) the description of the route and procedure in air traffic control clearances.

(2) Clearances for transonic flight

(a) Clearance relating supersonic flights

The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.

(b) The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall provide for uninterrupted descent, at least during the transonic phase.

(3) Read-back of clearances and safety-related information

(a) Flight crew read back

The air traffic controller shall make sure that flight crew read back safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:

(i) ATC route clearances,

(ii) clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway, and

(iii) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts, transition levels.

(b) Other clearances read back

The air traffic controller shall make sure that other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood by the flight crew and will be complied with.

(c) Listening to read backs

The air traffic controller shall listen to the read-back to ascertain that the clearance

or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

(d) Read back of CPDLC messages

Unless specified by the air traffic services provider, voice read-back of CPDLC messages shall not be required.

(e) Vehicle drivers read back

The air traffic controller shall make sure that vehicle drivers operating or intending to operate on the manoeuvring area shall read back safety-related parts of instructions which are transmitted by voice, e.g. instructions to enter, hold short of, cross and operate on any operational runway or taxiway.

(f) Vehicle drivers read back acknowledge

The air traffic controller shall listen to the read-back to ascertain that the instruction has been correctly acknowledged by the vehicle driver and shall take immediate action to correct any discrepancies revealed by the read-back.

(4) Coordination of clearances

An air traffic control clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft, or a specified portion thereof as follows.

(a) Clearance until the aerodrome of first intended landing

The air traffic control service provider shall clear the aircraft for the entire route to the aerodrome of first intended landing when:

(i) it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come, or

(ii) there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

(b) Clearances with no coordination

When coordination as in ATS.280 (4)(a) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

(i) Downstream clearance prior to the transfer of control point

When prescribed by the ATS provider, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.

(1) Two-way communications

Aircraft shall maintain the necessary two-way communication with the current

air traffic control unit whilst obtaining a downstream clearance.

(2) Clearance issued as a downstream clearance

A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

(3) Downstream clearances and aircraft's original flight profile

Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.

(c) Coordination before issuing a departure clearance

When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.

(d) Clearances for aircrafts going in and out of controlled airspace

When an aircraft intends to leave a control area for flight outside controlled airspace and will subsequently re-enter the same or another control area, a clearance from point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

(5) Air traffic flow management

(a) Determining ATS capacity

(i) The air traffic services provider shall determine and declare the capacity of the ATS system.

(ii) The air traffic service provider shall calculate and maintain the number of staff required to ensure the provision of an adequate ATS system.

(b) Implementing air traffic flow management (ATFM)

The air traffic services provider shall implement an air traffic flow management (ATFM) for airspace where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.

(d) Delays or restrictions applied by ATS due to lack of space

When it becomes apparent to an ATC unit that traffic additional to that already accepted cannot be accommodated within a given period of time at a particular location or in a particular area, or can only be accommodated at a given rate, that unit shall so advise the ATFM unit, when such is established, as well as, when appropriate, ATS units concerned. Flight crews of aircraft destined to the location or area in question and operators concerned shall also be advised of the delays

expected or the restrictions that will be applied.

(6) Data Link Communications Procedures

The air traffic services provider shall establish and implement procedures; as well as good operating practices related to the following:

(a) initiation of data link communications (logon),

(b) establishment of CPDLC,

(c) exchange of operational CPDLC messages, and

(d) provision of ADS-C services.

AMC ATS.280 Air traffic control clearances

(4)(b)(i)(4) Downstream clearances using CPDLC

Where practicable, and where data link communications are used to facilitate downstream clearance delivery, two-way voice communications between the pilot and the air traffic control unit providing the downstream clearance should be available.

(5)(c) Implementing ATFM throughout air navigation regional agreements

The air traffic services provider shall implement ATFM on the basis of regional air navigation agreements or, if appropriate, through multilateral agreements. Such agreements should make provision for common procedures and common methods of capacity determination

GM ATS.280 Air traffic control clearances

(a)(iv) If the clearance for the levels covers only part of the route, it is important for the air traffic control unit to specify a point to which the part of the clearance regarding levels applies whenever necessary to ensure compliance with MCAR ROA “Rules of the Air”, ROA.335(a).

(a)(v) The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been commenced.

(b) Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (Doc 9426). The design criteria are contained in PANS-OPS (Doc 8168), Volume II.

(3)(d) The procedures and provisions relating to the exchange and acknowledgement of CPDLC messages are contained in Annex 10, Volume II, and the PANS-ATM (Doc 4444), Chapter 14.

(4)(a) Where a clearance is issued covering the initial part of the flight solely as a means of expediting departing traffic, the succeeding en-route clearance will be as specified above even though the aerodrome of first intended landing is under the

jurisdiction of an area control centre other than the one issuing the en-route clearance.

(4)(b) Requirements relating to the application of downstream clearance delivery service are specified in Annex 10, Volume II. Guidance material is contained in the Manual of Air Traffic Services Data Link Applications (Doc 9694).

(5)(a) The capacity of the air traffic control services concerned will normally be declared by the appropriate ATS authority.

(5)(d) Operators concerned will normally be advised, in advance where possible, of restrictions imposed by the air traffic flow management unit when such is established.

(6) Requirements relating to Data Link communications procedures are specified in PANS ATM (Doc. 4444) and Doc. 10037.

ATS.285 Control of persons and vehicles at aerodromes

(1) Control of the movement area by the aerodrome control tower

The air traffic services provider shall control the movement of persons or vehicles including towed aircraft on the manoeuvring area of an aerodrome by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

(2) Low visibility procedures

Reserved

(3) Emergency vehicles priority

The aerodrome control tower shall give priority to emergency vehicles proceeding to the assistance of an aircraft in distress over all other surface movement traffic.

(4) Rules for the vehicles on the manoeuvring area

Subject to the provisions in ATS.285 (3), the air traffic services provider shall ensure that vehicles on the manoeuvring area be required to comply with the following rules:

(a) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing,

(b) vehicles shall give way to other vehicles towing aircraft,

(c) vehicles shall give way to other vehicles in accordance with ATS unit instructions,

(d) notwithstanding the provisions of a), b) and c), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

AMC.ATS 290 Provision of radar and ADS-B

The air traffic services provider should ensure that the ADS-B ground systems provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

AMC ATS 295 Use of surface movement radar (SMR)

In the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, surface movement radar (SMR) provided in accordance with the provisions of Annex 14, Volume I, or other suitable surveillance equipment, should be utilized to:

(1) monitor the movement of aircraft and vehicles on the manoeuvring area,

(2) provide directional information to pilots and vehicle drivers as necessary, and

(3) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

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CHAPTER 3

Flight Information Service

ATS.300 Application

(1) Provision of flight information services

The air traffic services provider shall provide flight information service to all aircraft which are likely to be affected by the information and which are:

(a) provided with air traffic control service; or

(b) otherwise known to the relevant air traffic services units

(2) Preference of the air traffic control service over the flight information services

Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

GM ATS.300 Application

(1) Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.

(2) It is recognized that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of air traffic control service.

ATS.305 Scope of flight information service

(1) Flight information service shall include the provision of pertinent:

(a) SIGMET and AIRMET information,

(b) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds,

(c) information concerning the release into the atmosphere of radioactive materials or toxic chemicals,

(d) information on changes in the availability of radio navigation services,

(e) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water,

(f) information on unmanned free balloons, and

(g) any other information likely to affect safety.

(2) Elements included in the flight information service

Flight information service provided to flights shall include, in addition to that outlined in ATS.305 (1), the provision of information concerning:

(a) weather conditions reported or forecast at departure, destination and alternate aerodromes,

(b) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G,

(c) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.

(4) Flight information service provided to VFR flights

Flight information service provided to VFR flights shall include, in addition to that outlined in ATS.305 (1), the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

AMC ATS.305 Scope of flight information service

(3) Special air-reports

ATS units should transmit, as soon as practicable, special air-reports to other aircraft concerned, to the associated meteorological office, and to other ATS units concerned. Transmissions to aircraft shall be continued for a period to be determined by agreement between the meteorological and air traffic services authorities concerned

GM ATS.305 Scope of flight information service

(2) The information in (b), including only known aircraft, the presence of which might constitute a collision hazard to the aircraft informed, will sometimes be incomplete and air traffic services cannot assume responsibility for its issuance at all times or for its accuracy.

(2) When there is a need to supplement collision hazard information provided in compliance with (b), or in case of temporary disruption of flight information service, traffic information broadcasts by aircraft may be applied in designated airspaces. Guidance on traffic information broadcasts by aircraft and related operating procedures is contained below.

TRAFFIC INFORMATION BROADCASTS BY AIRCRAFT (TIBA) AND RELATED OPERATING PROCEDURES

(1) Introduction and applicability of broadcasts

(a) Traffic information broadcasts by aircraft are intended to permit reports and relevant supplementary information of an advisory nature to be transmitted by pilots on a designated VHF radiotelephone (RTF) frequency for the information of pilots of other aircraft in the vicinity.

(b) TIBAs shall be introduced only when necessary and as a temporary measure.

(c) The broadcast procedures shall be applied in designated airspace where:

(i) there is a need to supplement collision hazard information provided by air traffic services outside controlled airspace, or

(ii) there is a temporary disruption of normal air traffic services.

(d) Such airspaces should be identified by the responsible for provision of air traffic services within these airspaces, if necessary with the assistance of the appropriate ICAO Regional Office(s), and duly promulgated in aeronautical information publications or NOTAM, together with the VHF RTF frequency, the message formats and the procedures to be used. Where, in the case of (c) (i), more than one State is involved, the airspace should be designated on the basis of regional air navigation agreements and promulgated in Doc 7030.

(e) When establishing a designated airspace, dates for the review of its applicability at intervals not exceeding 12 months should be agreed by the appropriate ATS authority.

(2) Details of broadcasts

(a) VHF RTF frequency to be used

(i) The VHF RTF frequency to be used shall be determined and promulgated on a regional basis. However, in the case of temporary disruption occurring in controlled airspace, the Authority may promulgate, as the VHF RTF frequency to be used within the limits of that airspace, a frequency used normally for the provision of air traffic control service within that airspace.

(ii) Where VHF is used for air-ground communications with ATS and an aircraft has only two serviceable VHF sets, one should be tuned to the appropriate ATS frequency and the other to the TIBA frequency.

(b) Listening watch

A listening watch shall be maintained on the TIBA frequency 10 minutes before entering the designated airspace until leaving this airspace. For an aircraft taking off from an aerodrome located within the lateral limits of the designated airspace, listening watch shall start as soon as appropriate after take-off and be maintained until leaving the airspace.

(c) Time of broadcasts

A broadcast shall be made:

(i) 10 minutes before entering the designated airspace or, for a pilot taking off from an aerodrome located within the lateral limits of the designated airspace, as soon as appropriate after take-off,

(ii) 10 minutes prior to crossing a reporting point,

(iii) 10 minutes prior to crossing or joining an ATS route,

(iv) at 20-minute intervals between distant reporting points,

(v) 2 to 5 minutes, where possible, before a change in flight level,

(vi) at the time of a change in flight level, and

(vii) at any other time considered necessary by the pilot.

(d) Forms of broadcast

(i) The broadcasts other than those indicating changes in flight level, i.e. the broadcasts referred to in (2)(c)(i),(ii),(iii),(iv) and (vii), shall be in the following form:

(1) ALL STATIONS (necessary to identify a traffic information broadcast)

(2) (call sign)

(3) FLIGHT LEVEL (number) (or CLIMBING* TO FLIGHT LEVEL (number))

(4) (direction) (ATS route) (or DIRECT FROM (position) TO (position))

(5) POSITION (position**) AT (time)

(6) ESTIMATING (next reporting point, or the point of crossing or joining a designated ATS route) AT (time)

(7) (call sign)

(8) FLIGHT LEVEL (number)

(9) (direction)

Fictitious example:

“ALL STATIONS WINDAR 671 FLIGHT LEVEL 350 NORTHWEST BOUND DIRECT FROM PUNTA SAGA TO PAMPA POSITION 5040 SOUTH 2010 EAST AT 2358 ESTIMATING CROSSING ROUTE LIMA THREE ONE AT 4930 SOUTH 1920 EAST AT 0012 WINDAR 671 FLIGHT LEVEL 350 NORTHWEST BOUND OUT”

(ii) Before a change in flight level, the broadcast (referred to in (2)(c)(v) shall be in the following form:

(1) ALL STATIONS

(2) (call sign)

(3) (direction)

(4) (ATS route) (or DIRECT FROM (position) TO (position))

(5) LEAVING FLIGHT LEVEL (number) FOR FLIGHT LEVEL (number) AT (position and time)

(iii) Except as provided in (2)(d)(iv), the broadcast at the time of a change in flight level (referred to in (2)(c)(vi)) shall be in the following form:

(1) ALL STATIONS

(2) (call sign)

(3) (direction)

(4) (ATS route) (or DIRECT FROM (position) TO (position))

(5) LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number)

followed by:

(1) ALL STATIONS

(2) (call sign)

(3) MAINTAINING FLIGHT LEVEL (number)

(iv) Broadcasts reporting a temporary flight level change to avoid an imminent collision risk should be in the following form:

(1) ALL STATIONS

(2) (call sign)

(3) LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number)

followed as soon as practicable by:

(1) ALL STATIONS

(2) (call sign)

(3) RETURNING TO FLIGHT LEVEL (number) NOW

(e) Acknowledgement of the broadcasts

The broadcasts shall not be acknowledged unless a potential collision risk is perceived.

(3) Related operating procedures

(a) Changes of cruising level

(i) Cruising level changes should not be made within the designated airspace, unless considered necessary by pilots to avoid traffic conflicts, for weather avoidance or for other valid operational reasons.

(ii) When cruising level changes are unavoidable, all available aircraft lighting which would improve the visual detection of the aircraft should be displayed while changing

levels.

(b) Collision avoidance

If, on receipt of a traffic information broadcast from another aircraft, a pilot decides that immediate action is necessary to avoid an imminent collision risk, and this cannot be achieved in accordance with the right-of-way provisions of MCAR ROA "Rules of the Air", the pilot shall:

(i) unless an alternative manoeuvre appears more appropriate, immediately descend 500 ft,

(ii) display all available aircraft lighting which would improve the visual detection of the aircraft,

(iii) as soon as possible, reply to the broadcast advising action being taken,

(iv) notify the action taken on the appropriate ATS frequency, and

(v) as soon as practicable, resume normal flight level, notifying the action on the appropriate ATS frequency.

(c) Normal position reporting procedures

Normal position reporting procedures shall be continued at all times, regardless of any action taken to initiate or acknowledge a traffic information broadcast.

ATS.310 Operational flight information service broadcasts

(1) Application

(a) Integrated information

The meteorological information and operational information concerning radio navigation services and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

(b) Integrated operational flight information messages

Where integrated operational flight information messages are to be transmitted to aircraft, they shall be transmitted with the content and, where specified, in the sequence indicated, for the various phases of flight.

(c) HF, VHF and ATIS Broadcasts

When operational flight information service broadcasts are provided, shall consist of messages containing integrated information regarding selected operational and meteorological elements appropriate to the various phases of flight. These broadcasts shall be of three major types, i.e. HF, VHF and ATIS.

(2) Voice-automatic terminal information service (Voice-ATIS) broadcasts

(a) Broadcasts of Voice-ATIS information

Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels. When provided, they shall comprise:

(i) one broadcast serving arriving aircraft, or

(ii) one broadcast serving departing aircraft, or

(iii) one broadcast serving both arriving and departing aircraft, or

(iv) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

(b) Discrete VHF frequency use for voice-ATIS broadcast

The air traffic service provider whenever practicable, shall use a discrete VHF frequency for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

(c) Broadcasting Voice-ATIS on the ILS channel

The air traffic services provider shall not broadcast Voice-ATIS on the voice channel of an ILS.

(d) Continuous broadcasting of voice-ATIS

Whenever voice-ATIS is provided, the air traffic services provider shall broadcast Voice-ATIS in a continuous and repetitive way.

(e) Knowing Air traffic units ATIS information

The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and takeoff, whenever the message has not been prepared by that (those) unit(s).

(f) Voice-ATIS broadcast in international aerodromes

The air traffic service provider shall provide Voice-ATIS broadcasts at designated aerodromes for use by international air services and shall be available in the English language as a minimum.

(g) Using different channels

Where Voice-ATIS broadcasts are available in more than one language, a discrete channel shall be used for each language.

(h) Length of Voice-ATIS broadcast

The Voice-ATIS broadcast message shall, whenever practicable, not exceed 30 seconds, care being taken that the readability of the ATIS message is not impaired by the speed of the transmission or by the identification signal of a navigation aid used for transmission of ATIS. The ATIS broadcast message shall take into consideration human performance.

(3) Data link-automatic terminal information service (D-ATIS)

(a) Identical information

Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast.

(b) Same designator

Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the content, for the purpose of maintaining the same designator, shall be considered identical.

(c) Simultaneously updated of Voice–ATIS and D-ATIS

Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice–ATIS and D-ATIS shall be updated simultaneously.

(4) Automatic terminal information service (voice and/or data link)

(a) Whenever Voice-ATIS and/or D-ATIS is provided:

(i) the information communicated shall relate to a single aerodrome,

(ii) the information communicated shall be updated immediately a significant change occurs,

(iii) the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services,

(iv) individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages shall be in alphabetical order,

(v) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower, as appropriate,

(vi) the appropriate ATS unit shall, when replying to the message in (v) above or, in the case of arriving aircraft, at such other time as may be prescribed by the appropriate ATS authority, provide the aircraft with the current altimeter setting, and

(vii) the meteorological information shall be extracted from the local meteorological routine or special report.

(b) Rapidly changing meteorological conditions

When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages shall indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.

(c) Current ATIS information

Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with ATS.310 (6)(a)(vi).

(d) Acknowledgement of an ATIS that is no longer current

If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.

(e) Brief content of ATIS

Contents of ATIS should be kept as brief as possible. Information additional to that specified in ATS.310 (7) to ATS.310 (8), for example information already available in aeronautical information publications (AIPs) and NOTAM, should only be included when justified in exceptional circumstances.

(5) ATIS for arriving and departing aircraft

ATIS messages containing both arrival and departure information shall contain the following elements of information in the order listed:

(a) name of aerodrome,

(b) arrival and/or departure indicator,

(c) contract type, if communication is via D-ATIS,

(d) designator,

(e) time of observation, if appropriate,

(f) type of approach(es) to be expected,

(g) the runway(s) in use; status of arresting system constituting a potential hazard, if any,

(h) significant runway surface conditions and, if appropriate, braking action,

(i) holding delay, if appropriate,

(j) transition level, if applicable,

(k) other essential operational information,

(l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers,

*(m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers,

*(n) present weather,

*(o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available,

(p) air temperature,

(q) dew point temperature,

(r) altimeter setting(s),

(s) any available information on significant meteorological phenomena in the approach and climb out areas including wind shear, and information on recent weather of operational significance,

(t) trend forecast, when available, and

(u) specific ATIS instructions.

GM ATS.310 Operational flight information service broadcasts

Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683).

(3) (a) Significant change criteria are specified in 2.3.2 of Appendix 3 to Annex 3.

(5) (c) Guidance material relating to D-ATIS is contained in the Manual of Air Traffic Services Data Link Applications (Doc 9694). The technical requirements for the D-ATIS application are contained in Annex 10, Volume III, Part I, Chapter 3.

(6) In accordance with Sections 4.1 and 4.3 of Appendix 3 to Annex 3, the surface wind direction and speed and runway visual range (RVR) are to be averaged over 2 minutes and 1 minute, respectively; and the wind information is to refer to conditions along the runway for departing aircraft and to conditions at the touchdown zone for arriving aircraft. A template for the local meteorological report, including the corresponding ranges and resolutions of each element, are in Appendix 3 to Annex 3. Additional criteria for the local meteorological report are contained in Chapter 4 of, and in Attachment D to, Annex 3.

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CHAPTER 4

Alerting Service

ATS.315 Application

(6) Alerting service shall be provided

The air traffic services provider shall provide alerting service:

(a) for all aircraft provided with air traffic control service,

(b) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services, and

(c) to any aircraft known or believed to be the subject of unlawful interference.

(7) Collecting all information relevant to a state of emergency of an aircraft

Flight information centres or area control centres shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

(8) Up-to-date contact details

The appropriate ATS authority shall maintain up-to-date contact details in the OPS Control Directory for flight information centres or area control centres referred to in ATS.315 (2).

(a) The contact details to be maintained in the OPS Control Directory shall be those of the appropriate ATS duty supervisor position or equivalent.

(9) Aircraft in a state of emergency

In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre shall not be required when the nature of the emergency is such that the notification would be superfluous.

(10) Immediate assistance required

Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

GM ATS.315 Application

Guidance on the use of the OPS Control Directory is contained in the Manual on Global Aeronautical Distress and Safety System (GADSS) (Doc 10165).

ATS.320 Notification of rescue coordination centres

(1) Air traffic services units shall notify rescue coordination centres:

Without prejudice to any other circumstances that may render such notification advisable, air traffic services units shall, except as prescribed in MCAR ATS.335, notify rescue coordination centres immediately an aircraft is considered to be in a state of emergency in accordance with the following:

(a) Uncertainty phase when:

(i) no communication has been received from an aircraft within a period of thirty minutes after the time a communication shall have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or

(ii) an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later,

except when no doubt exists as to the safety of the aircraft and its occupants.

(b) Alert phase when:

(i) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or

(ii) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or

(iii) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely or where the likelihood of a forced landing has not been determined,

except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or

(iv) an aircraft is known or believed to be the subject of unlawful interference.

(c) Distress phase when:

(i) following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or

(ii) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or

(iii) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or

(iv) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing,

except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

(2) Information contained in the notification

The notification shall contain such of the following information as is available in the order listed:

(a) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency,

(b) agency and person calling,

(c) nature of the emergency,

(d) significant information from the flight plan,

(e) unit which made last contact, time and means used,

(f) last position report and how determined,

(g) colour and distinctive marks of aircraft,

(h) dangerous goods carried as cargo,

(i) any action taken by reporting office, and

(j) other pertinent remarks.

(4) Additional information furnished

Further to the notification in ATS 320 (1), the rescue coordination centre shall, without delay, be furnished with:

(a) any useful additional information, especially on the development of the state of emergency through subsequent phases, or

(b) information that the emergency situation no longer exists.

AMC ATS.320 Notification of rescue coordination centres

(3) Sought information before declaring a distress phase

Such part of the information specified in ATS 320 (2), which is not available at the time notification is made to a rescue coordination centre, should be sought by an air traffic services unit prior to the declaration of a distress phase, if there is reasonable certainty that this phase will eventuate.

GM ATS.320 Notification of rescue coordination centres

(3) Information on the position of an aircraft in a distress condition may be accessible from the Location of an Aircraft in Distress Repository (LADR). Guidance on use of LADR is contained in the Manual on Global Aeronautical Distress and Safety System (GADSS) (Doc 10165). For more information see Annex 6, Part I, Appendix 9.

(4) The cancellation of action initiated by the rescue coordination centre is the responsibility of that centre.

ATS.325 Use of communication facilities

Air traffic services units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

ATS.330 Plotting aircraft in a state of emergency

When a state of emergency is considered to exist, the flight of the aircraft involved shall be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position. The flights of other aircraft known to be operating in the vicinity of the aircraft involved shall also be plotted in order to determine their probable future positions and maximum endurance.

ATS.335 Information to the operator

(1) Advise the operator in case of uncertainty or alert phase

When an area control or a flight information centre decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the operator prior to notifying the rescue coordination centre.

(2) Notify the operator without delay

All information notified to the rescue coordination centre by an area control or flight information centre shall, whenever practicable, also be communicated, without delay, to the operator.

GM ATS.335 Information to the operator

If an aircraft is in the distress phase, the rescue coordination centre has to be notified immediately in accordance with ATS 320 (1).

ATS.340 Information to aircraft operating in the vicinity of an aircraft in a state of emergency

(1) Informing other aircraft of the emergency as soon as practicable.

When it has been established by an air traffic services unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in ATS.340 (2), be informed of the nature of the emergency as soon as practicable.

(2) ATS air-ground communications when an aircraft is being subjected to unlawful interference.

When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

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CHAPTER 5

AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

ATS.345 Aeronautical mobile service (air-ground communications)

(1) General

(a) Use of radiotelephony or data link in communications

Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes. The ATS units shall maintain guard on the emergency channel 121.5 MHz at the tower and approach/area.

(b) RCP types for ATM functions

Where an RCP specification has been prescribed by Mauritius for performance-based communication, ATS units shall, in addition to the requirements specified in ATS.345 (1), be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specification(s).

(c) Recording facilities

When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.

(d) Retaining recordings of communication channels

The air traffic services provider shall retain recordings of communications channels as required in paragraph ATS.345 (c) for a period of at least thirty days.

(2) For flight information service

(a) Quality in two-way communications for FIS

Air-ground communication facilities shall enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.

(b) Direct, rapid, continuous and static-free two-way communications for FIS

Whenever practicable, air-ground communication facilities for flight information service shall permit direct, rapid, continuous and static-free two-way communications.

(3) For area control service

(a) Quality in two-way communications for Area control

Air-ground communication facilities shall enable two-way communications to take place between a unit providing area control service and appropriately equipped

aircraft flying anywhere within the control area(s).

(b) Direct, rapid, continuous and static-free two-way communications for area control.

Whenever practicable, air-ground communication facilities for area control service shall permit direct, rapid, continuous and static-free two-way communications.

(c) Air-ground voice communication channels use for area control service.

Where air-ground voice communication channels are used for area control service and are worked by air-ground communicators, suitable arrangements shall be made to permit direct pilot-controller voice communications, as and when required.

(4) For approach control service

(a) Direct, rapid, continuous and static-free two-way communications for approach control

Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

(b) Air-ground voice communication channels use for approach control.

Where the unit providing approach control service functions as a separate unit, air-ground communications shall be conducted over communication channels provided for its exclusive use.

(11) For aerodrome control service

(a) Direct, rapid, continuous and static-free two-way communications for aerodrome control.

Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 25 NM of the aerodrome concerned.

(b) Separate communication channels

Where conditions warrant, separate communication channels shall be provided for the control of traffic operating on the manoeuvring area.

GM ATS.345 Aeronautical mobile service (air-ground communications)

(a) Requirements for ATS units to be provided with and to maintain guard on the emergency channel 121.5 MHz are specified in Annex 10, Volumes II and V.

(b) Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

(c) Requirements for retention of all automatic recordings of communications in ATC are specified in Annex 10, Volume II, 3.5.1.5.

ATS.350 Aeronautical fixed service (ground-ground communications)

(1) General

(a) Direct-speech and/or data link communications

The air traffic service provider shall use direct-speech and/or data link communications in ground-ground communications for air traffic services purposes.

(2) Communications within a flight information region

(a) Communications between air traffic services units

(i) A **flight information centre** shall have facilities for communications with the following units providing a service within its area of responsibility:

(1) the area control centre, unless collocated,

(2) approach control units,

(3) aerodrome control towers.

(ii) An **area control centre**, in addition to being connected to the flight information centre as prescribed in ATS.350 (2)(a)(i), shall have facilities for communications with the following units providing a service within its area of responsibility:

(1) approach control units,

(2) aerodrome control towers,

(3) air traffic services reporting offices, when separately established.

(iii) An **approach control unit**, in addition to being connected to the flight information centre and the area control centre as prescribed in ATS.350 (2)(a)(i), and ATS.350 (2)(a)(ii), shall have facilities for communications with:

(1) the associated aerodrome control tower(s), and

(2) when separately established, the associated air traffic services reporting office(s).

(iv) An **aerodrome control tower**, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in ATS.350 (2)(a)(i), ATS.350 (2)(a)(ii), and ATS.350 (2)(a)(iii), shall have facilities for communications with the:

(1) associated air traffic services reporting office, when separately established.

(b) Communications between air traffic services units and other units

(i) flight information centre and area control centre communications

A flight information centre and an area control centre shall have facilities for communications with the following units providing a service within their respective area of responsibility:

(1) appropriate military units,

(2) the meteorological office serving the centre,

(3) the aeronautical telecommunications station serving the centre,

(4) appropriate operator's offices,

(5) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service,

(6) the international NOTAM office serving the centre.

(ii) Communications in the approach control unit and aerodrome control towers

An approach control unit and an aerodrome control tower shall have facilities for communications with the following units providing a service within their respective area of responsibility:

(1) appropriate military units,

(2) rescue and emergency services (including ambulance, fire, etc.),

(3) the meteorological office serving the unit concerned,

(4) the aeronautical telecommunications station serving the unit concerned,

(5) the unit providing apron management service, when separately established.

(iii) Rapid and reliable communications between ATS and military units responsible for interception operations

The communication facilities required under ATS.350(b)(i)*(1)* and ATS.350(b)(ii)*(1)* shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.

(c) Description of communication facilities

(i) Communication facilities

The communication facilities required under ATS.350(2)(a), ATS.350(2)(b)(i) and ATS.350(2)(b)(ii)*(1-3)* shall include provisions for:

(1) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and

(2) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

(ii) Maximum communication time periods

In all cases not covered by ATS.350(2)(c)(i), the communication facilities shall include provisions for:

(1) communications by direct speech alone, or in combination with data link communications, whereby the communications can normally be established within fifteen seconds, and

(2) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

(iii) Automatic transfer of data

In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.

(iv) Visual or audio communications

The communication facilities required in accordance with ATS.350(2)(a) and ATS.350(2)(b) shall be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

(v) Establishment of conference communications

The communication facilities required under ATS.350(2)(b)(ii)*(1-3)* shall include provisions for communications by direct speech arranged for conference communications.

(vi) Time for establishing conference communications

The communication facilities required under ATS.350(2)(b)(ii)*(4)* shall include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

(vii) Automatic recording

All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under ATS.350(2)(b)(i) and ATS.350(2)(b)(ii) shall be provided with automatic recording.

(viii) Retaining recordings of data and communications

Recordings of data and communications as required in ATS.350(2)(b)(iii) and ATS.350(2)(b)(vii) shall be retained for a period of at least thirty days.

(3) Communications between flight information regions

(a) Communicating with adjacent centres

Flight information centres and area control centres shall have facilities for communications with all adjacent flight information centres and area control centres.

(i) Retaining communications as permanent records

These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.

(ii) Immediate communications for transferring control

Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas shall, in addition, include provisions for direct speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

(iii) Agreement between the air traffic service providers concerned in order to eliminate or reduce the need for interceptions

When so required by agreement between Mauritius Air Traffic Services and any other State concerned, in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centres or area control centres other than those mentioned in ATS.350(3)(a)(ii) shall include provisions for direct speech alone, or in combination with data link communications. The communication facilities shall be provided with automatic recording.

(iv) Response time

The communication facilities in ATS.350(3)(a)(iii) shall permit communications to be established normally within fifteen seconds.

(b) Connected adjacent ATS units

Adjacent ATS units shall be connected in all cases where special circumstances exist.

(c) Communications with adjacent area control centre

Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, an approach control unit and/or aerodrome

control tower shall be connected with the area control centre serving the adjacent area.

(d) Communications by direct speech alone, or in combination with data link communications, with automatic recording

The communication facilities in ATS.350(3)(b) and ATS.350(3)(c) shall include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

(e) Automatic exchange of data between air traffic services computers

In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.

(f) Retaining communications

Recordings of data and communications as required in ATS.350(3)(e) shall be retained for a period of at least thirty days.

(4) Procedures for direct-speech communications

Appropriate procedures for direct-speech communications shall be developed to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

GM ATS.350 Aeronautical fixed service (ground-ground communications)

(1)(a) Indication by time of the speed with which the communication should be established is provided as a guide to communication services, particularly to determine the types of communication channels required, e.g. that “instantaneous” is intended to refer to communications which effectively provide for immediate access between controllers; “fifteen seconds” to accept switchboard operation and “five minutes” to mean methods involving retransmission.

Requirements for retention of all automatic recordings of communications in ATC are specified in Annex 10, Volume II, 3.5.1.5.

(3)(b)(ii) Special circumstances may be due to traffic density, types of aircraft operations and/or the manner in which the airspace is organized and may exist even if the control areas and/or control zones are not contiguous or have not (yet) been established.

ATS.355 Surface movement control service

(1) Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes.

(a) Two-way radiotelephony communications for the control of vehicles

Two-way radiotelephony communication facilities shall be provided for aerodrome control service for the control of vehicles on the manoeuvring area, except where communication by a system of visual signals is deemed to be adequate.

(b) Separate communication channels

Where conditions warrant, separate communication channels shall be provided for the control of vehicles on the manoeuvring area. Automatic recording facilities shall be provided on all such channels.

(c) Retaining communications

Recordings of communications as required in ATS.355(1)(b) shall be retained for a period of at least thirty days.

ATS.360 Aeronautical radio navigation service

(1) Automatic recording of surveillance data

(a) Surveillance data from ADS-B and ADS-C equipment

Surveillance data from ADS-B and ADS-C equipment, used as an aid to air traffic services, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

(b) Retaining automatic recordings

Automatic recordings shall be retained for a period of at least thirty days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

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CHAPTER 6

AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION

ATS.365 Meteorological information

(1) General

(a) Up-to-date information on existing and forecast meteorological conditions

The Air traffic services provider shall make sure that its units shall be supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions. The information shall be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

(2) Flight information centres and area control centres

(a) SIGMET and AIRMET reports

Flight information centres and area control centres shall be supplied with meteorological information as described in Annex 3, Appendix 9, 1.3, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.

(b) Pressure data for setting altimeters

Flight information centres and area control centres shall be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

(3) Units providing approach control service

(a) Reports and up to date forecasts

Units providing approach control service shall be supplied with meteorological information as described in Annex 3, Appendix 9, 1.2 for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.

(b) Current pressure data for setting altimeters in the approach control services

The air traffic services provider shall ensure that units providing approach control service shall be provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

(c) Surface wind display for the approach control unit

The air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(d) Runway visual range values displays for the approach control unit

The air traffic services provider shall ensure that units providing approach control service for final approach, landing and takeoff at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding displays in the aerodrome control tower and in the meteorological station, where such a station exists.

(e) Height of cloud base displays for the approach control unit

The air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means should be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays should be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(f) Wind shear information for the approach control unit

The air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

(4) Aerodrome control towers

(a) Up to date aerodrome control towers meteorological information

The air traffic services provider shall ensure that aerodrome control towers shall be supplied with meteorological information as described in Annex 3, Appendix 9, 1.1 for the aerodrome with which they are concerned. Special reports and amendments to forecasts shall be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

(4)(b)Current pressure data for setting altimeters for the aerodrome

The air traffic services provider shall ensure that aerodrome control towers shall be provided with current pressure data for setting altimeters for the aerodrome concerned.

(4)(c) Surface wind display for the aerodrome control tower

The air traffic services provider shall ensure that aerodrome control towers shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensor(s) are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.

(4)(d) Runway visual range values displays for the aerodrome control tower

The air traffic services provider shall ensure that aerodrome control towers at aerodromes where runway visual range values are measured by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

(4)(e) Height of cloud base displays for the aerodrome control tower

The air traffic services provider shall ensure that aerodrome control towers at aerodromes where the height of cloud base is assessed by instrumental means should be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays should be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

(4)(f) Wind shear information for the aerodrome control tower

The air traffic services provider shall ensure that aerodrome control towers shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach and aircraft on the runway during the landing roll or take-off run.

(5) Communication stations

Where necessary for flight information purposes, current meteorological reports and forecasts shall be supplied to communication stations. A copy of such information shall be forwarded to the flight information centre or the area control centre.

AMC ATS.365 Meteorological information

(1)(b) Detailed information of meteorological phenomena

The air traffic services units should be supplied with available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations.

(1)(c) Agreements between the ATS and MET regarding computer-processed data

When computer-processed upper air data are made available to air traffic services

units in digital form for use by air traffic services computers, the contents, format and transmission arrangements should be as agreed between the Meteorological Authority and the appropriate ATS authority.

(4)(g)Information on aerodrome warnings

The air traffic services provider should ensure that aerodrome control towers and/or other appropriate units should be supplied with aerodrome warnings

GM ATS.365 Meteorological information

(1)(b) The meteorological phenomena are listed in Annex 3, Chapter 4, 4.6.8.

(2)(a) For the purpose of this provision, certain changes in meteorological conditions are construed as deterioration in a weather element, although they are not ordinarily considered as such. An increase in temperature may, for example, adversely affect the operation of certain types of aircraft.

(3)(f) Provisions concerning the issuance of wind shear warnings and alerts and ATS requirements for meteorological information are given in Annex 3, Chapter 7 and Appendices 6 and 9.

(4)(g) The meteorological conditions for which aerodrome warnings are issued are listed in Annex 3, Appendix 6, 5.1.3.

ATS.370 Information on aerodrome conditions and the operational status of associated facilities

The air traffic services provider shall ensure that aerodrome control towers and units providing approach control service be kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

GM ATS.370 Information on aerodrome conditions and the operational status of associated facilities

A coordination procedure can be established through a Letter of Agreement (LOA), a Memorandum Of Understanding (MOU), etc, between the ATS and the aerodrome operator.

ATS.375 Information on the operational status of navigation services

(1) Information on the operational status of radio navigation services and visual aids

The air traffic services provider shall ensure that ATS units be kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility and

those radio navigation services and visual aids essential for surface movement.

AMC ATS.375 Information on the operational status of navigation services

(1) Information received on time on the operational status of radio navigation services and visual aids.

The air traffic services provider should ensure that information on the operational status, and any changes thereto, of radio navigation services and visual aids as referred to in ATS.375(1) be received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s) involved.

GM ATS.375 Information on the operational status of navigation services

Guidance material regarding the provision of information to ATS units in respect to visual and non-visual navigation aids is contained in the Air Traffic Services Planning Manual (Doc 9426). Specifications for monitoring visual aids are contained in Annex 14, Volume I, and related guidance material is in the Aerodrome Design Manual (Doc 9157), Part 5. Specifications for monitoring non-visual aids are contained in Annex 10, Volume I.

A coordination procedure can be established through a Letter of Agreement (LOA), a Memorandum Of Understanding (MOU), etc, between the ATS and the CNS provider.

ATS.380 Information on unmanned free balloons

The air traffic services provider shall make necessary arrangements for operators of unmanned free balloons to keep the appropriate air traffic services units informed of details of flights of unmanned free balloons in accordance with the provisions contained in MCAR ROA “Rules of the Air”.

ATS.385 Information concerning volcanic activity

(1) Pre-eruption volcanic activity

The air traffic services provider shall ensure that ATS units be informed, in accordance with local agreement, of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud which could affect airspace used by flights within their area of responsibility.

(2) Volcanic ash advisory information issued by the associated VAAC.

Area control centres and flight information centres shall be provided with volcanic ash advisory information issued by the associated VAAC.

GM ATS.385 Information concerning volcanic activity

VAACs are designated by regional air navigation agreements in accordance with Annex 3, 3.5.1.

ATS.390 Information concerning radioactive materials and toxic chemical clouds”

The air traffic services provider shall ensure that ATS units be informed, in accordance with local agreement, of the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace used by flights within their area of responsibility.

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APPENDIX 1

PRINCIPLES GOVERNING THE IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES

(See MCAR ATS.035 and ATS.065)

GM AP1.1- See Appendix 3 concerning the identification of standard departure and arrival routes and associated procedures. Guidance material on the establishment of these routes and procedures is contained in the Air Traffic Services Planning Manual (Doc 9426).

(1) Designators for ATS routes and navigation specifications

(a) Purpose of a system of route designators and navigation specification

The purpose of a system of route designators and navigation specification(s) applicable to specified ATS route segment(s), route(s) or area is to allow both pilots and ATS, taking into account automation requirements:

(i) to make unambiguous reference to any ATS route without the need to resort to the use of geographical coordinates or other means in order to describe it,

(ii) to relate an ATS route to a specific vertical structure of the airspace, as applicable,

(iii) to indicate a required level of navigation performance accuracy, when operating along an ATS route or within a specified area, and

(iv) to indicate that a route is used primarily or exclusively by certain types of aircraft.

GM AP1.2- Specifications concerning the publication of navigation specifications are given in Annex 4, Chapter 7, and PANS-AIM (Doc 10066), Appendix 2.

GM AP1.3- In relation to this appendix and for flight planning purposes, a prescribed navigation specification is not considered an integral part of the ATS route designator.

(b) Designation purpose

In order to meet this purpose, the designation system shall:

(i) permit the identification of any ATS route in a simple and unique manner,

(ii) avoid redundancy,

(iii) be usable by both ground and airborne automation systems,

(iv) permit utmost brevity in operational use, and

(v) provide sufficient possibility of extension to cater for any future requirements without the need for fundamental changes.

(c) Controlled, advisory and uncontrolled ATS routes

Controlled, advisory and uncontrolled ATS routes, with the exception of standard arrival and departure routes, shall therefore be identified as specified hereafter.

(2) Composition of designator

(a) Basic designator supplemented

The ATS route designator shall consist of a basic designator supplemented, if necessary, by:

(1) one prefix as prescribed in (2)(c), and

(2) one additional letter as prescribed in (2)(d).

(i) The number of characters required to compose the designator shall not exceed six characters.

(ii) The number of characters required to compose the designator should, whenever possible, be kept to a maximum of five characters.

(b) Basic designator

The basic designator shall consist of one letter of the alphabet followed by a number from 1 to 999.

(i) Selection of the letter shall be made from those listed hereunder:

(1) A, B, G, R for routes which form part of the regional networks of ATS routes and are not area navigation routes,

(2) L, M, N, P for area navigation routes which form part of the regional networks of ATS routes,

(3) H, J, V, W for routes which do not form part of the regional networks of ATS routes and are not area navigation routes,

(4) Q, T, Y, Z for area navigation routes which do not form part of the regional networks of ATS routes.

(c) Supplementary letter

Where applicable, one supplementary letter shall be added as a prefix to the basic designator in accordance with the following:

(i) K to indicate a low-level route established for use primarily by helicopters,

(ii) U to indicate that the route or portion thereof is established in the upper airspace,

(iii) S to indicate a route established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight.

(d) Type of service provided

When prescribed by the appropriate ATS authority or on the basis of regional air navigation agreements, a supplementary letter may be added after the basic designator of the ATS route in question in order to indicate the type of service provided in accordance with the following:

(i) the letter F to indicate that on the route or portion thereof advisory service only is provided,

(ii) the letter G to indicate that on the route or portion thereof flight information service only is provided.

GM AP1.4- Due to limitations in the display equipment on board aircraft, the supplementary letters "F" or "G" may not be displayed to the pilot.

GM AP1.5- Implementation of a route or a portion thereof as controlled route, advisory route or flight information route is indicated in aeronautical charts and aeronautical information publications in accordance with the provisions in Annexes 4 and 15.

(3) Assignment of basic designators

(a) Basic ATS route designators

Basic ATS route designators shall be assigned in accordance with the following principles:

(i) The same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed.

GM AP1.6- This is of particular importance where automated ATS data processing and computerized airborne navigation equipment is used.

(ii) Where two or more trunk routes have a common segment, the segment in question shall be assigned each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned.

(iii) A basic designator assigned to one route shall not be assigned to any other route.

(iv) Mauritius' requirements for designators shall be notified to the Regional Office of ICAO for coordination.

(4) Use of designators in communications

(a) Printed communications

In printed communications, the designator shall be expressed at all times by not less than two and not more than six characters.

(b) Voice communications

In voice communications, the basic letter of a designator shall be spoken in accordance with the ICAO spelling alphabet.

(c) Pronouncing prefixes

Where the prefixes K, U or S specified in (2)(c) are used, they shall, in voice communications, be spoken as follows:

(i) K — KOPTER

(ii) U — UPPER

(iii) S — SUPERSONIC

The word “kopter” shall be pronounced as in the word “helicopter” and the words “upper” and “supersonic” as in the English language.

(d) Use of letters “F” or “G”

Where the letters “F” or “G” specified in (2)(d) are used, the flight crew should not be required to use them in voice communications.

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APPENDIX 2

PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

(See MCAR ATS.075)

(1) Establishment of significant points

(a) Reference to ground-based radionavigation aids

The air traffic service provider shall establish significant points, whenever possible, with reference to ground-based or space-based radio navigation aids, preferably VHF or higher frequency aids.

(b) Self-contained airborne navigation aids

If ground-based or space-based radio navigation aids do not exist, the air traffic service provider shall establish significant points at locations which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. Specific points may be designated as ‘‘transfer of control’’ points by agreement between adjacent air traffic control units or control positions concerned.

(2) Designators for significant points marked by the site of a radio navigation aid

(a) Plain language name for significant points marked by the site of a radio navigation aid

(i) Reference to an identifiable and preferably prominent geographical location

The air traffic service provider shall name significant points with reference to an identifiable and preferably prominent geographical location.

(ii) Selecting a name for a significant point

In selecting a name for the significant point, care shall be taken to ensure that the following conditions are met:

(1) the name shall not create difficulties in pronunciation for pilots or ATS personnel when speaking in the language used in ATS communications. Where the name of a geographical location in the national language selected for designating a significant point gives rise to difficulties in pronunciation, an abbreviated or contracted version of this name, which retains as much of its geographical significance as possible, shall be selected,

Example: FUERSTENFELDBRUCK = FURSTY

(2) the name shall be easily recognizable in voice communications and shall be free of ambiguity with those of other significant points in the same general area. In addition, the name shall not create confusion with respect to other communications exchanged between air traffic services and pilots,

(3) the name shall, if possible, consist of at least six letters and form two syllables and preferably not more than three,

(4) the selected name shall be the same for both the significant point and the radio navigation aid marking it.

(b) Composition of coded designators for significant points marked by the site of a radio navigation aid

(i) Coded designators

The coded designator shall be the same as the radio identification of the radio navigation aid. It shall be so composed, if possible, as to facilitate association with the name of the point in plain language.

(ii) Duplicated coded designators

Coded designators shall not be duplicated within 600 NM of the location of the radio navigation aid concerned, except as noted hereunder.

GM AP2.1- When two radio navigation aids operating in different bands of the frequency spectrum are situated at the same location, their radio identifications are normally the same.

(c) Notifying needs for coded designators

Mauritius' requirements for coded designators shall be notified to the Regional Office of ICAO for coordination.

(3) Designators for significant points not marked by the site of a radio navigation aid

(a) Designating name codes

When the air traffic services provider requires a significant point at a position not marked by the site of a radio navigation aid, and is used for ATC purposes, it shall be designated by a unique five-letter pronounceable "name-code". This name-code designator then serves as the name as well as the coded designator of the significant point.

GM AP2.2- The principles governing the use of alphanumeric name-codes in support of RNAV SIDs, STARs and instrument approach procedures are detailed in the PANS-OPS (Doc 8168).

(b) Avoid difficulties in pronunciation

The air traffic services provider shall select the name-code designator so as to avoid any difficulties in pronunciation by pilots or ATS personnel when speaking in the language used in ATS communications.

Examples: IMKOV, EKVAL

(c) Easy recognition of name code

The name-code designator shall be easily recognizable in voice communications and shall be free of ambiguity with those used for other significant points in the same general area.

(d) Name-code exclusivity

The unique five-letter pronounceable name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when the air traffic services provider wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.

(e) Notifying needs for name-code to ICAO

Mauritius' requirements for unique five-letter pronounceable name-code designators shall be notified to the Regional Office of ICAO for coordination.

(f) Significant points determined by WGS-84

In areas where no system of fixed routes is established or where the routes followed by aircraft vary depending on operational considerations, significant points shall be determined and reported in terms of World Geodetic System — 1984 (WGS-84) geographical coordinates, except that permanently established significant points serving as exit and/or entry points into such areas shall be designated in accordance with the applicable provisions in (2) or (3).

(4) Use of designators in communication

(a) Significant point in voice communication

Normally the name selected in accordance with (2) or (3) on this Appendix shall be used to refer to the significant point in voice communications. If the plain language name for a significant point marked by the site of a radio navigation aid selected in accordance with (2)(a) is not used, it shall be replaced by the coded designator which, in voice communications, shall be spoken in accordance with the ICAO spelling alphabet.

(b) Printed and coded communications

In printed and coded communications, only the coded designator or the selected name-code shall be used to refer to a significant point.

(5) Significant points used for reporting purposes

(a) Significant points use as reporting points

In order to permit ATS to obtain information regarding the progress of aircraft in flight, selected significant points may need to be designated as reporting points.

(b) Factors to consider for establishing report points

The air traffic services provider for establishing report points, shall consider the following factors:

(i) the type of air traffic services provided,

(ii) the amount of traffic normally encountered,

(iii) the accuracy with which aircraft are capable of adhering to the current flight plan,

(iv) the speed of the aircraft,

(v) the separation minima applied,

(vi) the complexity of the airspace structure,

(vii) the control method(s) employed,

(viii) the start or end of significant phases of a flight (climb, descent, change of direction, etc.),

(ix) transfer of control procedures,

(x) safety and search and rescue aspects,

(xi) the cockpit and air-ground communication workload.

(c) Reporting points

Reporting points shall be established by the air traffic services either as “compulsory” or as “on-request”.

(d) Principles for the establishment of compulsory reporting points

The air traffic services provider in establishing “compulsory” reporting points, shall apply the following principles:

(i) compulsory reporting points shall be limited to the minimum necessary for the routine provision of information to air traffic services units on the progress of aircraft in flight, bearing in mind the need to keep cockpit and controller workload and air-ground communications load to a minimum,

(ii) the availability of a radio navigation aid at a location should not necessarily determine its designation as a compulsory reporting point,

(iii) compulsory reporting points should not necessarily be established at flight information region or control area boundaries.

(e) “On-request” reporting points

“On-request” reporting points may be established in relation to the requirements of air traffic services for additional position reports when traffic conditions so demand.

(f) Reviewing designations of compulsory and on request reporting points

The air traffic services provider shall review at least every five years or whenever needed the designation of compulsory and on-request reporting points with a view to keeping the requirements for routine position reporting to the minimum necessary to ensure efficient air traffic services.

(g) Routine reporting over compulsory reporting points

Routine reporting over compulsory reporting points shall not systematically be made mandatory for all flights in all circumstances. In applying this principle, particular attention shall be given to the following:

(i) high-speed, high-flying aircraft should not be required to make routine position reports over all reporting points established as compulsory for low-speed, low-flying aircraft,

(ii) aircraft transiting through a terminal control area should not be required to make routine position reports as frequently as arriving and departing aircraft.

(h) Establishment of a reporting system

In areas where the above principles regarding the establishment of reporting points would not be practicable, a reporting system with reference to meridians of longitude or parallels of latitude expressed in whole degrees may be established.

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APPENDIX 3

PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

(See MCAR ATS.065)

GM AP3.1- Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (Doc 9426).

(1) Designators for standard departure and arrival routes and associated procedures

(a) System of designators

The system of designators shall:

(i) permit the identification of each route in a simple and unambiguous manner,

(ii) make a clear distinction between:

(1) departure routes and arrival routes,

(2) departure or arrival routes and other ATS routes,

(3) routes requiring navigation by reference to ground-based radio aids or self-contained airborne aids, and routes requiring navigation by visual reference to the ground,

(iii) be compatible with ATS and aircraft data processing and display requirements,

(iv) be of utmost brevity in its operational application,

(v) avoid redundancy,

(vi) provide sufficient possibility for extension to cater for any future requirements without the need for fundamental changes.

(b) Plain language designator

The air traffic services provider shall identify each route by a plain language designator and a corresponding coded designator.

(c) Difficulties in pronunciation for pilots and air traffic controllers

The designators shall, in voice communications, be easily recognizable as relating to a standard departure or arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.

(2) Composition of designators

(a) Plain language designator

(i) Content of a plain language designator

The plain language designator of a standard departure or arrival route shall consist of the following:

(1) a basic indicator; followed by

(2) a validity indicator; followed by

(3) a route indicator, where required; followed by

(4) the word “departure” or “arrival”; followed by

(5) the word “visual”, if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR).

(ii) Name of the significant point

The basic indicator shall be the name or name-code of the significant point where a standard departure route terminates, or a standard arrival route begins.

(iii) Validity indicator

The validity indicator shall be a number from 1 to 9.

(iv) Route indicator

The route indicator shall be one letter of the alphabet. The letters “I” and “O” shall not be used.

(b) Coded designator

The coded designator of a standard departure or arrival route, instrument or visual, shall consist of:

(i) the coded designator or name-code of the significant point described in (2)(a)(i), followed by

(ii) the validity indicator in (2)(a)(ii); followed by

(iii) the route indicator in (2)(a)(iii), where required.

GM AP3.2- Limitations in the display equipment on board aircraft may require shortening of the basic indicator, if that indicator is a five-letter name-code, e.g. EKVAL. The manner in which such an indicator is shortened is left to the discretion of operators.

(3) Assignment of designators

(a) Separate designators

Each route shall be assigned a separate designator.

(b) Separate route indicator

To distinguish between two or more routes which relate to the same significant point (and therefore are assigned the same basic indicator), a separate route indicator as described in (2)(a)(iv) shall be assigned to each route.

(4) Assignment of validity indicators

(a) Validity indicators

A validity indicator shall be assigned to each route to identify the route which is currently in effect.

(b) Sequencing of validity indicators

The first validity indicator to be assigned shall be the number “1”.

(c) Amended routes

Whenever a route is amended, a new validity indicator, consisting of the next higher number, shall be assigned. The number “9” shall be followed by the number “1”.

(5) Examples of plain language and coded designators

(a) Example 1: Standard departure route — instrument:

(1) Plain language designator: BRECON ONE DEPARTURE

(2) Coded designator: BCN 1

(i) Meaning: The designator identifies a standard instrument departure route which terminates at the significant point BRECON (basic indicator). BRECON is a radio navigation facility with the identification BCN (basic indicator of the coded designator). The validity indicator ONE (1 in the coded designator) signifies either that the original version of the route is still in effect or that a change has been made from the previous version NINE (9) to the now effective version ONE (1) (see (4)(c). The absence of a route indicator (see (2)(a)(iv) and (3)(b) signifies that only one route, in this case a departure route, has been established with reference to BRECON.

(b) Example 2: Standard arrival route — instrument:

(1) Plain language designator: KODAP TWO ALPHA ARRIVAL

(2) Coded designator: KODAP 2 A

(i) Meaning: This designator identifies a standard instrument arrival route which begins at the significant point KODAP (basic indicator). KODAP is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator TWO (2) signifies that a change has been made from the previous version ONE (1) to the now effective version TWO (2). The route indicator ALPHA (A) identifies one of several routes established with reference to KODAP and is a specific character assigned to this route.

(c) Example 3: Standard departure route — visual:

(1) Plain language designator: ADOLA FIVE BRAVO DEPARTURE VISUAL

(2) \Coded designator: ADOLA 5 B

(i) Meaning: This designator identifies a standard departure route for controlled VFR flights which terminates at ADOLA, a significant point not marked by the site of a radio navigation facility. The validity indicator FIVE (5) signifies that a change has been made from the previous version FOUR (4) to the now effective version FIVE (5). The route indicator BRAVO (B) identifies one of several routes established with reference to ADOLA.

(6) Composition of designators for RNAV approach procedures

(a) Plain language designator

(i) The plain language designator of an RNAV approach procedure shall consist of:

(1) "RNAV"; followed by

(2) a basic indicator; followed by

(3) a validity indicator; followed by

(4) a route indicator; followed by

(5) the word "approach"; followed by

(6) the designator of the runway for which the procedure is designed.

(ii) The basic indicator shall be the name or name-code of the significant point where the approach procedure begins.

(iii) The validity indicator shall be a number from 1 to 9.

(iv) The route indicator shall be one letter of the alphabet. The letters "I" and "O" shall not be used.

(v) The designator of the runway shall be in accordance with Annex 14, Volume I, 5.2.2.

(b) Coded designator

(i) The coded designator of an RNAV approach procedure shall consist of:

(1) "RNAV"; followed by

(2) the coded designator or name-code of the significant point described in (6)(a)(i)(*2*); followed by

(3) the validity indicator in (6)(a)(i)(3); followed by

(4) the route indicator in (6)(a)(i)(4); followed by

(5) the runway designator in (6)(a)(i)(*6*).

(c) Assignment of designators

(i) Assignment of designators for RNAV approach procedures

The assignment of designators for RNAV approach procedures shall be in accordance with paragraph 3. Procedures having identical tracks, but different flight profiles shall be assigned separate route indicators.

(ii) Unique assignment to all approach procedures

The route indicator letter for RNAV approach procedures shall be assigned uniquely to all approaches at an airport until all the letters have been used. Only then shall the route indicator letter be repeated. The use of the same route indicator for two routes using the same ILS ground facility shall not be permitted.

(iii) Assignment of validity indicator

The assignment of validity indicator for approach procedures shall be in accordance with paragraph 4.

(d) Example of plain language and coded designators

(i) Example:

(1) Plain language designator: RNAV HAPPY ONE ALPHA APPROACH RUNWAY ONE EIGHT LEFT

(2) Coded designator: RNAV HAPPY 1 A 18L

(ii) Meaning: The designator identifies an RNAV approach procedure which begins at the significant point HAPPY (basic indicator). HAPPY is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator ONE (1) signifies that either the original version of the route is still in effect or a change has been made from the previous version NINE (9) to the now effective version ONE (1). The route indicator ALPHA (A) identifies one of several routes established with reference to HAPPY and is a specific character assigned to this route.

(7) Use of designators in communications

(a) Voice communications

In voice communications, only the plain language designator shall be used.

GM AP3.3- For the purpose of identification of routes, the words “departure”, “arrival” and “visual” described in (2)(a)(i)(*4*) and (2)(a)(i)(*5*) are considered to be an integral element of the plain language designator.

(b) Printed or coded communications

In printed or coded communications, only the coded designator shall be used.

(8) Display of routes and procedures to air traffic control

(a) Detailed description of standard departure and arrival approach procedures

A detailed description of each currently effective standard departure and/or arrival route/approach procedure, including the plain language designator and the coded designator, shall be displayed at the working positions at which the routes/procedures are assigned to aircraft as part of an ATC clearance, or are otherwise of relevance in the provision of air traffic control services.

(b) Display of graphic portrayal of the routes/procedures

Whenever possible, a graphic portrayal of the routes/procedures shall also be displayed.

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APPENDIX 4

ATS AIRSPACE CLASSES/SERVICES PROVIDED AND FLIGHT REQUIREMENTS

(See MCAR ATS.030)

Airspace Class	Type of flight	Separation provided	Service provided	Speed limitation	Radio communication requirement	Subject to an ATC clearance
A	IFR only	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	VFR from IFR	1. Air traffic control service separation from IFR, 2. VFR/VFR traffic information (and traffic avoidance advice on request)	250 kt IAS below 10 000 ft AMSL	Continuous two-way	Yes
D	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kt IAS below 10 000 ft AMSL	Continuous two-way	Yes
	VFR	NIL	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kt IAS below 10 000 ft AMSL	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service and, as far as practical, traffic information about VFR flights	250 kt IAS below 10 000 ft AMSL	Continuous two-way	Yes
	VFR	NIL	Traffic information as far as practical	250 kt IAS below 10 000 ft AMSL	No	No
F	IFR	IFR from IFR as far as practical	Air traffic advisory service; flight information service	250 kt IAS below 10 000 ft AMSL	Continuous two-way	No
	VFR	NIL	Flight information service	250 kt IAS below 10 000 ft AMSL	No	No
G	IFR	NIL	Flight information service	250 kt IAS below 10 000 ft AMSL	Continuous two-way	No
	VFR	NIL	Flight information service	250 kt IAS below 10 000 ft AMSL	No	No

APPENDIX 5

PRESCRIPTIVE FATIGUE MANAGEMENT REGULATIONS

(See MCAR ATS.140)

GM AP5.1- Guidance on the development and implementation of prescriptive fatigue management regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

(1) Establishment of prescriptive limitation procedures

The air traffic services provider shall establish prescriptive limitation procedures that take into account acute and cumulative fatigue, circadian factors and the type of work being undertaken. These procedures shall identify:

(a) the maximum:

(i) number of hours in any duty period,

(ii) number of consecutive workdays,

(iii) number of hours worked in a defined period, and

(iv) time-in-position.

(b) the minimum:

(i) duration of non-duty periods,

(ii) number of non-duty days required in a defined period, and

(iii) duration of breaks between periods of time-in-position in a duty period.

(2) Process for assigning unscheduled duties

The air traffic services provider shall identify a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.

(3) Variations in the prescriptive limitations

The processes established by the air traffic services provider in accordance with MCAR ATS.140(3)(c) and (d) to allow variations from (1)(a) and (b) above shall be approved by the Authority and shall include the following provisions:

(a) the reason for the need to deviate,

(b) the extent of the deviation,

(c) the date and time of enactment of the deviation, and

(d) a safety case, outlining mitigations, to support the deviation.

APPENDIX 6

FATIGUE RISK MANAGEMENT SYSTEM (FRMS) REQUIREMENTS

(See MCAR ATS.140)

GM AP6.1- Guidance on the development and implementation of FRMS regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

The Authority will require that the air traffic services provider FRMS shall contains, as a minimum the following:

(1) FRMS policy and documentation

(a) FRMS policy

(i) The air traffic services provider shall define its FRMS policy, with all elements of the FRMS clearly identified.

(ii) The policy shall:

(1) define the scope of FRMS operations,

(2) reflect the shared responsibility of management, air traffic controllers, and other involved personnel,

(3) clearly state the safety objectives of the FRMS,

(4) be signed by the accountable executive of the organization,

(5) be communicated, with visible endorsement, to all the relevant areas and levels of the organization,

(6) declare management commitment to effective safety reporting,

(7) declare management commitment to the provision of adequate resources for the FRMS,

(8) declare management commitment to continuous improvement of the FRMS,

(9) require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified, and

(10) require periodic reviews to ensure it remains relevant and appropriate.

GM AP6.2- Effective safety reporting is described in the Safety Management Manual (SMM) (Doc 9859).

(b) FRMS documentation

(i) The air traffic services provider shall develop and keep current FRMS documentation that describes and records:

(1) FRMS policy and objectives,

(2) FRMS processes and procedures,

(3) accountabilities, responsibilities and authorities for these processes and procedures,

(4) mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel,

(5) FRMS training programmes, training requirements and attendance records,

(6) scheduled and actual duty and non-duty periods and break periods between periods of time-in-position in a duty period with significant deviations and reasons for deviations noted, and

GM AP6.3- Significant deviations are described in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

(7) FRMS outputs including findings from collected data, recommendations, and actions taken.

(2) Fatigue risk management processes

(a) Identification of fatigue-related hazards

GM AP6.4- Provisions on the protection of safety information are contained in Annex 19.

The air traffic services provider shall develop and maintain the following three fundamental and documented processes for fatigue hazard identification:

(i) Predictive. The predictive process shall identify fatigue hazards by examining air traffic controller scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include, but are not limited to:

(1) air traffic services or industry operational experience and data collected on similar types of operations or from other industries with shift work or 24-hour operations,

(2) evidence-based scheduling practices, and

(3) bio-mathematical models.

(ii) Proactive. The proactive process shall identify fatigue hazards within current air traffic services operations. Methods of examination may include, but are not limited to:

(1) self-reporting of fatigue risks,

(2) fatigue surveys,

(3) relevant air traffic controller performance data,

(4) available safety databases and scientific studies,

(5) tracking and analysis of differences in planned and actual worked times, and

(6) observations during normal operations or special evaluations.

(iii) Reactive. The reactive process shall identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following:

(1) fatigue reports,

(2) confidential reports,

(3) audit reports, and

(4) incidents.

(b) Fatigue-related risk assessment

(i) The air traffic services provider shall develop and implement risk assessment procedures that determine when the associated risks require mitigation.

(ii) The risk assessment procedures shall review identified fatigue hazards and link them to:

(1) operational processes,

(2) their probability,

(3) possible consequences, and

(4) the effectiveness of existing preventive controls and recovery measures.

(c) Risk mitigation

The air traffic services provider shall develop and implement fatigue risk mitigation procedures that:

(i) select the appropriate mitigation strategies,

(ii) implement the mitigation strategies, and

(iii) monitor the strategies' implementation and effectiveness.

(3) FRMS safety assurance processes

The air traffic services provider shall develop and maintain FRMS safety assurance processes to:

(a) provide for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:

(i) hazard reporting and investigations,

(ii) audits and surveys, and

(iii) reviews and fatigue studies (both internal and external),

(b) provide a formal process for the management of change. This shall include, but is not limited to:

(i) identification of changes in the operational environment that may affect the FRMS,

(ii) identification of changes within the organization that may affect the FRMS, and

(iii) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes, and

(c) provide for the continuous improvement of the FRMS. This shall include, but is not limited to:

(i) the elimination and/or modification of preventive controls and recovery measures that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment,

(ii) routine evaluations of facilities, equipment, documentation and procedures,

(iii) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

(4) FRMS promotion processes

FRMS promotion processes support the ongoing development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following shall be established and implemented by the air traffic services provider as part of its FRMS:

(a) training programmes to ensure competency commensurate with the roles and responsibilities of management, air traffic controllers, and all other involved personnel under the planned FRMS, and

(b) an effective FRMS communication plan that:

(i) explains FRMS policies, procedures and responsibilities to all relevant stakeholders, and

(ii) describes communication channels used to gather and disseminate FRMS-related information.

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APPENDIX 7

STATE RESPONSIBILITIES CONCERNING AN INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

(See MCAR ATS.170)

(1) The air traffic services provider shall:

(a) provide an instrument flight procedure design service, and/or

(b) agree with one or more Contracting State(s) to provide a joint service, and/or

(c) delegate the provision of the service to external agency(ies).

(2) In all cases in paragraph 1 above, the Authority shall approve and remain responsible for all instrument flight procedures for aerodromes and airspace under its authority.

(3) Instrument flight procedures shall be designed in accordance with Mauritius-approved design criteria.

(4) Authority shall ensure that an instrument flight procedure design service provider intending to design an instrument flight procedure for aerodromes or airspace under the authority of Mauritius meets the requirements established by the Authority regulatory framework.

GM AP7.1- Guidance material for regulatory framework for the oversight of instrument flight procedure design service is contained in the Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service (Doc 10068).

(5) Authority shall ensure that an instrument flight procedure design service provider utilizes a quality management system at each stage of the instrument flight procedure design process.

GM AP7.2- This requirement can be met by means of a quality assurance methodology, such as that described in PANS-OPS (Doc 8168), Volume II. Guidance for implementing such a methodology is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).

(6) The air traffic services provider shall carry out maintenance and periodic review of instrument flight procedures for aerodromes and airspace under the authority of the Authority. The air traffic services provider shall establish a procedure for periodic review of instrument flight procedures not exceeding five years.

GM AP7.3- Guidance on maintenance and periodic review is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).