



**MEMORANDUM CIRCULAR NO.:** 015-17

**TO :** ALL CONCERNED

**FROM :** THE ACTING DIRECTOR GENERAL

**SUBJECT :** AMENDMENT TO PHILIPPINE CIVIL AVIATION REGULATIONS – AIR NAVIGATION SERVICES (CAR-ANS) PART 11 INCORPORATING AMENDMENT 50A AND 50B TO ICAO ANNEX 11

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**REFERENCE:**

1. Philippine Civil Aviation Regulations- Air Navigation Services
2. ICAO Annex 11
3. ICAO Annex 11; Amendment 50A and 50B
4. Regulations Amendment Procedures
5. Board Resolution No. 2012-054 dated 28 September 2012

Pursuant to the powers vested in me under the Republic Act 9497, otherwise known as the Civil Aviation Authority Act of 2008 and in accordance with the Board Resolution No.: 2012-054 dated 28 September 2012, I hereby approve the incorporation of ICAO Annex 11 Amendment No. 50A and 50B to the Philippine Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Part 11.

**ORIGINAL REGULATION:**

**CAR-ANS Part 11**

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**PART 11.1 – DEFINITIONS**

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**Alternate aerodrome.** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

**Take-off alternate.** An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

**En-route alternate.** An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.

**ETOPS en-route alternate.** A suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shut-down or other abnormal or emergency condition while en route in an ETOPS operation.

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*"The Future is in the Skies"*

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**Destination alternate.** An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

*Note.* - The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

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**Appropriate ATS authority.** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

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**Controlled airspace.** An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

*Note.* - Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in 2.6.

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**Data quality.** A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

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**Incident.** An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

*Note.* - The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Annex 13, Attachment C.

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**Obstacle.** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.

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**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

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**Performance-based navigation (PBN).** Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

*Note.*- Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

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**Radiotelephony.** A form of radio communication primarily intended for the exchange of information in the form of speech.

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**RCP type.** A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

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**Reporting point.** A specified geographical location in relation to which the position of an aircraft can be reported.

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**Required communication performance (RCP)** A statement of the performance requirements for operational communication in support of specific ATM functions.

**SIGMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which that may affect the safety of aircraft operations.

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**Special VFR flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

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## **11.2 GENERAL**

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### **11.2.7 Performance-based navigation (PBN) operations**

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

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### **11.2.8 Required communication performance (RCP)**

11.2.8.1 RCP types shall be prescribed by CAAP. When applicable, the RCP type(s) shall be prescribed on the basis of regional air navigation agreements.

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11.2.8.2 The prescribed RCP type shall be appropriate to the air traffic services provided in the airspace concerned.

### **11.2.9 Establishment and designation of the units providing air traffic services**

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

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11.2.9.1 Flight information centers shall be established to provide flight information service and alerting service within flight information regions, and shall be published in the Aeronautical Information Publication (AIP).

*Note.- This does not preclude delegating to other units the function of providing certain elements of the flight information service.*

11.2.9.2 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, and shall be published in the AIP.

*Note. - The services to be provided by various air traffic control units are indicated in 3.2.*

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## **11.2.10 Specifications for flight information regions, control areas and control zones.**

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

*Note 1.- 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 11.2.1.1). 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.*

*Note 2.- 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.*

### 11.2.10.2 Manila Flight Information Region

11.2.10.2.1 The Manila Flight Information Region covers the whole of the air route structure including all airspaces within its lateral limits.

### 11.2.10.3 Control Areas

11.2.10.3.1 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.

*Note.- 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.*

11.2.10.3.2 A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft).

11.2.10.3.2.1 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 11.2.10.3.2.

11.2.10.3.2.2 When the lower limit of a control area is above 900 m (3 000 ft) MSL it should coincide with a VFR cruising level.

11.2.10.3.3 An upper limit of a control area shall be established when either:

- a) air traffic control service will not be provided above such upper limit; or
- b) 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.
- c) When established, such upper limit shall coincide with the table of VFR cruising levels in CAR Part 8.

### 11.2.10.4 Control zones



11.2.10.4.1 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.

*Note.-Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.*

11.2.10.4.2 The lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

*Note.-A control zone may include two or more aerodromes situated close together.*

11.2.10.4.3 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.

*Note- An upper limit higher than the lower limit of the overlying control area may be established when desired.*

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

11.2.10.4.5 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 900 m (3 000 ft) MSL it should coincide with the VFR cruising level of the tables as published in the Philippine AIP.

*Note.— 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 200 m (700 ft) above ground or water.*

### **11.2.11 Identification of air traffic service units and airspaces**

11.2.11.1 An area control centre or flight information centre should be identified by the name of a nearby town or city or geographic feature.

11.2.11.2 An aerodrome control tower or approach control unit should be identified by the name of the aerodrome at which it is located.

11.2.11.3 A control zone, control area or flight information region should be identified by the name of the unit having jurisdiction over such airspace.

### **11.2.12 Establishment and identification of ATS routes**

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

11.2.12.2 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 should be taken of the navigational means available and the navigation equipment carried on board helicopters.

11.2.12.3 ATS routes shall be identified by designators.

11.2.12.4 Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in Appendix 11.1.

11.2.12.5 Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in Appendix 11.3.

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

*Note 2.- Guidance material relating to the establishment of ATS routes defined by VOR is contained in Attachment A.*

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

### **11.2.13 Establishment of change-over points**

11.2.13.1 Change-over points should be established 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 110 km (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.

11.2.13.2 Unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment should 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.

*Note.- Guidance on the establishment of change-over points is contained in Attachment A.*

### **11.2.14 Establishment and identification of significant points**

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

11.2.14.2 Significant points shall be identified by designators.

11.2.14.3 Significant points shall be established and identified in accordance with the principles set forth in Appendix 11.2.

### **11.2.15 Establishment and identification of standard routes for taxiing aircraft**

11.2.15.1 Where necessary, standard routes for taxiing aircraft should 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.

11.2.15.2 Standard routes for taxiing aircraft should be identified by designators distinctively different from those of the runways and ATS routes.

#### **11.2.16 Coordination between the operator and air traffic services**

11.2.16.1 Air traffic services units, in carrying out their objectives, shall have due regard for the requirements of the operators consequent on their obligations, 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.

11.2.16.2 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.

#### **11.2.17 Coordination between military authorities and air traffic services**

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

11.2.17.2 Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 11.2.18.

11.2.17.3 Arrangements shall be made 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.

11.2.17.3.1 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 CAR Part 8 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.

11.2.17.3.2 Special procedures shall be established in order to ensure that:

a) 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;

b) 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.

#### **11.2.18 Coordination of activities potentially hazardous to civil aircraft**

11.2.18.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of a State 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 CAR-ANS Part 15.

11.2.18.1.1 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.

11.2.18.2 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.

11.2.18.2.1 In determining these arrangements the following should be applied:

a) the locations or areas, times and durations for the activities should 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;

b) the size of the airspace designated for the conduct of the activities should be kept as small as possible;

c) 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.

11.2.18.3 The appropriate ATS authorities shall be responsible for initiating the promulgation of information regarding the activities.

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

11.2.18.5 Adequate steps shall be taken to prevent emission of laser beams from adversely affecting flight operations.

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

### **11.2.19 Aeronautical data**

11.2.19.1 Determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity requirements set forth in Tables 1 to 5 contained in Appendix 5 while taking into account the established quality system procedures. Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level, and in that respect three types of positional data shall be identified: surveyed points (e.g. navigation aids

positions), calculated points (mathematical calculations from the known surveyed points of points in space, fixes) and declared points (e.g. flight information region boundary points).

11.2.19.2 The CAAP shall ensure that integrity of aeronautical data is maintained throughout the data process from survey/origin to the next intended user. Based on the applicable integrity classification, the validation procedure shall:

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11.2.19.3 Electronic aeronautical data sets, shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets. This shall apply to the protection of all integrity levels of data sets as specified in 2.19.2.

11.2.19.4 To achieve protection of the integrity level of routine aeronautical data as classified in 11.2.19.2, a 16-bit CRC algorithm should apply.

*Note.* - *Guidance material on the aeronautical data quality requirements (accuracy, resolution, integrity, protection and traceability) is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674). Supporting material in respect of the provisions of Appendix 5 related to accuracy and integrity of aeronautical data is contained in RTCA Document DO-201A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-77 — Industry Requirements for Aeronautical Information.*

11.2.19.5 Geographical coordinates indicating latitude and longitude shall be determined and reported to the aeronautical information services authority in terms of the World Geodetic System — 1984 (WGS-84) geodetic reference datum, identifying those geographical coordinates which have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in Appendix 11.5, Table 1.

11.2.19.6 The order of accuracy of the field work and determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in the tables contained in Appendix 5.

*Note 1.- An appropriate reference frame is that which enables WGS-84 to be realized on a given position and with respect to which all coordinate data are related.*

*Note 2.- Specifications governing the publication of aeronautical data are given in CAR-ANS Part 15, 11. 3.*

*Note 3.- For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies.*

## **11.2.20 Coordination between meteorological and air traffic services authorities**



11.2.20.1 To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, arrangements shall be made, where necessary, between meteorological and air traffic services authorities 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, area control centers and flight information centers shall report the information to the associated meteorological watch office and volcanic ash advisory centers (VAACs).

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

#### **11.2.21 Coordination between aeronautical information services and air traffic services authorities**

11.2.21.1 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 authorities 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.

11.2.21.2 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.

11.2.21.3 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 CAR-ANS Part 15, 11.11. 6 and Appendix 11.4). The predetermined, internationally agreed AIRAC effective dates in addition to 14 days postage time shall be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.

11.2.21.4 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 for aeronautical data as specified in Appendix 5 to this CAR-ANS Part 11.

*Note 1.- Specifications for the issue of a NOTAM and ASHTAM are contained in CAR-ANS Part 15, 11. 5).*

*Note 2.- Reports of volcanic activity comprise the information detailed in CAR-ANS Part 3, 11. 4 and LOA among Phivolcs, Pagasa, & CAAP.*

*Note 3.- 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.*

#### **11.2.22 Minimum flight altitudes**

Minimum flight altitudes shall be determined and promulgated by CAAP 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.

*Note.- The requirements for publication by CAAP regarding minimum flight altitudes and criteria used to determine them are contained in CAR-ANS Part 15, Appendix I.*

#### **11.2.23 Service to aircraft in the event of an emergency**

11.2.23.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

*Note.- To indicate that it is in a state of emergency, an aircraft equipped with an appropriate datalink capability and/or SSR transponder might operate the equipment as follows:*

- a) on Mode A, Code 7700; or*
- b) on Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference; and/or*
- c) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; and/or*
- d) transmit the appropriate emergency message via CPDLC.*

11.2.23.1.1 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles should be observed.

11.2.23.2 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.

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

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

### **11.2.24 In-flight contingencies**

#### **11.2.24.1 Strayed or unidentified aircraft**

*Note 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.*

*Note 2.- An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.*

11.2.24.1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 11.2.23.1.1.1 and 11.2.23.1.1.2 to assist the aircraft and to safeguard its flight.

*Note.- Navigational assistance by an air traffic services unit is particularly important 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.*

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

- a) attempt to establish two-way communication with the aircraft, unless such communication already exists;
- b) use all available means to determine its position;
- c) 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;
- d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;
- e) request from the units referred to in c) and d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

*Note.- The requirements in d) and e) apply also to ATS units informed in accordance with c).*

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

- a) advise the aircraft of its position and corrective action to be taken; and
- b) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

11.2.24.1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavor 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:

- a) attempt to establish two-way communication with the aircraft;
- b) 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;
- c) 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;
- d) attempt to obtain information from other aircraft in the area.

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

11.2.24.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by CAAP shall immediately be informed, in accordance with locally agreed procedures.

11.2.24.2 Interception of civil aircraft

11.2.24.2.1 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:

- a) 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;
- b) inform the pilot of the intercepted aircraft of the interception;
- c) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;
- d) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
- e) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;
- f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

11.2.24.2.2 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:

a) 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 11.2.24.2.1;

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

### **11.2.25 Time in air traffic services**

11.2.25.1 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.

11.2.25.2 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.

11.2.25.3 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.

11.2.25.4 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.

11.2.25.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide 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.

### **11.2.26 Establishment of requirements for carriage and operation of pressure- altitude reporting transponders**

11.2.26.1 CAAP shall establish requirements for carriage and operation of pressure- altitude reporting transponders within defined portions of airspace.

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

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### **11.2.27 ATS safety management**

*Note. – Annex 19 includes the safety management provisions applicable to ATS providers. Further guidance is contained in the Safety Management Manual (SMM) (Doc 0959) and associated procedures are contained in the PANS-ATM (Doc 4444).*

11.2.27.1 Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, 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.

*Note.* - *When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessment may rely on operational judgment.*

11.2.27.2 The applicable level of safety to be achieved shall be established by the CAAP.

*Note.* - *Guidance on defining acceptable levels of safety is contained in the Safety Management Manual (SMM) (Doc. 9859).*

11.2.27.3 CAAP shall require, as part of their safety program, that an air traffic services provider implements a safety management system acceptable to the CAAP 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; and
- d) aims a continuous improvement of the overall performance of the safety management system.

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

*Note.* —*The framework for the implementation and maintenance of a safety management system is contained in Appendix 11.6. Guidance on safety management systems is contained in the ATS Safety Management Systems Manual and associated procedures are contained in the ATS Manual of Operations.*

## **11.2.28 Common reference systems**

### 11.2.28.1 Horizontal reference system

World Geodetic System – 1984 (WGS-84) shall be used as a 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.

### 11.2.28.2 Vertical reference system

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

*Note.*—*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.*

### 11.2.28.3 Temporal reference system

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

11.2.28.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of Aeronautical Information Publication (AIP).

#### **11.2.29 Language proficiency**

11.2.29.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in CAR Part 2.

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

#### **11.2.30 Contingency arrangements**

Air traffic services authorities shall develop and promulgate contingency plans 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 plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

*Note.* - *Guidance material relating to the development, promulgation and implementation of contingency plans is contained in Attachment E.*

...

#### **11.2.31 Balanced approach to noise management**

11.2.31.1 The balanced approach to noise management consists of identifying the noise problem at an airport and then analyzing the various measures available to reduce noise through the exploration of four principal elements, namely reduction at source (addressed in PCAR 5.4.3 Certificate of Noise Compliance) land-use planning and management, noise abatement operational procedures and operating restrictions, with the goal of addressing the noise abatement operational procedures and operating restrictions, with the goal of addressing the noise problem in the most cost-effective manner. All the elements of the Balanced Approach are addressed in the Guidance on the Balanced Approach to Noise Management (Doc.9829).

...

11.2.31.2 Aircraft operating procedures for noise abatement shall not be introduced until the appropriate CAAP unit/s determines that a noise problem exists based on appropriate studies and consultation.

...

11.2.31.3 Aircraft operating procedures for noise abatement should be developed in consultation with the operators which use the aerodrome concerned.

...

11.2.31.4 The factors to be taken into consideration in the development of appropriate aircraft operating procedures for noise abatement should include the following:

- a) the nature and extent of the noise problem including;
  - 1. the location of noise sensitive areas; and
  - 2. critical hours.
- b) the types of aircraft affected, including aircraft mass, aerodrome elevation, temperature considerations;
- c) the types of procedures likely to be most effective;
- d) obstacle clearances (PANS-OPS (Doc 8168), Volumes I and II); and
- e) human performance in the application of the operating procedures.

### **11.2.32 Identification and delineation of prohibited, restricted and danger areas**

11.2.32.1 Each prohibited area, restricted area, or danger area established by a State shall, upon initial establishment, be given an identification and full details shall be promulgated.

*Note.— See CAR-ANS Part 15, Appendix 15A, ENR 5.1.*

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

11.2.32.3 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.

*Note.— Nationality letters are those contained in Location Indicators (Doc 7910).*

11.2.32.4 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.

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

## **11.3 AIR TRAFFIC CONTROL SERVICE**

...

### **11.3.3 Operation of air traffic control service**

...

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

11.3.3.5.1 For all airspace where reduced vertical separation minimum of 300 m (1000ft) is applied between FL290 and FL 410 inclusive, a program 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.

11.3.3.5.2 Arrangements shall be put in place through inter regional agreement, for the sharing between regions of data monitoring programs.

*Note. - Guidance material relating to vertical separation and monitoring of height- keeping performance is contained in The manual on Implementation of a 300 m (1000 ft) Vertical Separation Minimum FL290 and 410 Inclusive (ICAO Doc 9574).*

#### **11.3.4 Separation minima**

11.3.4.1 The election of separation minima for application within a given portion of airspace shall be as follows:

a) the separation minima shall be selected from those prescribed by the provisions of the ATS Manual of Operations and the ICAO 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:

1) the appropriate ATS authority, following consultation with operators, for routes or portions of routes contained within the Philippine sovereign airspace;

2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.

*Note. - Details of current separation minima prescribed by the Philippines are contained in the ATS Manual of Operations and Part 1 of the Regional Supplementary Procedures (Doc 7030).*

...

11.3.7.1.2 Standard departure and arrival routes and associated procedures should be established when necessary to facilitate:

...

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

...

#### **11.3.7.3 Read-back of clearances and safety-related information**

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

a) ATC route clearances;

b) clearances and instructions to enter, land on, take off on, hold short of, cross and backtrack on any runway; and

c) 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.

...

11.3.7.3.2 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.

#### 11.3.7.4 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:

11.3.7.4.1 An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

- a) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
- b) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come; or

*Note.- 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 center other than the one issuing the en-route clearance.*

...

11.3.7.4.2.1.4 Where practicable, and where datalink 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.

...

11.3.7.5.2 ATFM should be implemented on the basis of regional air navigation agreements or, if appropriated, through multilateral agreements. Such agreements should make provision for common procedures and common methods of capacity determination.

### **11.3.8 Control of persons and vehicles at aerodromes**

11.3.8.1 The movement of persons or vehicles including towed aircraft on the maneuvering area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

11.3.8.2 In conditions where low visibility procedures are in operation:

- a) persons and vehicles operating on the maneuvering area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS sensitive area(s) when Category II or Category III precision instrument operations are in progress;
- b) subject to the provisions in 11.3.8.3, the minimum separation between vehicles and taxiing aircraft shall be as prescribed by the appropriate ATS authority taking into account the aids available.

11.3.8.3 Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

11.3.8.4 Subject to the provisions in 11.3.8.3, vehicles on the maneuvering area shall 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.

...

#### **11.3.9 Provision of radar and ADS-B**

Radar and ADS-B ground systems should provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

#### **11.3.10 Use of surface movement radar (SMR)**

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

- a) monitor the movements of aircraft and vehicles on the maneuvering area;
- b) provide directional information to pilots and vehicle drivers as necessary; and
- c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the maneuvering area.

...

### **11.4 FLIGHT INFORMATION SERVICE**

#### **11.4.1 Application**

...

11.4.2.3 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 should be continued for a period to be determined by agreement between the meteorological and air traffic services authorities concerned.

#### **11.4.3 Operational flight information service broadcasts**

##### **11.4.3.2 Application**

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

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

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

11.4.3.2 HF operational flight information service (OFIS) broadcasts

...

11.4.3.2.1 HF operational flight information service (OFIS) broadcasts should be provided when it has been determined by regional air navigation agreements that a requirement exists.

11.4.3.2.2 Whenever such broadcasts are provided:

- a) the information should be in accordance with 4.3.2.5, as applicable, subject to regional air navigation agreements;
- b) the aerodromes for which reports and forecasts are to be included should be as determined by regional air navigation agreements;
- c) the time-sequencing of stations participating in the broadcast should be as determined by regional air navigation agreements;
- d) the HF OFIS broadcast message should take into consideration human performance. The broadcast message should not exceed the length of time allocated for it by regional air navigation agreements, care being taken that the readability is not impaired by the speed of the transmission;
- e) each aerodrome message should be identified by the name of the aerodrome to which the information applies;
- f) when information has not been received in time for a broadcast, the latest available information should be included together with the time of that observation;
- g) the full broadcast should be repeated if this is feasible within the remainder of the time allotted to the broadcasting station;
- h) the broadcast information should be updated immediately if a significant change occurs; and
- i) the HF OFIS message should be prepared and disseminated by the most appropriate unit(s) as designated by each State.

11.4.3.2.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, HF OFIS broadcasts concerning aerodromes designated for use by international air services should be available in the English language.

11.4.3.2.4 Where HF OFIS broadcasts are available in more than one language, a discrete channel should be used for each language.

11.4.3.2.5 HF operational flight information service broadcast messages should contain the following information in the sequence indicated or as determined by regional air navigation agreements:

- a) En-route weather information

Information on significant en-route weather phenomena should be in the form of available SIGMET as prescribed in Annex 3.

...

#### 11.4.3.3 VHF operational flight information service (OFIS) broadcasts

11.4.3.3.1 VHF operational flight information service broadcasts should be provided as determined by regional air navigation agreements.

11.4.3.3.2 Whenever such broadcasts are provided:

- a) the aerodromes for which reports and forecasts are to be included should be as determined by regional air navigation agreements;
- b) each aerodrome message should be identified by the name of the aerodrome to which the information applies;
- c) when information has not been received in time for a broadcast, the latest available information should be included together with the time of that observation;
- d) the broadcasts should be continuous and repetitive;
- e) the VHF OFIS broadcast message should take into consideration human performance. The broadcast message should, whenever practicable, not exceed five minutes, care being taken that the readability is not impaired by the speed of the transmission;
- f) the broadcast message should be updated on a scheduled basis as determined by regional air agreements. In addition it should be expeditiously updated immediately if a significant change occurs; and
- g) the VHF OFIS message should be prepared and disseminated by the most appropriate unit(s) as designated by each State.

11.4.3.3.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, VHF OFIS broadcasts concerning aerodromes designated for use by international air services should be available in the English language.

11.4.3.3.4 Where VHF OFIS broadcasts are available in more than one language, a discrete channel should be used for each language.

11.4.3.3.5 VHF operational flight information service broadcast messages should contain the following information in the sequence indicated:

- a) name of aerodrome;
- b) time of observation
- c) landing runway
- d) significant runway surface conditions and, if appropriate, braking action;
- e) changes in the operational state of the radio navigation services, if appropriate;
- f) holding delay, if appropriate;
- g) surface wind direction and speed; if appropriate, maximum wind speed;
- \*h) visibility and, when a
- \*i) present weather;

\*j) cloud below 1500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility, when available;

\*\*k) air temperature;

\*\*l) dew point temperature;

\*\*m) QNH altimeter setting

n) supplementary information on recent weather of operational significance and, where necessary, wind shear;

o) trend forecast, when available; and

p) notice of current SIGMET messages

\*These elements are replaced by the term “CAVOK” whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.

\*\*As determined on the basis of regional air navigation agreements.

...

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

11.4.3.4.8 The Voice-ATIS broadcasts message should, 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 should take into consideration human performance.

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

...

11.4.3.5.1.1 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.

*Note.- Significant change criteria are specified in Annex 3, 4.3.4*

11.4.3.5.2 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.

*Note. - 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 1, Chapter 3.*

...

11.4.3.6.5 Contents of ATIS should be kept as brief as possible. Information additional to that specified in 11.4.3.7 to 11.4.3.9, for example information already available in aeronautical information publications (AIPs) and NOTAM, should only be included when justified in exceptional circumstances.

...

11.4.3.7 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:

...

\*These elements are replaced by the term “CAVOK” whenever the conditions as specified in the PAN-ATM (Doc 4444, Chapter 11 prevail.

†As determined on the basis of regional air navigation agreements.

#### 11.4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

...

\*These elements are replaced by the term “CAVOK” whenever the conditions as specified in the PAN-ATM (Doc 4444, Chapter 11 prevail.

†As determined on the basis of regional air navigational agreements.

#### 11.4.3.9 ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

...

\*These elements are replaced by the term “CAVOK”, whenever the conditions as specified in the PANS-ATM (Doc. 4444), Chapter 11 prevail.

†As determined on the basis of regional air navigation

### **11.4.4 VOLMET broadcasts and D-VOLMET service**

11.4.1.1 HF and/or VHF VOLMET broadcasts and /or D-VOLMET service should be provided when it has been determined by regional air navigation agreements that a requirement exists.

11.4.4.2 VOLMET broadcasts should use standard radiotelephony phraseologies.

## **11.5 ALERTING SERVICE**

...

11.5.1.2 Flight information centers or area control centers 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 center.

...

11.5.2.2.1 Such part of the information specified in 11.5.2.2, which is not available at the time notification is made to a rescue coordination center, 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.

...

## **11.6 AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS**

### **11.6.1 Aeronautical mobile service (air-ground communications)**

#### 11.6.1.1 General



11.6.1.1.1 Radiotelephony and/or data link shall be used in air-ground communications for air traffic service purposes.

11.6.1.1.2 When RCP types have been prescribed by States for ATM functions, ATS units shall, in addition to the requirements specified in 11.6.1.1.1, be provided with communications equipment which will enable them to provide ATS in accordance with the prescribed RCP types(s).

11.6.1.1.3 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.

...

11.6.1.2.2 Whenever practicable, air-ground communication facilities for flight information service should permit direct, rapid, continuous and static-free two-way communications.

11.6.1.3.3 Where air-ground voice communication channels are used for area control service and are worked by air-ground communicators, suitable arrangements should be made to permit direct pilot-controller voice communications, as and when required.

...

11.6.1.5.2 Where conditions warrant, separate communication channels should be provided for the control of traffic operating on the maneuvering area.

## **11.6.2 Aeronautical fixed service (ground-ground communications)**

### **11.6.2.1 General**

11.6.2.1.1 Direct-speech communications shall be used in ground-ground communications for air traffic services purposes.

*Note.- 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.*

...

11.6.2.1.2 Where RCP types have been prescribed by States for ATM functions, ATS units shall, in addition to the requirements specified in 11.6.2.1.1, be provided with communications equipment which will enable them to provide ATS in accordance with the prescribed RCP types(s).

...

### **11.6.2.2 Communications within a flight information region**

...

11.6.2.2.2 Communications between air traffic services units and other units.

...

11.6.2.2.3.2 In all cases not covered by 11.6.2.2.3.1, the communication facilities should include provisions for:

...

11.6.2.2.3.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording should be provided.

11.6.2.2.3.4 The communication facilities required in accordance with 11.6.2.2.1 and 11.6.2.2.2 should 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.

...

11.6.2.2.3.6 The communications facilities required under 11.6.2.2.2.2 d) should include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

11.6.2.2.3.7 All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and appropriate military units shall be provided with automatic recording.

...

11.6.2.3 Communications between flight information regions

...

11.6.2.3.1.4 The communication facilities in 11.6.2.3.1 should permit communications to be established normally within fifteen seconds.

11.6.2.3.2 Adjacent ATS units shall should be connected in all cases where special circumstances exist.

...

11.6.2.3.3 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 should be connected with the area control center serving the adjacent area.

11.6.2.3.4 The communication facilities in 11.6.2.3.2 and 11.6.2.3.3 should 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 radar or ADS-B or ADC-data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

...

11.6.2.4 Procedures for direct-speech communications

Appropriate procedures for direct-speech communications should be developed to permit immediate connections to be made for every urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

### **11.6.3 Surface movement control service**

...

11.6.3.1.2 Where conditions warrant, separate communication channels should be provided for the control of vehicles on the maneuvering area. Automatic recording facilities should be provided on all such channels.

11.6.3.1.3 Recordings of data and communications as required in 11.6.2.2.3.3 and 11.6.2.2.3.7 shall be retained for a period of at least thirty days.

...

### **11.6.4 Aeronautical radio navigation service**

11.6.4.1.1 Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to air traffic services, should be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

11.6.4.1.2 Automatic recordings should be retained for a period of at least fourteen days. When the recordings are pertinent to accident and incident investigations, they should be retained for longer periods until it is evident that they will no longer be required.

...

## **11.7 AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION**

...

11.7.1.1.1 Air traffic services 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.

11.7.1.1.2 Meteorological offices should be so situated as to facilitate personal consultation between meteorological personnel and personnel of units providing air traffic services. Where collocation is not practicable, the required consultation should be achieved by other means.

11.7.1.1.3 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.

11.7.1.1.4 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.

11.7.1.1.5 Pilot's responsibility in compliance with the Rules of the Air: Pre-flight action.

...

### **11.7.1.3 Units providing approach control service**

11.7.1.3.1 Units providing approach control service shall be supplied with meteorological information as described in Annex 3, Annex 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.

...

11.7.1.3.3 Units providing approach control service for final approach, landing and take-off shall be equipped with surface wind indicator(s). The indicator(s) shall be related to the same location(s) of observation and be fed from the same anemometer(s) as the corresponding indicator(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

11.7.1.3.4 Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with indicator(s) permitting read-out of the current runway visual range value(s). The indicator(s) shall be related to the same location(s) of observation and be fed from the same runway visual range measuring device(s) as the corresponding indicator(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

11.7.1.3.5 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 the 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.

11.7.1.3.6 Units providing approach control service for final approach, landing and take-off should be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

*Note.- Provisions concerning the issuance of wind shear warnings and ATS requirements for meteorological information are given in Annex 3, Chapters 7 and 10, respectively.*

...

11.7.1.4.5 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 observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

11.7.1.4.6 Aerodrome control towers should 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 landing roll or take-off run.

11.7.1.4.7 Aerodrome control towers and/or other appropriate units should be supplied with aerodrome warnings.

*Note.- The meteorological conditions for which aerodrome warnings are issued are listed I CAR-ANS Part 3, Appendix 3.6, 5.1.2.*

### **11.7.3 Information on the operational status of navigation services**

...

11.7.3.2 Information on the operational status, and any changes thereto, of radio navigation services and visual aids as referred to in 11.7.3.1 should be received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s).

...

## **APPENDIX 11.1 PRINCIPLES GOVERNING THE IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES**

*(see CAR-ANS 11.2, Sections 11.2.7 and 11.2.11)*

...

## **11.2 Composition of designator**

...

11.2.1.2 The number of characters required to compose the designator should, whenever possible, be kept to a maximum of five characters.

...

11.7.1.4 Aerodrome control towers

11.4.4 Where the letters “F” or “G” specified in 11.2.4 above are used, the flight crew should not be required to use them in voice communications.

## **APPENDIX 11.2. PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS**

### **11.1 Establishment of significant points**

11.1.1 Significant points should, whenever possible, be established with reference to ground-based radio navigation aids, preferably VHF or higher frequency aids.

...

### **11.2 Designators for significant points marked by the site of a radio navigation aid**

...

11.2.1.2 In selecting a name for the significant point, care shall be named with reference to an identifiable and preferably prominent geographical location.

...

c) the name should, if possible, consist of at least six letters and form two syllables and preferably not more than three;

...

### **11.5 Significant points used for reporting purposes**

...

#### **11.5.4**

...

b) the availability of a radio navigation aid at a location should not necessarily determine its designation as compulsory reporting point;

c) compulsory reporting points should not necessarily be established at flight information region or control area boundaries.

...

11.5.7 Routine reporting over compulsory reporting points should not systematically be made mandatory for all flights in all circumstances. In applying this principle, particular attention shall be given to the following:

a) 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;

b) aircraft transiting through a terminal control area should not be required to make routine position reports as frequently as arriving and departing aircraft.

...



## **APPENDIX 11.3. PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES**

### **11.1 Designators for standard departure and arrival routes and associated procedures**

*Note.- In the following text the term "route" is used in the meaning of "route and associated procedures"*

11.1.1 The system of designators shall:

...

### **11.3. Assignment of designators**

...

11.3.2 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 2.1.4 shall be assigned to each route.

...

### **11.5 Examples of plain language and coded designators**

...

11.5.1.1 *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 4.3). The absence of a route indicator (see 11.2.1.4 and 11.3.2) signifies that only one route, in this case a departure route, has been established with reference to BRECON.

...

11.6.4.2 *Meaning:* The designator identifies an MLS/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.

...

## **ATTACHMENT 11A. MATERIAL RELATING TO A METHOD OF ESTABLISHING ATS ROUTES DEFINED BY VOR**

*(Chapter 11.2.7.1 and Section 11.2.11 refer)*

...

### **11.2 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 3 and 4 should be applied only after study of Circular 120 especially with respect to the environmental conditions.

*Note.- Guidance material on overall VOR system accuracy is also contained in Annex 10, Volume I, Attachment C. (CAR-ANS Part 6, Attachment B).*

...

11.3.1 For VOR-defined routes where radar 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 monitoring, the size of the protected airspace required may be reduced, as indicated by practical experience gained in the airspace under consideration.

...

#### **11.4. Spacing of parallel routes defined by VORs**

...

11.4.2 This spacing of parallel routes assumes:

...

d) no real-time radar monitoring or control of the lateral deviations is exercised.

...

11.4.4 Application of radar 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:

...

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 15 to 18.5 km (8 to 10 NM), but most probably not less than 13 km (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:

- it is very important to define and publish change-over points (see also 6);
- large turns should be avoided when possible; and
- 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 failure is very small, procedures to cover that case should be considered.

...

#### **11.6 Change-over points for VORs**

...

11.6.2 Nothing in 11.6.1 should be interpreted as placing a restriction on the service ranges of VOR installations meeting the specifications in Annex 10, Volume I, 3.3. (CAR-ANS Part 6, 6.3.3).

...

— END —

## AMENDED REGULATION:

### CAR-ANS Part 11

#### *(Amendment 50A)*

...

#### 11.1 Definitions

...

***Air traffic controller schedule.*** A plan for allocating air traffic controller duty periods and non-duty periods over a period of time, otherwise referred to as a roster.

***Alternate aerodrome.*** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

***Take-off alternate.*** An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

***En-route alternate.*** An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

***Destination alternate.*** An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

*Note.* — *The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.*

...

***Appropriate ATS authority.*** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

...

***Controlled airspace.*** An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

*Note.* - *Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in 11.2.6.*

...

***Data quality.*** A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

...

***Datum.*** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104\*).

...

***Duty.*** Any task that an air traffic controller is required by the air traffic services provider to perform. These tasks include those performed during time-in-position, administrative work and training.

**Duty period.** A period which starts when an air traffic controller is required by an air traffic services provider to report for or to commence a duty and ends when that person is free from all duties.

...

**Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

**Fatigue risk management system (FRMS).** A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles, knowledge and operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

...

**Incident.** An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

*Note.* - The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Annex 13, Attachment C.

...

**Instrument flight procedure design service.** A service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.

...

**Non-duty period.** A continuous and defined period of time, subsequent to and/or prior to duty periods, during which the air traffic controller is free of all duties.

...

**Obstacle.** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

- a) are located on an area intended for the surface movement of aircraft; or
- b) extend above a defined surface intended to protect aircraft in flight; or
- c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

...

**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

...

**Performance-based communication (PBC).** Communication based on performance specifications applied to the provision of air traffic services.

*Note.*— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

...

**Performance-based navigation (PBN).** Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

*Note.- Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.*

...

**Performance-based surveillance (PBS).** Surveillance based on performance specifications applied to the provision of air traffic services.

*Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.*

...

**Radiotelephony.** A form of radio communication primarily intended for the exchange of information in the form of speech.

...

**Reporting point.** A specified geographical location in relation to which the position of an aircraft can be reported.

...

**Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication

**Required surveillance performance (RSP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

...

**SIGMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

...

**Special VFR flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

...

**Time-in-position.** The period of time when an air traffic controller is exercising the privileges of the air traffic controller's licence at an operational position.

...

## 11.2 GENERAL

.....

11.2.6.2 Within the Manila FIR, the airspace is divided into the following classes: A, B, D and G, the details of which are published in the Philippine AIP, ENR 1.4.

### 11.2.7 Performance-based navigation (PBN) operations

...

11.2.7.2 Performance-based navigation operations shall be implemented as soon as practicable.

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

...

### 11.2.8 Performance-based communication (PBC) operations



11.2.8.1 In applying performance-based communication (PBC), RCP specifications shall be prescribed by CAAP. When applicable, the RCP specification(s) shall be prescribed on the basis of regional air navigation agreements.

*Note.— In prescribing an RCP specification, limitations may apply as a result of communication infrastructure constraints or specific communication functionality requirements.*

...

11.2.8.2 The prescribed RCP specification shall be appropriate to the air traffic services provided.

*Note.— 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).*

...

### **11.2.9 Performance-based surveillance (PBS) operations**

11.2.9.1 In applying performance-based surveillance (PBS), RSP specifications shall be prescribed by CAAP. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

*Note.— In prescribing an RSP specification, limitations may apply as a result of surveillance infrastructure constraints or specific surveillance functionality requirements.*

11.2.9.2 The prescribed RSP specification shall be appropriate to the air traffic services provided.

...

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

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

...

### **11.2.10 Establishment and designation of the units providing air traffic services**

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

...

11.2.10.1 Flight information centers shall be established to provide flight information service and alerting service within flight information regions, and shall be published in the Aeronautical Information Publication (AIP).

*Note.— This does not preclude delegating to other units the function of providing certain elements of the flight information service.*

11.2.10.2 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, and shall be published in the AIP.

*Note.* - The services to be provided by various air traffic control units are indicated in 11.3.2.

#### **11.2.11 Specifications for flight information regions, control areas and control zones.**

11.2.11.1 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.

*Note 1.- 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 11.2.1.1). 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.*

*Note 2.- 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.*

##### 11.2.11.2 Flight Information Region

11.2.11.2.1 Flight Information Regions shall be delineated to cover the whole of the air route structure to be served by such regions.

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

11.2.11.2.3 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 PCAR Part 8, 8.8.3.4.

*Note.— 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.*

##### 11.2.11.3 Control Areas

11.2.11.3.1 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.

*Note.- 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.*

11.2.11.3.2 A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft).

11.2.11.3.2.1 The lower limit of a control area shall, 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 11.2.11.3.2.

11.2.11.3.2.2 When the lower limit of a control area is above 900 m (3 000 ft) MSL it shall coincide with a VFR cruising level of the tables in PCAR Part 8, IS:8.8.3.4.

11.2.11.3.3 An upper limit of a control area shall be established when either:

- a) air traffic control service will not be provided above such upper limit; or
- b) 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.
- c) When established, such upper limit shall coincide with the table of VFR cruising levels in CAR Part 8.

11.2.11.4 Flight information regions or control areas in the upper airspace

11.2.11.4.1 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.

11.2.11.5 Control zones

11.2.11.5.1 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.

*Note.-Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.*

11.2.11.5.2 The lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

*Note.-A control zone may include two or more aerodromes situated close together.*

11.2.11.5.3 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.

*Note- An upper limit higher than the lower limit of the overlying control area may be established when desired.*

11.2.11.5.4 If a control zone is located outside of the lateral limits of a control area, an upper limit shall be established.

11.2.11.5.5 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 shall be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL it shall coincide with the VFR cruising level of the tables as published in the Philippine AIP.

*Note.— 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 200 m (700 ft) above ground or water.*

### **11.2.12 Identification of air traffic service units and airspaces**

11.2.12.1 An area control centre or flight information centre shall be identified by the name of a nearby town or city or geographic feature.

11.2.12.2 An aerodrome control tower or approach control unit shall be identified by the name of the aerodrome at which it is located.

11.2.12.3 A control zone, control area or flight information region shall be identified by the name of the unit having jurisdiction over such airspace.

### **11.2.13 Establishment and identification of ATS routes**

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

11.2.13.2 When warranted by density, complexity or nature of the traffic, special routes shall 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.

11.2.13.3 ATS routes shall be identified by designators.

11.2.13.4 Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in Appendix 11.1.

11.2.13.5 Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in Appendix 11.3.

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

*Note 2.- Guidance material relating to the establishment of ATS routes defined by VOR is contained in Attachment A.*

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

### **11.2.14 Establishment of change-over points**

11.2.14.1 Change-over points shall be established 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 shall be limited to route segments of 110 km (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.

11.2.14.2 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.

*Note.- Guidance on the establishment of change-over points is contained in Attachment 11A.*

#### **11.2.15 Establishment and identification of significant points**

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

11.2.15.2 Significant points shall be identified by designators.

11.2.15.3 Significant points shall be established and identified in accordance with the principles set forth in Appendix 11.2.

#### **11.2.16 Establishment and identification of standard routes for taxiing aircraft**

11.2.16.1 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.

11.2.16.2 Standard routes for taxiing aircraft shall be identified by designators distinctively different from those of the runways and ATS routes.

#### **11.2.17 Coordination between the operator and air traffic services**

11.2.17.1 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 PCAR Part 8 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.

11.2.17.2 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.

#### **11.2.18 Coordination between military authorities and air traffic services**

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

11.2.18.2 Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 11.2.19.

11.2.18.3 Arrangements shall be made 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.



11.2.18.3.1 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 CAR Part 8 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.

11.2.18.3.2 Special procedures shall be established in order to ensure that:

a) 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;

b) 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.

#### **11.2.19 Coordination of activities potentially hazardous to civil aircraft**

11.2.19.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of the Republic of the Philippines 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 CAR-ANS Part 15.

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

11.2.19.2 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.

11.2.19.2.1 In determining these arrangements the following shall be applied:

a) 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;

b) the size of the airspace designated for the conduct of the activities shall be kept as small as possible;

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

11.2.19.3 The appropriate ATS authorities shall be responsible for initiating the promulgation of information regarding the activities.

11.2.19.4 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.

11.2.19.5 Adequate steps shall be taken to prevent emission of laser beams from adversely affecting flight operations.

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

#### **11.2.20 Aeronautical data**

11.2.20.1 Determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity requirements set forth in Tables 1 to 5 contained in Appendix 11.5 while taking into account the established quality system procedures. Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level, and in that respect three types of positional data shall be identified: surveyed points (e.g. navigation aids positions), calculated points (mathematical calculations from the known surveyed points of points in space, fixes) and declared points (e.g. flight information region boundary points).

11.2.20.2 The CAAP shall ensure that integrity of aeronautical data is maintained throughout the data process from survey/origin to the next intended user. Based on the applicable integrity classification, the validation procedure shall:

...

11.2.20.3 Electronic aeronautical data sets, shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets. This shall apply to the protection of all integrity levels of data sets as specified in 11.2.20.2.

11.2.20.4 Geographical coordinates indicating latitude and longitude shall be determined and reported to the aeronautical information services authority in terms of the World Geodetic System — 1984 (WGS-84) geodetic reference datum, identifying those geographical coordinates which have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in Appendix 11.5, Table 1.

11.2.20.5 The order of accuracy of the field work and determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in the tables contained in Appendix 11.5.

*Note 1.- An appropriate reference frame is that which enables WGS-84 to be realized on a given position and with respect to which all coordinate data are related.*

*Note 2.- Specifications governing the publication of aeronautical data are given in CAR-ANS Part 15, 11. 3.*

*Note 3.- For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies.*

#### **11.2.21 Coordination between meteorological and air traffic services authorities**

11.2.21.1 To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, arrangements shall be made, where necessary, between meteorological and air traffic services authorities 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, area control centers and flight information centers shall report the information to the associated meteorological watch office and volcanic ash advisory centers (VAACs).

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

#### **11.2.22 Coordination between aeronautical information services and air traffic services authorities**

11.2.22.1 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 authorities 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.

11.2.22.2 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.

11.2.22.3 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 CAR-ANS Part 15, 11.11.6 and Appendix 11.4). The predetermined, internationally agreed AIRAC effective dates in addition to 14 days postage time shall be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.

11.2.22.4 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 for aeronautical data as specified in Appendix 11.5 to this CAR-ANS Part 11.

*Note 1.- Specifications for the issue of a NOTAM and ASHTAM are contained in CAR-ANS Part 15, 11. 5).*

*Note 2.- Reports of volcanic activity comprise the information detailed in CAR-ANS Part 3, 11. 4 and LOA among Phivolcs, Pagasa, & CAAP.*

*Note 3.- 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.*

*Note 4.— 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).*

### **11.2.23 Minimum flight altitudes**

Minimum flight altitudes shall be determined and promulgated by CAAP for each ATS route and control area over the territory of the Republic of the Philippines. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned.

*Note.- The requirements for publication by CAAP regarding minimum flight altitudes and criteria used to determine them are contained in CAR-ANS Part 15, Appendix I.*

### **11.2.24 Service to aircraft in the event of an emergency**

11.2.24.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

*Note.- To indicate that it is in a state of emergency, an aircraft equipped with an appropriate datalink capability and/or SSR transponder might operate the equipment as follows:*

*a) on Mode A, Code 7700; or*

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

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

d) transmit the appropriate emergency message via CPDLC.

11.2.24.1.1 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles shall be observed.

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

11.2.24.2 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.

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

*Note. 1- A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference. See 11.2.25.1.3.*

*Note 2.— Procedures relating to the handling of strayed or unidentified aircraft are contained in 11.2.25.1.*

*Note 3.— The MOS-ATS, Chapter 15, 15.1.3 contains more specific procedures related to unlawful interference.*

### **11.2.25 In-flight contingencies**

#### **11.2.25.1 Strayed or unidentified aircraft**

*Note 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.*

*Note 2.- An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.*

*Note 3. — A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.*



11.2.25.1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 11.2.24.1.1.1 and 11.2.24.1.1.2 to assist the aircraft and to safeguard its flight.

*Note.- Navigational assistance by an air traffic services unit is particularly important 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.*

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

- a) attempt to establish two-way communication with the aircraft, unless such communication already exists;
- b) use all available means to determine its position;
- c) 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;
- d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;
- e) request from the units referred to in c) and d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

*Note.- The requirements in d) and e) apply also to ATS units informed in accordance with c).*

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

- a) advise the aircraft of its position and corrective action to be taken; and
- b) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

11.2.25.1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavor 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:

- a) attempt to establish two-way communication with the aircraft;
- b) 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;
- c) 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;
- d) attempt to obtain information from other aircraft in the area.

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

11.2.25.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by CAAP shall immediately be informed, in accordance with locally agreed procedures.

#### 11.2.25.2 Interception of civil aircraft

11.2.25.2.1 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:

- a) 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;
- b) inform the pilot of the intercepted aircraft of the interception;
- c) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;
- d) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
- e) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;
- f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

11.2.25.2.2 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:

- a) 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 11.2.25.2.1;
- b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

#### 11.2.26 Time in air traffic services

11.2.26.1 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.

11.2.26.2 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.

11.2.26.3 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.

11.2.26.4 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.

11.2.26.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide 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.

### **1.2.27 Establishment of requirements for carriage and operation of pressure- altitude reporting transponders**

11.2.27.1 CAAP shall establish requirements for carriage and operation of pressure- altitude reporting transponders within defined portions of airspace.

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

### **11.2.28 Fatigue management**

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

11.2.28.1 CAAP shall establish regulations for the purpose of managing fatigue in the provision of air traffic control services. These regulations 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, CAAP shall establish:

- a) regulations that prescribe scheduling limits in accordance with Appendix 11.6; and
- b) where authorizing air traffic services providers to use a fatigue risk management system (FRMS) to manage fatigue, FRMS regulations in accordance with Appendix 11.7.

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

- a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the prescriptive limitation regulations established by CAAP in accordance with 11. 2.28.1 a); or
- b) an FRMS, in compliance with regulations established by CAAP in accordance with 11.2.28.1 b), for the provision of all air traffic control services; or
- c) an FRMS, in compliance with regulations established by CAAP in accordance with 11.2.28.1 b), for a defined part of its air traffic control services in conjunction with schedules in compliance with the prescriptive limitation regulations established by CAAP in accordance with 11.2.28.1 a) for the remainder of its air traffic control services.

11.2.28.3 Where 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 11.2.28.2 a), CAAP:

- a) shall require evidence that the limitations are not exceeded and that non-duty period requirements are met;
- b) shall require that the air traffic services provider familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management;

- c) shall 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 approve 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 regulations.

*Note.— 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.*

11.2.28.4 Where 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 11.2.28.2 b), CAAP shall:

- a) require the air traffic services provider to have processes to integrate FRMS functions with its other safety management functions; and
- b) approve an FRMS, according to a documented process, that provides a level of safety acceptable to CAAP.

*Note.— Provisions on the protection of safety information, which support the continued availability of information required by an FRMS, are contained in Annex 19.*

#### **11.2.29 ATS safety management**

*Note. – 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 Manual of Standards for Air Traffic Services (MOS-ATS).*

11.2.29.1 Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, 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, CAAP shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.

*Note. - When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessment may rely on operational judgment.*

11.2.29.2 The applicable level of safety to be achieved shall be established by the CAAP.

*Note. - Guidance on defining acceptable levels of safety is contained in the Safety Management Manual (SMM) (Doc. 9859).*

11.2.29.3 CAAP shall require, as part of their safety program, that an air traffic services provider implements a safety management system acceptable to the CAAP 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; and
- d) aims a continuous improvement of the overall performance of the safety management system.

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

*Note.* —*The framework for the implementation and maintenance of a safety management system is contained in Appendix 11.6. Guidance on safety management systems is contained in the ATS Safety Management Systems Manual and associated procedures are contained in the Manual of Standards for ATS (MOS-ATS).*

### **11.2.30 Common reference systems**

#### 11.2.30.1 Horizontal reference system

World Geodetic System – 1984 (WGS-84) shall be used as a 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.

#### 11.2.30.2 Vertical reference system

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

*Note.*—*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.*

#### 11.2.30.3 Temporal reference system

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

11.2.30.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of Aeronautical Information Publication (AIP).

### **11.2.31 Language proficiency**

11.2.31.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in PCAR Part 2.

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

### **11.2.32 Contingency arrangements**

Air traffic services authorities shall develop and promulgate contingency plans 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 plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

*Note 1. - Guidance material relating to the development, promulgation and implementation of contingency plans is contained in Attachment 11C.*

*Note 2.— Contingency plans may constitute a temporary deviation from the approved regional air navigation plans; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.*

### **11.2.33 Identification and delineation of prohibited, restricted and danger areas**

11.2.33.1 Each prohibited area, restricted area, or danger area established by CAAP shall, upon initial establishment, be given an identification and full details shall be promulgated.

*Note.— See CAR-ANS Part 15, Appendix 15A, ENR 5.1.*

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

11.2.33.3 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.

*Note.— Nationality letters are those contained in Location Indicators (Doc 7910).*

11.2.33.4 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.

11.2.33.5 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.

### **11.2.34 Instrument flight procedure design service**

CAAP shall ensure that an instrument flight procedure design service is in place in accordance with Appendix 11.8.

## **11.3 AIR TRAFFIC CONTROL SERVICE**

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### **11.3.3 Operation of air traffic control service**

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

11.3.3.5.1 For all airspace where reduced vertical separation minimum of 300 m (1000ft) is applied between FL290 and FL 410 inclusive, a program 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.

*Note.— Guidance material relating to vertical separation and monitoring of height-keeping performance is contained in the Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).*

11.3.3.5.2 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.

*Note.— 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).*

11.3.3.5.3 Arrangements shall be put in place through inter regional agreement, for the sharing between regions of data monitoring programs.

#### **11.3.4 Separation minima**

3.4.1 The selection of separation minima for application within a given portion of airspace shall be as follows:

a) the separation minima shall be selected from those prescribed by the provisions of the Manual of Standards for Air Traffic Services (MOS-ATS) 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:

- 1) the appropriate ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of a State;
- 2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.

*Note. — Details of current separation minima prescribed by the Republic of the Philippines are contained in the MOS-ATS and the Regional Supplementary Procedures (Doc 7030).*

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11.3.7.1.2 Standard departure and arrival routes and associated procedures shall be established when necessary to facilitate:

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

...

11.3.7.3 Read-back of clearances and safety-related information

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

- a) ATC route clearances;
- b) clearances and instructions to enter, land on, take off on, hold short of, cross and backtrack on any runway; and
- c) 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.

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11.3.7.3.2 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.

*Note.— The procedures and provisions relating to the exchange and acknowledgement of CPDLC messages are contained in CAR-ANS Part 2, and the MOS-ATS, Chapter 14.*

11.3.7.4 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:

11.3.7.4.1 An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

- a) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
- b) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come; or

*Note.— 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 center other than the one issuing the en-route clearance.*

...

11.3.7.4.2.1.4 Where practicable, and where datalink 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 shall be available.

...

11.3.7.5.2 ATFM shall be implemented on the basis of regional air navigation agreements or, if appropriated, through multilateral agreements. Such agreements shall make provision for common procedures and common methods of capacity determination.

### **11.3.8 Control of persons and vehicles at aerodromes**

11.3.8.1 The movement of persons or vehicles including towed aircraft on the maneuvering area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

3.8.2 In conditions where low visibility procedures are in operation:

a) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;

b) subject to the provisions in 3.8.3, the minimum separation between vehicles and taxiing aircraft shall be as prescribed by the appropriate ATS authority taking into account the aids available;

c) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.

*Note.* — *The period of application of low visibility procedures is determined in accordance with ATS unit instructions. Guidance on low visibility operations on an aerodrome is contained in the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476).*

11.3.8.3 Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

11.3.8.4 Subject to the provisions in 11.3.8.3, vehicles on the maneuvering area shall 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.

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### **11.3.9 Provision of radar and ADS-B**

Radar and ADS-B ground systems shall provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

### **11.3.10 Use of surface movement radar (SMR)**

In the absence of visual observation of all or part of the maneuvering area or to supplement visual observations, surface movement radar (SMR) provided in accordance with the provisions of Manual of Standards for Aerodromes or other suitable surveillance equipment, should be utilized to:

- a) monitor the movements of aircraft and vehicles on the maneuvering area;
- b) provide directional information to pilots and vehicle drivers as necessary; and
- c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the maneuvering area.

*Note.* — See the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476), the Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830) and the Air Traffic Services Planning Manual (Doc 9426) for guidance on the use of SMR.

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## **11.4 FLIGHT INFORMATION SERVICE**

### **11.4.1 Application**

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11.4.2.3 ATS units shall 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.

### **11.4.3 Operational flight information service broadcasts**

#### **11.4.3.1 Application**

11.4.3.1.1. 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.

11.4.3.1.2 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.

11.4.3.1.3 Operational flight information service broadcasts, when 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.

#### **11.4.3.2 HF operational flight information service (OFIS) broadcasts**

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11.4.3.2.1 HF operational flight information service (OFIS) broadcasts shall be provided when it has been determined by regional air navigation agreements that a requirement exists.

11.4.3.2.2 Whenever such broadcasts are provided:



- a) the information shall be in accordance with 4.3.2.5, as applicable, subject to regional air navigation agreements;
- b) the aerodromes for which reports and forecasts are to be included shall be as determined by regional air navigation agreements;
- c) the time-sequencing of stations participating in the broadcast shall be as determined by regional air navigation agreements;
- d) the HF OFIS broadcast message shall take into consideration human performance. The broadcast message shall not exceed the length of time allocated for it by regional air navigation agreements, care being taken that the readability is not impaired by the speed of the transmission;
- e) each aerodrome message shall be identified by the name of the aerodrome to which the information applies;
- f) when information has not been received in time for a broadcast, the latest available information shall be included together with the time of that observation;
- g) the full broadcast shall be repeated if this is feasible within the remainder of the time allotted to the broadcasting station;
- h) the broadcast information shall be updated immediately if a significant change occurs; and
- i) the HF OFIS message shall be prepared and disseminated by the most appropriate unit(s) as designated by CAAP.

11.4.3.2.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, HF OFIS broadcasts concerning aerodromes designated for use by international air services shall be available in the English language.

11.4.3.2.4 Where HF OFIS broadcasts are available in more than one language, a discrete channel shall be used for each language.

11.4.3.2.5 HF operational flight information service broadcast messages shall contain the following information in the sequence indicated or as determined by regional air navigation agreements:

- a) En-route weather information

Information on significant en-route weather phenomena shall be in the form of available SIGMET as prescribed in CAR-ANS Part 3.

...

#### 11.4.3.3 VHF operational flight information service (OFIS) broadcasts

11.4.3.3.1 VHF operational flight information service broadcasts shall be provided as determined by regional air navigation agreements.

11.4.3.3.2 Whenever such broadcasts are provided:

- a) the aerodromes for which reports and forecasts are to be included shall be as determined by regional air navigation agreements;

- b) each aerodrome message shall be identified by the name of the aerodrome to which the information applies;
- c) when information has not been received in time for a broadcast, the latest available information shall be included together with the time of that observation;
- d) the broadcasts shall be continuous and repetitive;
- e) the VHF OFIS broadcast message shall take into consideration human performance. The broadcast message shall, whenever practicable, not exceed five minutes, care being taken that the readability is not impaired by the speed of the transmission;
- f) the broadcast message shall be updated on a scheduled basis as determined by regional air agreements. In addition it shall be expeditiously updated immediately if a significant change occurs; and
- g) the VHF OFIS message shall be prepared and disseminated by the most appropriate unit(s) as designated by CAAP.

11.4.3.3.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, VHF OFIS broadcasts concerning aerodromes designated for use by international air services shall be available in the English language.

11.4.3.3.4 Where VHF OFIS broadcasts are available in more than one language, a discrete channel shall be used for each language.

11.4.3.3.5 VHF operational flight information service broadcast messages shall contain the following information in the sequence indicated:

- a) name of aerodrome;
- b) time of observation
- c) landing runway
- d) significant runway surface conditions and, if appropriate, braking action;
- e) changes in the operational state of the radio navigation services, if appropriate;
- f) holding delay, if appropriate;
- g) surface wind direction and speed; if appropriate, maximum wind speed;
- \*h) visibility and, when a
- \*i) present weather;
- \*j) cloud below 1500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility, when available;
- \*\*k) air temperature;
- \*\*l) dew point temperature;
- \*\*m) QNH altimeter setting
- n) supplementary information on recent weather of operational significance and, where necessary, wind shear;
- o) trend forecast, when available; and
- p) notice of current SIGMET messages

\*These elements are replaced by the term "CAVOK" whenever the conditions as specified in the MOS-ATS, Chapter 11 prevail.

\*\*As determined on the basis of regional air navigation agreements.

...

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

11.4.3.4.8 The Voice-ATIS broadcasts 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.

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

...

4.3.5.1.1 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.

*Note.* — Significant change criteria are specified in CAR-ANS Part 3, 3.2.3

11.4.3.5.2 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.

*Note.* - 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.

...

11.4.3.6.5 Contents of ATIS shall be kept as brief as possible. Information additional to that specified in 11.4.3.7 to 11.4.3.9, for example information already available in aeronautical information publications (AIPs) and NOTAM, shall only be included when justified in exceptional circumstances.

...

11.4.3.7 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:

...

\*These elements are replaced by the term “CAVOK” whenever the conditions as specified in the MOS-ATS, Chapter 11 prevail.

†As determined on the basis of regional air navigation agreements.

11.4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

...

\*These elements are replaced by the term “CAVOK” whenever the conditions as specified in the MOS-ATS, Chapter 11 prevail.

†As determined on the basis of regional air navigational agreements.

#### 11.4.3.9 ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

...

\*These elements are replaced by the term “CAVOK”, whenever the conditions as specified in the MOS-ATS, Chapter 11 prevail.

†As determined on the basis of regional air navigation

### 11.4.4 VOLMET broadcasts and D-VOLMET service

11.4.1.1 HF and/or VHF VOLMET broadcasts and /or D-VOLMET service shall be provided when it has been determined by regional air navigation agreements that a requirement exists.

11.4.4.2 VOLMET broadcasts shall use standard radiotelephony phraseologies.

## 11.5 ALERTING SERVICE

...

11.5.1.2 Flight information centers or area control centers 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 center.

...

11.5.2.2.1 Such part of the information specified in 11.5.2.2, which is not available at the time notification is made to a rescue coordination center, shall 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.

...

## 11.6 AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

### 11.6.1 Aeronautical mobile service (air-ground communications)

#### 11.6.1.1 General

11.6.1.1.1 Radiotelephony and/or data link shall be used in air-ground communications for air traffic service purposes.

*Note.— Requirements for ATS units to be provided with and to maintain guard on the emergency channel 121.5 MHz are specified in CAR-ANS Parts 2 and 13.*

11.6.1.1.2 Where an RCP specification has been prescribed by States for performance-based communication, ATS units shall, in addition to the requirements specified in 11.6.1.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specification(s).

*Note.— 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).*

11.6.1.1.3 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.

*Note.— Requirements for retention of all automatic recordings of communications in ATC are specified in CAR-ANS Part 2, 2.6.5.1.5.*

...

11.6.1.2.2 Whenever practicable, air-ground communication facilities for flight information service shall permit direct, rapid, continuous and static-free two-way communications.

11.6.1.3.3 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.

...

11.6.1.5.2 Where conditions warrant, separate communication channels shall be provided for the control of traffic operating on the maneuvering area.

## **11.6.2 Aeronautical fixed service (ground-ground communications)**

### 11.6.2.1 General

6.2.1.1 Direct-speech and/or data link communications shall be used in ground-ground communications for air traffic services purposes.

*Note 1.— 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.*

*Note 2.— Requirements for retention of all automatic recordings of communications in ATC are specified in CAR-ANS Part 2, 2.6.5.1.5.*

...

### 11.6.2.2 Communications within a flight information region

...

#### 11.6.2.2.2 Communications between air traffic services units and other units.

...

11.6.2.2.3.2 In all cases not covered by 11.6.2.2.3.1, the communication facilities shall include provisions for:

...

11.6.2.2.3.3 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.

11.6.2.2.3.4 The communication facilities required in accordance with 11.6.2.2.1 and 11.6.2.2.2 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.

...

11.6.2.2.3.6 The communications facilities required under 11.6.2.2.2.2 d) shall include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

11.6.2.2.3.7 All facilities for direct-speech or data link communications between air traffic services units and other units described under 11.6.2.2.2.1 and 11.6.2.2.2 shall be provided with automatic recording.

...

11.6.2.3 Communications between flight information regions

...

11.6.2.3.1.4 The communication facilities in 11.6.2.3.1 shall permit communications to be established normally within fifteen seconds.

11.6.2.3.2 Adjacent ATS units shall be connected in all cases where special circumstances exist.

...

11.6.2.3.3 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 center serving the adjacent area.

11.6.2.3.4 The communication facilities in 11.6.2.3.2 and 11.6.2.3.3 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 radar or ADS-B or ADC-data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

...

11.6.2.4 Procedures for direct-speech communications

Appropriate procedures for direct-speech communications shall be developed to permit immediate connections to be made for every urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

### **11.6.3 Surface movement control service**

...

11.6.3.1.2 Where conditions warrant, separate communication channels shall be provided for the control of vehicles on the maneuvering area. Automatic recording facilities shall be provided on all such channels.

11.6.3.1.3 Recordings of communications as required in 11.6.3.1.2 shall be retained for a period of at least thirty days.

### **11.6.4 Aeronautical radio navigation service**

11.6.4.1 Automatic recording of surveillance data

11.6.4.1.1 Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), 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.

11.6.4.1.2 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.

...

## **11.7 AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION**

...

11.7.1.1.1 Air traffic services 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.

11.7.1.1.2 Air traffic services units shall 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.

*Note.— The meteorological phenomena are listed in CAR-ANS Part 3,3.4.6.8.*

11.7.1.1.3 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 shall be as agreed between the Meteorological Authority and the appropriate ATS Authority.

11.7.1.1.5 Pilot's responsibility in compliance with the Rules of the Air: Pre-flight action.

...

11.7.1.3 Units providing approach control service

11.7.1.3.1 Units providing approach control service shall be supplied with meteorological information as described in CAR-ANS Part 3, Appendix 3.9, 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.

...

11.7.1.3.3 Units providing approach control service for final approach, landing and take-off shall be equipped with surface wind indicator(s). The indicator(s) shall be related to the same location(s) of observation and be fed from the same anemometer(s) as the corresponding indicator(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

11.7.1.3.4 Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with indicator(s) permitting read-out of the current runway visual range value(s). The indicator(s) shall be related to the same location(s) of observation and be fed from the same

runway visual range measuring device(s) as the corresponding indicator(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

11.7.1.3.5 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 shall be equipped with display(s) permitting read-out of the current value(s) of the height of the cloud base. The displays shall 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.

11.7.1.3.6 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.

*Note.- Provisions concerning the issuance of wind shear warnings and ATS requirements for meteorological information are given in CAR-ANS Part 3, Chapters 3.7 and 3.10, and Appendices 3.6 and 3.9.*

...

11.7.1.4.5 Aerodrome control towers at aerodromes where the height of cloud base is assessed by instrumental means shall be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays 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.

11.7.1.4.6 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 landing roll or take-off run.

11.7.1.4.7 Aerodrome control towers and/or other appropriate units shall be supplied with aerodrome warnings.

*Note.- The meteorological conditions for which aerodrome warnings are issued are listed in CAR-ANS Part 3, Appendix 3.6, 5.1.3.*

### **11.7.3 Information on the operational status of navigation services**

...

11.7.3.2 Information on the operational status, and any changes thereto, of radio navigation services and visual aids as referred to in 11.7.3.1 shall be received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s) involved.

...

## **APPENDIX 11.1 PRINCIPLES GOVERNING THE IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES**

*(see CAR-ANS 11.2, Sections 11.2.7 and 11.2.11)*

...

### **11.2 Composition of designator**

...

11.2.1.2 The number of characters required to compose the designator shall, whenever possible, be kept to a maximum of five characters.

...

11.4.4 Where the letters "F" or "G" specified in 11.2.4 above are used, the flight crew shall not be required to use them in voice communications.

## **APPENDIX 11.2. PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS**

### **11.1 Establishment of significant points**

11.1.1 Significant points shall, whenever possible, be established with reference to ground-based or space-based radio navigation aids, preferably VHF or higher frequency aids.

...

### **11.2 Designators for significant points marked by the site of a radio navigation aid**

...

11.2.1.2 In selecting a name for the significant point, care shall be named with reference to an identifiable and preferably prominent geographical location.

...

c) the name shall, if possible, consist of at least six letters and form two syllables and preferably not more than three;

...

### **11.5 Significant points used for reporting purposes**

...

#### **11.5.4**

...

b) the availability of a radio navigation aid at a location shall not necessarily determine its designation as compulsory reporting point;

c) compulsory reporting points shall not necessarily be established at flight information region or control area boundaries.

...

11.5.7 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:

a) high-speed, high flying aircraft shall not be required to make routine position reports over all reporting points established as compulsory for low-speed, low flying aircraft;

b) aircraft transiting through a terminal control area shall not be required to make routine position reports as frequently as arriving and departing aircraft.

...

## **APPENDIX 11.3. PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES**

### **11.1 Designators for standard departure and arrival routes and associated procedures**

*Note.- In the following text the term "route" is used in the meaning of "route and associated procedures"*

11.1.1 The system of designators shall:

...

### **11.3. Assignment of designators**

...

11.3.2 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 11.2.1.4 shall be assigned to each route.

...

### **11.5 Examples of plain language and coded designators**

...

11.5.1.1 *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 4.3). The absence of a route indicator (see 11.2.1.4 and 11.3.2) signifies that only one route, in this case a departure route, has been established with reference to BRECON.

...

11.6.4.2 *Meaning:* The designator identifies an MLS/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.

...

## **APPENDIX 11.6. PRESCRIPTIVE FATIGUE MANAGEMENT REGULATIONS**

*Note.— 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. CAAP shall establish prescriptive limitation regulations that take into account acute and cumulative fatigue, circadian factors and the type of work being undertaken. These regulations shall identify:

a) the maximum:

i) number of hours in any duty period;



- ii) number of consecutive work days;
- 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. CAAP shall require that the air traffic services provider identifies a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.

3. The processes established by CAAP in accordance with 11.2.28.3 c) and d) to allow variations from 1 a) and b) above shall include the provision of:

- 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 11.8. STATE RESPONSIBILITIES CONCERNING AN INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE**

*(Note.— See Chapter 11.2, 11.2.33)*

1. CAAP 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 CAAP shall approve and remain responsible for all instrument flight procedures for aerodromes and airspace under the authority of the CAAP.

3. Instrument flight procedures shall be designed in accordance with CAAP-approved design criteria.

4. CAAP shall ensure that an instrument flight procedure design service provider intending to design an instrument flight procedure for aerodromes or airspace under its authority meets the requirements established by the Philippine regulatory framework.

*Note.—CAR-ANS Part 16 provides for the standards that apply for the design of instrument flight procedures within the Philippine airspace. It also applies to person or organization who want to become, or are, authorized designers of instrument flight procedures.*

5. The CAAP shall ensure that an instrument flight procedure design service provider utilize a quality management system at each stage of the instrument flight procedure design process.

*Note.— This requirement can be met by means of a quality assurance methodology, such as that described in PANS-OPS (Doc 8168), Volume II, Part I, Section 2, Chapter 4 — Quality Assurance. Guidance for implementing such a methodology is contained in The Quality Assurance Manual for Flight Procedure Design (Doc 9906).*

6. CAAP shall ensure that maintenance and periodic review of instrument flight procedures for aerodromes and airspace under its authority are conducted. CAAP shall establish an interval for periodic review of instrument flight procedures not exceeding five years.

*Note.— Guidance on maintenance and periodic review is contained in CAR-ANS Part 16.*

## **ATTACHMENT 11A. MATERIAL RELATING TO A METHOD OF ESTABLISHING ATS ROUTES DEFINED BY VOR**

*(Chapter 11.2.7.1 and Section 11.2.11 refer)*

...

### **11.2 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 3 and 4 should be applied only after study of Circular 120 especially with respect to the environmental conditions.

*Note.- Guidance material on overall VOR system accuracy is also contained in CAR-ANS Part 6, Attachment B.*

...

11.3.1 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 indicated by practical experience gained in the airspace under consideration.

...

### **11.4. Spacing of parallel routes defined by VORs**

...

4.2 This spacing of parallel routes assumes:

...

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

...

11.4.4 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:

...

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 15 to 18.5 km (8 to 10 NM), but most probably not less than 13 km (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:

- it is very important to define and publish change-over points (see also 6);
- large turns should be avoided when possible; and
- 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.

...

## **11.6 Change-over points for VORs**

...

11.6.2 Nothing in 11.6.1 should be interpreted as placing a restriction on the service ranges of VOR installations meeting the specifications in CAR-ANS Part 6, 6.3.3.

...

— END —

*(Amendment 50B)*

## **CAR-ANS Part 11**

...

### **CHAPTER 1. DEFINITIONS**

...

#### **APPENDIX 11.7. FATIGUE RISK MANAGEMENT SYSTEM (FRMS) REQUIREMENTS**

*Note.— Guidance on the development and implementation of FRMS regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).*

CAAP shall require that an FRMS contain, at a minimum:

#### **1. FRMS policy and documentation**

##### **1.1 FRMS policy**

1.1.1 The air traffic services provider shall define its FRMS policy, with all elements of the FRMS clearly identified.

1.1.2 The policy shall:

- a) define the scope of FRMS operations;
- b) reflect the shared responsibility of management, air traffic controllers, and other involved personnel;

- c) clearly state the safety objectives of the FRMS;
- d) be signed by the accountable executive of the organization;
- e) be communicated, with visible endorsement, to all the relevant areas and levels of the organization;
- f) declare management commitment to effective safety reporting;
- g) declare management commitment to the provision of adequate resources for the FRMS;
- h) declare management commitment to continuous improvement of the FRMS;
- i) require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified; and
- j) require periodic reviews to ensure it remains relevant and appropriate.

*Note.*— *Effective safety reporting is described in the Safety Management Manual (SMM) (Doc 9859).*

## 1.2 FRMS documentation

An air traffic services provider shall develop and keep current FRMS documentation that describes and records:

- a) FRMS policy and objectives;
- b) FRMS processes and procedures;
- c) accountabilities, responsibilities and authorities for these processes and procedures;
- d) mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel;
- e) FRMS training programmes, training requirements and attendance records;
- f) scheduled and actual duty and non-duty periods and break periods between times in position in a duty period with significant deviations and reasons for deviations noted; and

*Note.*— *Significant deviations are described in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).*

- g) FRMS outputs including findings from collected data, recommendations, and actions taken.

## 2. Fatigue risk management processes

### 2.1 Identification of fatigue-related hazards

*Note.*— *Provisions on the protection of safety information are contained in Annex 19.*

An air traffic services provider shall develop and maintain three fundamental and documented processes for fatigue hazard identification:

2.1.1 *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:

- a) 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;
- b) evidence-based scheduling practices; and
- c) bio-mathematical models.

2.1.2 *Proactive*. The proactive process shall identify fatigue hazards within current air traffic services operations. Methods of examination may include but are not limited to:

- a) self-reporting of fatigue risks;
- b) fatigue surveys;
- c) relevant air traffic controller performance data;
- d) available safety databases and scientific studies;
- e) tracking and analysis of differences in planned and actual worked times; and
- f) observations during normal operations or special evaluations.

2.1.3 *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:

- a) fatigue reports;
- b) confidential reports;
- c) audit reports; and
- d) incidents.

## 2.2 Fatigue-related risk assessment

2.2.1 An air traffic services provider shall develop and implement risk assessment procedures that determine when the associated risks require mitigation.

2.2.2 The risk assessment procedures shall review identified fatigue hazards and link them to:

- a) operational processes;
- b) their probability;
- c) possible consequences; and
- d) the effectiveness of existing preventive controls and recovery measures.

## 2.3 Risk mitigation

An air traffic services provider shall develop and implement fatigue risk mitigation procedures that:

- a) select the appropriate mitigation strategies;
- b) implement the mitigation strategies; and
- c) 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:

- 1) hazard reporting and investigations;
- 2) audits and surveys; and
- 3) 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:

- 1) identification of changes in the operational environment that may affect the FRMS;
- 2) identification of changes within the organization that may affect the FRMS; and
- 3) 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:

- 1) 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;
- 2) routine evaluations of facilities, equipment, documentation and procedures; and
- 3) 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 service 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:

- 1) explains FRMS policies, procedures and responsibilities to all relevant stakeholders; and
- 2) describes communication channels used to gather and disseminate FRMS-related information.

— END —



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**EFFECTIVITY CLAUSE:**

Fifteen (15) days after publication in a requisite single newspaper of general circulation or the Official Gazette and a copy filed with the U.P. Law Center - Office of the National Administrative Register, this Memorandum Circular shall take effect and supersede any orders and/or memoranda in conflict herewith.

So ordered. Signed this 12th day of May 2017, CAAP, Pasay City.

  
CAPT JIM C. SYDIONGCO