



MEMORANDUM CIRCULAR NO.: 18-19

TO : ALL CONCERNED

FROM : DIRECTOR GENERAL

SUBJECT : AMENDMENT TO PHILIPPINE CIVIL AVIATION REGULATIONS - AIR NAVIGATION SERVICES (CAR-ANS) PART 15 INCORPORATING AMENDMENT 40 TO ICAO ANNEX 15

REFERENCE:

1. Philippine Civil Aviation Regulations- Air Navigation Services Part 15, Issue 5 Amendment No. 4
2. ICAO Annex 15; Amendment 40
3. CAAP Regulations Amendment Procedures
4. 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 15 Amendment No. 40 and other supplementary amendments to the Philippine Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Part 15.

ORIGINAL REGULATION SUBJECT FOR REVIEW AND REVISION:

CAR-ANS Part 15

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15.1-INTRODUCTION GENERAL

Pursuant to the provisions of Section 24, Paragraphs J, and Sections 25 and 27 of Republic Act No. 9497 known as the Civil Aviation Authority Act of 2008, the following rules and regulations are hereby promulgated for the observance of all persons concerned:

This Civil Aviation Regulation shall be known as **CIVIL AVIATION REGULATION, PART XV**, governing Aeronautical Information Service, and any reference to said title shall mean as referring to this Civil Aviation Regulation.

In compliance with the ICAO SARPS as contained in Annex 15, the objective of the aeronautical information service is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity and efficiency in an environmentally sustainable manner. The role and importance of aeronautical

data and aeronautical information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN) and airborne computer based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communication (SATVOICE) with the New Communications, Navigation, Surveillance and Air Traffic Management Systems. Corrupt, or erroneous, late or missing aeronautical data and aeronautical information/ can potentially affect the safety of air navigation.

~~To satisfy the uniformity and consistency in the provision of aeronautical information/data that is required for the operational use by the computer-based navigation systems, the Civil Aviation Authority of the Philippines shall, as far as practicable, avoid standards and procedures other than those established for international use.~~

~~These Standards and Recommended Practices are~~ This CAR-ANS Part 15 Governing Aeronautical Information Services is to be used in conjunction with the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).

This CAR-ANS Part 15 Governing Aeronautical Information Services is to be used in conjunction with the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).

~~It is recognized that Supplementary Procedures may be required in certain cases in order to meet particular requirements of the ICAO Regions.~~

Guidance material on the organization and operation of aeronautical information services is contained in the Aeronautical Information Services Manual (Doc. 8126).

15.2.1.1 Definitions

When the following terms are used in the CAR-ANS Part 15 Governing ~~Standards and Recommended Practices for a~~ Aeronautical ~~Information s~~Services, they have the following meanings:

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Accuracy. ~~A degree of conformance between the estimated or measured value and the true value.~~

Note. ~~For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.~~

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Aeronautical chart - A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

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Aeronautical fixed service (AFS) - A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

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Aeronautical information product - Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:

— Aeronautical Information Publication (AIP), including Amendments and Supplements;

— Aeronautical Information Circulars (AIC);

— aeronautical charts;

— NOTAM; and

— digital data sets.

Note.—Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.

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AIP Supplement - Temporary changes to the information contained in the AIP which are published provided by means of special pages.

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~~**AIS product** - Aeronautical data and aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.~~

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Data accuracy - A degree of conformance between the estimated or measured value and the true value.

Data completeness - The degree of confidence that all of the data needed to support the intended use is provided.

Data format - A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

Data integrity (assurance level) - A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

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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, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

Data resolution - A number of units or digits to which a measured or calculated value is expressed and used.

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Data timeliness - The degree of confidence that the data is applicable to the period of its intended use.

Data traceability - The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

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~~**Integrated Aeronautical Information Package** - A package in paper, or electronic media which consists of the following elements:~~

— AIP, including amendment service;

— Supplements to the AIP;

— NOTAM and PIB;

— AIC; and

—checklists and lists of valid NOTAM.

~~**Integrity (aeronautical data)** – A degree of assurance that an aeronautical data and its value has not been lost or altered since the data origination or authorized amendment.~~

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~~**Navigation specification**~~

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~~*Note 1 – The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.*~~

~~*Note 2 – The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this CAR-ANS as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.*~~

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~~**Next intended user.** The entity that receives the aeronautical data or information from the Aeronautical Information Service.~~

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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 extended above a defined surface intended to protect aircraft in flight:~~

- ~~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 that have been assessed as being a hazard to air navigation.~~

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~~**Origination (aeronautical data or aeronautical information).** The creation of the value associated with new data or information or the modification of the value of an existing data or information.~~

~~**Originator (aeronautical data or aeronautical information).** An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and information.~~

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~~**Resolution.** A number of units or digits to which a measured or calculated value is expressed and used.~~

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~~**SNOWTAM.**†† A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice, or frost on the movement area.~~

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~~**Terrain.** The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.~~

Note.— ~~In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.~~

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Verification. Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).

Note 1.— ~~The term “verified” is used to designate the corresponding status.~~

Note 2.— ~~Confirmation can comprise activities such as:~~

~~—performing alternative calculations;~~

~~—comparing a new design specification with a similar proven design specification;~~

~~—undertaking tests and demonstrations; and~~

~~—reviewing documents prior to issue.~~

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15.3.7 1.2 Common Reference Systems for Air Navigation

15.3.7.1 1.2.1 Horizontal reference system

15.3.7.1.2.1.1 ~~All published geographical coordinates (indicating latitudes and longitudes) are at present, published in World Geodetic System — 1984 (WGS-84), except for some AIP supplements wherein the datum is expressed in Luzon-Philippines or PRS-02 datum. The World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.~~

Note 1.— ~~Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).~~

Note 2.— ~~Specifications governing the determination and reporting (accuracy of field work and data integrity) of WGS-84 related aeronautical coordinates for geographical positions established by air traffic services are given in Annex 11, Chapter 2, and Appendix 5, Table 1, and for aerodrome/heliport related positions, in Annex 14, Volumes I and II, Chapter 2, and Table A5-1 and Table 1 of Appendices 5 and 1, respectively.~~

15.3.7.1.2.1.2 In precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth’s crust shall be modelled and estimated. To reflect the temporal effect, an epoch shall be included with any set of absolute station coordinates.

Note 1.— ~~The epoch of the WGS-84 (G873) reference frame is 1997.0 while the epoch of the latest updated WGS-84 (G1150) reference frame, which includes a plate motion model, is 2001.0. (G indicates that the coordinates were obtained through Global Positioning System (GPS) techniques, and the number following G indicates the GPS week when these coordinates were implemented in the United States’ of America’s National Geospatial-Intelligence Agency’s (NGA’s) precise ephemeris estimation process.)~~

Note 2.— ~~The set of geodetic coordinates of globally distributed permanent GPS tracking stations for the most recent realization of the WGS-84 reference frame (WGS-84 (G1150)) is~~

provided in Doc 9674. For each permanent GPS tracking station, the accuracy of an individually estimated position in WGS-84 (G1150) has been in the order of 1 cm (1σ).

Note 3.— Another precise worldwide terrestrial coordinate system is the International Earth Rotation Service (IERS) Terrestrial Reference System (ITRS), and the realization of ITRS is the IERS Terrestrial Reference Frame (ITRF). Guidance material regarding the ITRS is provided in Appendix C of Doc 9674. The most current realization of the WGS-84 (G1150) is referenced to the ITRF 2000 epoch. The WGS-84 (G1150) is consistent with the ITRF 2000 and in practical realization the difference between these two systems is in the one to two centimeter range worldwide, meaning WGS-84 (G1150) and ITRF 2000 are essentially identical.

~~15.3.7.1.3 Geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in CAR-ANS 11.2, and MOS for Aerodromes, shall be identified by an asterisk.~~

~~15.3.7.1.4 The order of publication resolution of geographical coordinates shall be that specified in Appendix 15A and Table 15F-I of Appendix 15F, while the order of chart resolution of geographical coordinates shall be that specified in CAR-ANS Part 4, Appendix 6, Table 1.~~

15.3.7.1.2.2 Vertical reference system

~~15.3.7.1.2.2.1 Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system in the Philippines for international air navigation.~~

Note 1.— 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.

Note 2.— Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.

~~15.3.7.1.2.2.2 The Earth Gravitational Model — (EGM-96), containing long wavelength gravity field data to degree and order 360 is shall be used in the Philippines shall be used by international air navigation as the global gravity model for international air navigation.~~

~~15.3.7.1.2.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation specified in Annex 14, Volumes I and II, on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data must shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP). (Appendix 15A, GEN 2.1.4)~~

Note.— Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports are given in the MOS for Aerodromes PANS-AIM (Doc 10066), Appendix 1.

~~15.3.7.2.4 In addition to elevation referenced to the MSL (geoid), for the specific surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions specified in Appendix 15A must also be published in the AIP.~~

~~15.3.7.2.5 The order of publication resolution of elevation and geoid undulation shall be that specified in Appendix 15A and Table 15F-2 of Appendix 15F, while the order of chart resolution of elevation and geoid undulation must be that specified in CAR-ANS Part 4, Appendix 6, Table 2.~~

15.3.7.1.2.3 Temporal reference system

15.3.7.3.1.2.3.1 Gregorian calendar and Coordinated Universal Time (UTC) are used as the temporal reference system for all AIS publications.

Note 1.— A value in the time domain is a temporal position measured relative to a temporal reference system.

Note 2.— Coordinated Universal Time (UTC) is a time scale maintained by the Bureau International de l'Heure (BIH) and the IERS and forms the basis of a coordinated dissemination of standard frequencies and time signals.

Note 3.— See CAR-ANS Part 5, for guidance material relating to UTC.

Note 4.— ISO Standard 8601 specifies the use of the Gregorian calendar and 24-hour local or UTC for information interchange while ISO Standard 19108 prescribes the Gregorian calendar and UTC as the primary temporal reference system for use with geographic information.

15.3.7.3.1.2.3.2 When a different temporal reference system is used for applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

Note 1.— ISO Standard 191108, Annex D, describes some aspects of calendars that may have to be considered in such a description.

15.3.6.1.3 Miscellaneous specifications

15.3.6.1.3.1 ~~All elements of the Integrated Aeronautical Information Package are published by the CAAP in~~ Aeronautical information products intended for international distribution shall include English text for those parts expressed in plain language.

15.3.6.1.3.2 Place names ~~are~~ shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.

15.3.6.1.3.3 Units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information shall ~~conform~~ be consistent to the tables contained in AIP Philippines GEN 2.1.

15.3.6.1.3.4 ICAO abbreviations ~~contained in Doc. 8400~~ shall be used for publishing and distribution of aeronautical information/data in the aeronautical information products

navigation is are made available in a form suitable for the operational requirements of the air traffic management (ATM) community, including:

- a) those involved in flight operations, including flight crews, flight planning and flight simulators; and
- b) the air traffic services ATS unit responsible for flight information service and the services responsible for pre-flight information.

Note.— A description of the ATM community is contained in the Global Air Traffic Management Operational Concept (Doc 9854).

~~15.3.1.7~~ ~~15.2.2.2~~ The International NOTAM Office (NOF) and The AIS Operations (AISOPS) under the AIS Headquarters of CAAP Central Office are responsible to An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of air traffic services ATS. Aeronautical data and aeronautical information shall be provided as an Integrated Aeronautical Information Package aeronautical information products.

Note.— An Aeronautical Information Service AIS may include origination functions.

~~15.3.1.8~~ Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of an aeronautical information service, plus a period of at least two hours before and after such a period. The service shall also be available at such other time as may be requested by an appropriate ground organization.

~~15.3.1.9~~ ~~15.2.2.3~~ An aeronautical information service AIS shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:

- a) from the aeronautical information services AIS of other States; and
- b) from other sources that may be available.

Note.— One such source is the subject of a provision in ~~15.8.3.1~~ 15.5.6.

~~15.3.1.10~~ ~~2.2.4~~ Aeronautical data and aeronautical information obtained under ~~15.3.1.2~~ ~~15.2.2.3~~ a) shall when distributed, be clearly identified as having the authority of the State of Origin originating State.

~~15.3.1.11~~ ~~2.2.5~~ Aeronautical data and aeronautical information obtained under ~~15.3.1.2~~ ~~15.2.2.3~~ b) shall if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

~~15.3.1.12~~ ~~15.2.2.6~~ An aeronautical information service AIS shall promptly make available to the aeronautical information services AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with ~~15.3.1.6.1~~ 15.2.2.1.

15.32.3 Exchange of Aeronautical Data and Aeronautical Information

15.32.3.1 The AIS Headquarters of CAAP Central Office and Manila International NOTAM Office (NOF) is the office designated to receive a All elements of the Integrated Aeronautical Information Package originated aeronautical information products provided by other States shall be addressed to AIS Operations office. Such an office shall be qualified to deal with requests for aeronautical data and aeronautical information originated provided by other States.

15.3.3.2 The extent of responsibility and the territory covered by the Manila International NOTAM office coincides with the territory covering the Manila Flight Information Region, which is the area bounded by the following coordinates:

From	21° 00'.0" N 130° 00'.0" E	to	07° 00'.0" N 130° 00'.0" E
To	04° 00'.0" N 132° 00'.0" E	to	04° 00'.0" N 120° 00'.0" E
To	07° 30'.0" N 117° 30'.0" E	to	10° 30'.0" N 114° 00'.0" E
To	16° 40'.0" N 114° 00'.0" E	to	21° 00'.0" N 117° 30'.0" E

15.32.3.2 The extent of responsibility and the territory covered by the Manila International NOTAM office coincides with the territory covering the Manila Information Region Formal arrangements shall be established between those parties providing aeronautical data and aeronautical information on behalf of the States and their users in relation to the provision of the service.

Note.— Guidance material on such formal arrangements is contained in the Aeronautical Information Services Manual (Doc 8126).

15.3.3.3 The Aeronautical Information and Communication Division (AICD) have made adequate arrangements to satisfy operational requirements for the issuance and receipt of NOTAM distributed by Aeronautical Fixed Service (AFS).

15.3.3.4 Exchange of aeronautical data and aeronautical information has been established by connecting the NOF and AIS Operations (AIS OPS) of CAAP Central Office with Manila Aeronautical Fixed Service (AFS) Station in order to facilitate the international exchange of aeronautical data and aeronautical information.

15.32.3.33 The Aeronautical Information and Communication Division (AICD) have made adequate arrangements to satisfy operational requirements for the issuance and receipt of NOTAM distributed by Aeronautical Fixed Service (AFS). An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

15.3.3.5 One copy of each of the elements of the Integrated Aeronautical Information Package that have been requested by the AIS of a Contracting State shall be made available by the originating State in the mutually agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency.

15.32.3.4 Exchange of aeronautical data and aeronautical information has been established by connecting the NOF and AIS Operations (AIS-OPS) of CAAP Central Office with Manila

Aeronautical Fixed Service (AFS) Station in order to facilitate the international exchange of aeronautical data and aeronautical information.

~~15.3.3.6 The exchange of more than one copy of the elements of the Integrated Aeronautical Information Package and other air navigation documents, including those containing air navigation legislation and regulations, should be subject to bilateral agreement between ICAO Contracting States.~~

~~15.3.2.3.5 One copy of each of the elements of the Integrated Aeronautical Information Package in printed form is made available by the Philippine AIS Publication Section to other ICAO Contracting States from whom the same is received without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency. Except as provided in 15.2.3.7, one copy of each of the following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency:~~

- a) Aeronautical Information Publication (AIP), including Amendments and Supplements;
- b) Aeronautical Information Circulars (AIC);
- c) NOTAM; and
- d) Aeronautical Charts.

~~15.3.3.7 The procurement of aeronautical data and aeronautical information, including the elements of the Integrated Aeronautical Information Package, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than Contracting States and by other entities should be subject to separate agreement with the originating State.~~

~~15.3.3.6~~ 15.2.3.6 The exchange of more than one copy of the elements of ~~the Integrated Aeronautical Information Package~~ aeronautical information products and other air navigation documents, including those containing air navigation legislation and regulations, shall be subject to bilateral agreement between ~~ICAO~~ the participating Contracting States and entities.

15.2.3.7 When aeronautical information and aeronautical data is provided in the form of digital data sets to be used by the AIS, it shall be provided on the basis of agreement between the Contracting States concerned.

Note.— The intention is that States are able to access foreign data for the purposes specified in 15.2.2.3.

~~15.3.3.7~~ 15.2.3.8 The procurement of aeronautical data and aeronautical information, including the elements of ~~the Integrated Aeronautical Information Package~~ aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than ~~ICAO~~ Contracting States and by other entities shall be subject to separate agreement ~~with the originating State~~ between the participating States and entities.

15.2.3.9 Globally interoperable aeronautical data and information exchange models shall be used for the provision of data sets.

Note 1.— Specifications concerning globally interoperable aeronautical information and data exchange models are contained in the Procedures for Air Navigation Services – Aeronautical Information Management PANS-AIM (Doc 10066).

Note 2.— Guidance material on globally interoperable aeronautical data and aeronautical information exchange models is contained in Doc 8126.

15.32.4 Copyright

~~Under the Philippine Law, all public documents (including AIP Philippines), is not covered and could not be granted a copyright protection.~~

Note.— In order to protect the investment in the products of a State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws.

15.2.4.1 Any aeronautical information product which has been granted copyright protection by the originating State and provided to another State in accordance with 15.2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.

15.2.4.2 When aeronautical data and aeronautical information are provided to a State in accordance with 15.2.3.7, the receiving State shall not provide the digital data sets of the providing State to any third party without the consent of the providing State.

15.32.5 Cost recovery

~~AIP Philippines is a priced publication, its cost of printing and reproduction is only charged on a cost recovery basis.~~ The overhead cost of collecting and compiling aeronautical data and aeronautical information shall be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082).

Note.— When costs of collection and compilation of aeronautical data and aeronautical information are recovered through airport and air navigation services charges, the charge to an individual customer for the supply of a particular AIS aeronautical information product may be based on the costs of printing paper copies, production of electronic media and distribution.

15.3.8 AERONAUTICAL INFORMATION MANAGEMENT

15.3.8.1 Information management requirements

The information management resources and processes established by an aeronautical information service (AIS) shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the **air traffic management** (ATM) system.

15.3.8.32 Data quality specifications

15.3.8.32.1 Data Accuracy

~~15.3.8.3.1.1 The order of accuracy for aeronautical data meets the requirement as specified in CAR-ANS 11.2, and MOS for Aerodromes. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.); calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points) shall be in accordance with its intended use.~~

Note. — ~~The accuracy requirements for electronic terrain and obstacle data are specified in Appendix 8. Specifications concerning the order of accuracy (including confidence level) for aeronautical data are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.~~

~~15.3.8.2.2 An aeronautical information service shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements (accuracy, resolution, integrity and traceability) are met.~~

Note 1. — ~~Guidance material on liaison with other related services is contained in the Aeronautical Information Services Manual (Doc 8126).~~

Note 2. — ~~Guidance material on the aeronautical data quality requirements (accuracy, resolution, integrity, and traceability and protection requirements) may be found in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674). Supporting data quality material in respect of data accuracy, publication resolution, and integrity of aeronautical data, together with guidance material in respect to the rounding convention for aeronautical data, is contained in Radio Technical Commission for Aeronautics (RTCA) Document DO-201A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-77 — Standards for Aeronautical Information (or equivalent).~~

Note 3. — ~~Guidance material on the management of aeronautical data quality is included in the Manual on the Quality Management System for Aeronautical Information Services (Doc 9839)(to be developed).~~

15.3.8.32.2 Data Resolution

~~15.3.8.3.2.1 The order of publication resolution of aeronautical data shall be that as specified in Appendix 15A and 15F. The resolution of the data features contained in the database shall be commensurate with the data accuracy requirements commensurate with the actual data accuracy.~~

Note 1. — ~~Specifications concerning the resolution of the aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.~~

Note 2. — ~~The resolution of the data features contained in the database may be the same or finer than the publication resolution.~~

15.3.8.32.3 Data Integrity

15.3.8.32.3.1 The integrity classification related to aeronautical data shall be as provided in Tables 15F-1 to 15F-5 of Appendix 15 of aeronautical data shall be maintained throughout the data chain from origination to distribution to next intended user.

Note .— Specifications concerning the integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

15.3.8.32.3.2 The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the AIS provider). Based on the applicable integrity classification, the validation and verification procedures shall be put in place in order to:

- a) for routine data: avoid corruption throughout the processing of the data;
- b) for essential data: assure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
- c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

Note 1.— Guidance material in respect to the processing of aeronautical data and aeronautical information is contained in RTCA Document DO-200A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED 76—Standards for Processing Aeronautical Data.

Note 2.— Error producing faults in the entire process may be mitigated by additional data quality assurance techniques as may be required. These could include application tests for critical data (for example, by flight check); the use of security, logic, semantic, comparison, and redundancy checks; digital error detection; and the qualification of human resources and process tools such as hardware and software.

Note 3.— Distribution to the next intended user will differ in the delivery method applied which may either be:

Physical distribution.— The means by which aeronautical data and aeronautical information/data distribution is achieved through the delivery of a physical package, such as postal services;

or

Direct electronic distribution.— The means by which aeronautical data and aeronautical information/data distribution is achieved automatically through the use of a direct electronic connection between the AIS and the next intended user.

Note 4.— Different delivery methods and data media may require different procedures to ensure the required data quality.

15.3.2.4 Data Traceability

Traceability of aeronautical data shall be ensured and retained as long as the data is in use.

15.3.2.5 Data Timeliness

Timeliness of aeronautical data shall be ensured by including limits on the effective period of the data elements.

Note 1.— These limits may be associated with individual data elements or data sets.

Note 2.— If the effective period is defined for a data set, it will account for the effective dates of all of the individual data elements.

15.3.2.6 Data completeness

Completeness of the aeronautical data shall be ensured in order to support its intended use.

15.3.2.7 Data format

The format of delivered data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

15.3.8.2.3 Aeronautical data and aeronautical information validation and verification

15.3.8.3.1 Accuracy

~~15.3.8.3.1.1 The order of accuracy for aeronautical data meets the requirement as specified in CAR-ANS 11.2, and MOS for Aerodromes. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.); calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).~~

~~*Note.— The accuracy requirements for electronic terrain and obstacle data are specified in Appendix 15F.*~~

~~15.3.8.2.13.1 Material to be issued as part of the Integrated Aeronautical Information Package an aeronautical information product shall be thoroughly checked before it is submitted to the aeronautical information service AIS, in order to make certain ensure that all necessary information has been included and that it is correct in detail prior to distribution.~~

15.3.8.3.2 Resolution

~~15.3.8.3.2.1 The order of publication resolution of aeronautical data shall be that as specified in Appendices 15A and 15F. The resolution of the data features contained in the database shall be commensurate with the data accuracy requirements.~~

~~*Note.— The resolution of the data features contained in the database may be the same or finer than the publication resolution.*~~

~~15.3.8.2.2 An aeronautical information service AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements (accuracy, resolution, integrity and traceability) are met.~~

~~*Note 1— Guidance material on the liaison with other related services is contained in Doc 8126.*~~

Note 2. Guidance material on the aeronautical data quality requirements (accuracy resolution, integrity, and traceability) and protection requirements may be found in the World Geodetic System 1984 (WGS-84) Manual (Doc 9674). Supporting data quality material in respect of data accuracy, publication resolution and integrity of aeronautical data together with guidance material in respect to the rounding convention for 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 (or equivalent).

Note 3. Guidance material on the management of aeronautical data quality is included in the Manual on the Quality Management System for Aeronautical Information Services (Doc 9839).

15.3.10 Data Protection 15.3.4 Data error detection

15.3.104.1 Aeronautical data and data sets shall be protected in accordance with data error detection security, and authentication techniques. Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

Note. The Aeronautical Information Services Manual (Doc 8126) contains suitable guidance on data error detection, security, and authentication techniques.

15.3.104.2 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 the integrity classification of data sets as specified in 15.3.2.8. Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 15.3.2.3.

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

Note 1. This requirement does not apply to the communications systems used for the transfer of data sets.

Note 2. Guidance material on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in Doc 8126.

15.3.6.5 Use of Automation

15.3.6.5.1 Automation shall be introduced applied with the objective of improving in order to ensure the timeliness, quality, efficiency and cost-effectiveness of aeronautical information services. The Philippine AIS is connected to European AIS Database (EAD) maintained by Eurocontrol. In addition AIS Operations also maintains and stored all aeronautical information and aeronautical data for AIP, AIP Amendment, AIP Supplements, AIC, and NOTAM's in desktop computers.

Note. Guidance material for on the development of databases and the establishment of data exchange services is contained in the Aeronautical Information Services Manual (Doc 8126).

15.3.5.2 Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.

Note.— Risks of altering the integrity of data and information may be introduced by automated processes in case of unexpected systems behaviours.

15.3.6-5.3 In order to meet the data quality requirements, automation shall:

- a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and
- b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

Note.— Guidance on the aeronautical information and data exchange models may be found in the Aeronautical Information Services Manual (Doc 8126).

15.3.26 Quality Management System

15.3.26.1 Quality management systems shall be implemented and maintained encompassing all functions of an aeronautical information service AIS, as outlined in 15.3.2.4-6. The execution of such quality management systems shall be made demonstrable for each function stage.

Note.— Guidance material is contained in the Manual on the Quality Management System for Aeronautical Information Services (Doc 9839) (planned for development by November 2019).

15.3.26.2 Quality management ~~should~~ shall be applicable to the whole aeronautical ~~information~~ data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.

15.3.26.3 The quality management system established in accordance with 15.3.406.1 shall follow the International Organization for Standardization (ISO) 9000 series of quality assurance standards, and be certified by an ~~approved organization~~ accredited certification body.

Note 1.— An ISO 9000 certificate issued by an accredited certification body would be considered an acceptable means of compliance.

Note 2.— International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme and define the term “accredited certification body”. The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization.

Note 3.— Supporting material in respect of the processing of aeronautical data is contained in RTCA Document DO-200A and European Organization for Civil Aviation equipment (EUROCAE).

Document ED-76—Standards for Processing Aeronautical Data. These standards support the development and application of aeronautical databases.

15.3.6.5.4 ~~The aeronautical information model used shall encompass the aeronautical data and aeronautical information to be exchanged.~~

15.3.26.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and abilities.

Note.—*Guidance material concerning training methodology to ensure the competency of personnel is contained in the Aeronautical Information Management Training Development Manual (Doc 9991).*

~~15.3.6.5.5 The aeronautical information model used shall:~~

- ~~a) use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations, and data types;~~
- ~~b) include data value constraints and data verification rules;~~
- ~~c) include provisions for metadata as specified in section 15.3.9.2; and~~
- ~~d) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.~~

15.3.26.5 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.

~~15.3.6.5.6 The aeronautical data exchange model used shall:~~

- ~~a) apply a commonly used data encoding format;~~
- ~~b) cover all the classes, attributes, data types and associations of the aeronautical information model detailed in paragraph 15.3.6.5.4; and~~
- ~~c) provide an extension mechanism, by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.~~

Note 1.—*The intent of using a commonly used data encoding format is to ensure interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.*

Note 2.—*Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), JavaScript Object Notation (JSON).*

15.3.26.6 The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements. ~~for accuracy, resolution and integrity as~~

~~specified in 15.3.2 and 15.3.2.6, and that the data traceability requirements are met through the provision of appropriate metadata as specified in 15.3.8. The system shall also provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates will be met.~~

15.3.26.7 All necessary measures shall be taken to monitor compliance with the quality management system in place.

15.3.26.8 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.

~~15.3.2.9 The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the aeronautical information service provider). Aeronautical data integrity requirements shall be based upon the potential risk resulting from the corruption of data and upon the use to which the data item is put. Consequently, the following classifications and data integrity levels shall apply:~~

~~a) critical data, integrity level 1×10^{-8} : there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;~~

~~b) essential data, integrity level 1×10^{-5} : there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and~~

~~c) routine data, integrity level 1×10^{-3} : there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.~~

~~Note 1. — Distribution to the next intended user will differ in the delivery method applied which may either be:~~

~~Physical distribution. The means by which aeronautical information/data distribution is achieved through the delivery of a physical package, such as postal services; or~~

~~Direct electronic distribution. The means by which aeronautical Information/data distribution is achieved automatically through the use of a direct electronic connection between the AIS and the next intended user.~~

~~Note 2. — Different delivery methods and data media may require different procedures to ensure the required data quality.~~

~~15.3.2.10 Aeronautical data quality requirements related to classification and data integrity shall be as provided in Tables 15F-1 to 15F-5 of Appendix 15F.~~

~~15.3.2.11 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 3.2.10.~~

Note 1. — This requirement does not apply to the communications systems used for the transfer of data sets.

Note 2. — Guidance material on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in the Aeronautical Information Services Manual (Doc 8126).

15.3.2.12 Material to be issued as part of the Integrated Aeronautical Information Package shall be thoroughly checked and coordinated with the services responsible before it is submitted to the aeronautical information service, in order to make certain that all necessary information has been included and that it is correct in detail prior to distribution. Validation and verification procedures shall be established which ensure that quality requirements (accuracy, resolution, integrity) and traceability of aeronautical data are met.

Note. — Guidance material on the liaison with other related services is contained in Doc 8126.

15.3.2.13 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken. All audit observations and remedial actions shall be evidenced and properly documented.

15.3.6.7 Human Factors Considerations

15.3.6.7.1 The organization of the aeronautical information services AIS as well as the design, contents, processing and distribution of aeronautical data and aeronautical Information shall take into consideration Human Factors principles which facilitate their optimum utilization.

15.3.6.7.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

Note. — This may be accomplished through the design of systems, through operating procedures or through improvements in the operating environment.

15.4 AERONAUTICAL INFORMATION PUBLICATIONS (AIP) SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

AIP is intended to satisfy International requirements for the exchange of aeronautical information of a lasting character essential to air navigation. AIP constitutes the basic information source for permanent information and long duration temporary changes.

AIP Philippines has been published according to ICAO standards contained in CAR-ANS Part 15 and guidelines contained in Manual of Standards — Aeronautical Information Services.

Note. — The scope of aeronautical data and aeronautical information provides the minimum requirement to support aeronautical information products and services, aeronautical navigation data bases, air navigation applications and air traffic management (ATM) systems.

15.4.1 Contents **Scope of aeronautical data and aeronautical information**

~~15.4.1.1 An AIP shall contain, in three parts, sections and subsections uniformly referenced to allow for standardized electronic data storage and retrieval, current information relating to, and arranged under, those subjects enumerated in Appendix 1 that appear in roman type, except that when the AIP, or volume of the AIP, is designed basically to facilitate operational use in flight, the precise format and arrangement may be left to the discretion of the State provided that an adequate table of contents is included.~~

15.4.1.1 The aeronautical data and aeronautical information to be received and managed by the aeronautical information service (AIS) shall include at least the following sub-domains:

a) national regulations, rules and procedures;

b) aerodromes and heliports;

c) airspace;

d) air traffic services (ATS) routes;

e) instrument flight procedures;

f) radio navigation aids/systems;

g) obstacles;

h) terrain; and

i) geographic information.

Note 1.— Detailed specifications concerning the content of each sub-domain are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.

Note 2.— Aeronautical data and aeronautical information in each sub-domain may be originated by more than one organization or authority.

~~15.4.1.1.1 The AIP must contain concise, current information relating to, and arranged under, the subject headings listed in Appendix 15A. This facilitates both the locating of information under specific heading and the storage/retrieval of the information using automated processing. If no facilities or services are provided or no information is available for publication in respect of one of the categories of information specified in Appendix 15A, an indication should be given as to which of these circumstances applies (e.g. “NIL” or “Not AVBL”).~~

15.4.1.2 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

Note.— Specifications concerning the accuracy and integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

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~~15.4.1.4 Charts, maps and diagrams are to be substituted for tabulations and text wherever possible. They are also to be used when necessary to elaborate upon or supplement tabulations or text.~~

~~Note.— Where appropriate, charts produced in conformity with CAR-ANS Part 4 Aeronautical Charts, may be used to fulfil this requirement. Guidance material as to the specifications of index maps and diagrams included in Aeronautical Information Publications is contained in the MOS for Aeronautical Information Services.~~

15.4.2 General Specifications of AIP Metadata

~~15.4.2.1 AIP Philippines is a self-contained and includes a Table of contents.~~

~~Note.— If it is necessary by reason of bulk for convenience, to publish an AIP in two or more parts or volumes, each of them will indicate that the remainder of the information is to be found in the other part(s) or volume(s).~~

~~15.3.9.1 15.4.2.1 Metadata shall be collected for aeronautical data processes and exchange points.~~

~~15.4.2.1.1 The AIP Philippines shall not duplicate information within itself or from other sources.~~

~~15.4.2.1.2 The AIP has been published exclusively by the Civil Aviation Authority of Philippines.~~

~~15.4.2.2 Each page of the AIP has been dated (e.g. publication date or the effective date of the information), consisting of the day, month (by name) and year.~~

~~15.3.9.2 15.4.2.2 The metadata to be collected shall include, as a minimum:~~

- ~~a) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;~~
- ~~b) the action performed; and~~
- ~~e) the date and time the action was performed. Metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.~~

~~Note.— The function performed indicates any action of originating, transmitting or manipulating the data.~~

~~Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).~~

~~15.4.2.3 Each page of the AIP has been dated (e.g. publication date or the effective date of the information), consisting of the day, month (by name) and year.~~

~~15.4.2.4 A Check-list giving the current date of each page of the AIP is reissued every AIP Amendment to assist the user in maintaining a current publication.~~

~~15.4.2.5 The identity of the issuing authority, i.e., Civil Aviation Authority of Philippines and the issuing state, i.e. AIP Philippines is published on each page of the AIP.~~

~~15.4.2.6 The sheet size should be no larger than 210 × 297 mm, except that larger sheets may be used provided they are folded to the same size.~~

~~15.4.2.7 New information on a re-printed page has been identified by a distinctive symbol or annotation.~~

~~15.4.2.8 Operationally significant changes to the AIP shall be published in accordance with Aeronautical Information Regulation and Control (AIRAC) procedures and shall be clearly identified by the acronym AIRAC.~~

~~15.4.2.9 AIP amendments are issued on a regular interval as may be necessary to keep them up to date. Recourse to hand amendments or annotations shall be kept to the minimum. The normal method of amendment shall be by means of replacement sheets.~~

~~15.4.2.9.1 Regular amendment interval to the AIP referred to in 4.2.9 is specified in the AIP Philippines, Part 1—General (GEN).~~

~~*Note.—Guidance material on the establishment of intervals between publication dates of AIP Amendments is contained in Doc 8126.*~~

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~~15.4.3.2 Each AIP Amendment is allocated a serial number along with the year of publication.~~

~~15.4.3.3 Each AIP Amendment page, including the cover sheet, displays a publication date.~~

~~15.4.3.4 Each AIRAC AIP Amendment page, including the cover sheet, shall display an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet.~~

~~15.4.3.5 When an AIP Amendment is issued, it includes reference to the serial number of the AIP Supplements and NOTAMs which have been incorporated into the Amendment.~~

~~15.4.3.6 A brief indication of the subjects affected by the amendment is provided on the AIP Amendment cover sheet.~~

~~15.4.3.7 When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed by the monthly plain-language list of valid NOTAM required by 15.5.2.13.3.~~

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~~*Note.—Guidance material on the use of AIP Supplements together with examples of such use is contained in the MOS for Aeronautical Information Services.*~~

~~15.4.4.2 Each AIP Supplement is allocated a serial number which is consecutive and based on the calendar year.~~

~~15.4.4.3 AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.~~

15.4.4.4 When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.

Note.— *The requirements for NOTAM apply when time constraints do not allow sufficient time for the distribution of an AIP Supplement.*

15.4.4.5 A checklist of valid AIP Supplements shall be issued at intervals of not more than one month. This information shall be issued through the medium of the monthly plain-language list of valid NOTAM required by 15.5.2.13.3.

15.4.4.7 AIP Supplement pages should be kept as the first item in the AIP Parts. Although it is recommended that AIP Supplement pages be retained as the first item in an AIP binder, it may be more appropriate for States to issue the Supplements divided into specific parts (e.g. GEN, ENR, AD) for insertion in each AIP part, as necessary. This would eliminate the need to continuously refer to the front of the AIP for the front of the AIP for the required information in cases where the Supplement affects a number of AIP pages.

...

15.4.6.2 When provided, the information content of the eAIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP. The eAIP shall include files that allow for printing a paper AIP.

15.4.6.3 *When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc.) and/or online on the Internet.*

Note.— *Guidance material on the use of the Internet is contained in Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).*

15.5 NOTAM AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

15.5.1 Origination General

15.5.1.1 Aeronautical information shall be provided in the form of aeronautical information products and associated services.

Note.— *Specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.*

15.5.1.1.2 *The need for origination of a NOTAM should be considered in any other circumstance which may affect the operation of aircraft.*

...

15.5.1.1.4 At least (7) days advance notice shall be given of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations.

15.5.1.1.4.1 Notice of any subsequent cancellation of the activities or any reduction of the hours of activity or the dimensions of the airspace should be given as soon as possible.

Note.— *Whenever possible, at least twenty (24) hours' advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.*

~~15.5.1.1.5 NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall give an estimate of the period of unserviceability or the time at which restoration of service is expected.~~

...

~~15.3.6.5.2~~ 15.5.1.2 Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

15.5.2 General specifications Aeronautical information in a standardized presentation

~~15.5.2.1 Except as provided in 5.2.3 (ASHTAM), each NOTAM shall contain the information provide in order shown in the NOTAM Format specified in Appendix 15E.~~

15.5.2.1 Aeronautical information provided in a standardized presentation shall include the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

Note 1.— Detailed specifications about AIP, AIP Amendments, AIP Supplements, AIC and NOTAM are contained in the PANS-AIM (Doc 10066).

Note 2.— Cases where digital data sets may replace the corresponding elements of the standardized presentation are detailed in the PANS-AIM (Doc 10066).

15.5.2.1.1 The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.

~~15.4.6.1~~ 15.5.2.1.2 The AIP, AIP Amendment, AIP Supplement and AIC ~~should also be published in a format that allows for~~ when provided as an electronic document (eAIP) shall allow for both displaying on a computer screen electronic devices and printing on paper.

Note 1.— This composite electronic document is named “Electronic AIP” (eAIP) and may be based on a format that allows for digital data exchange.

Note 2.— Guidance material for the production and provision of the eAIP is contained in Doc 8126.

~~15.5.2.2 Text of NOTAM shall be composed of the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language.~~

Note.— Detailed guidance material covering NOTAM, SNOWTAM, ASHTAM and pre-flight information bulletin (PIB) production is contained in Doc 8126.

15.4 15.5.2.2 Aeronautical Information Publications (AIP)

~~AIP is intended to satisfy International requirements for the exchange of aeronautical information of a lasting character essential to air navigation. AIP constitutes the basic information source for permanent information and long duration temporary changes.~~

~~AIP Philippines has been published according to ICAO standards contained in CAR-ANS Part 15 and guidelines contained in Manual of Standards — Aeronautical Information Services.~~

Note 1.— AIP are intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation.

Note 2.— AIP constitute the basic information source for permanent information and long duration temporary changes.

~~15.2.2.1 English text is used for those parts expressed in plain language for NOTAM distribution.~~

Note.— The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).

~~15.4.1.2 15.5.2.2.1 Part 1 — General (GEN) of the Aeronautical Information Publications contains information of an administrative and explanatory nature, which is not of such significance/importance that NOTAM need be issued, this AIP shall include:~~

- a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
- b) the general conditions under which the services or facilities are available for international use;
- c) a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;
- d) the choice made by a State in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.

~~15.5.2.3 SNOWTAM is not applicable in the Philippines.~~

15.5.2.3 AIP Supplement

~~15.4.4.5 15.5.2.3.1 A checklist of valid AIP Supplements shall be regularly provided issued at intervals of not more than one month. This information shall be issued through the medium of the monthly plain language list of valid NOTAM required by 15.5.2.13.3.~~

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIP Supplements are contained in the PANS-AIM (Doc 10066).

~~15.5.2.4 Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix 15B.~~

~~15.7~~ 15.5.2.4 Aeronautical Information Circulars

15.7.1 Origination

~~15.7.1.1 15.5.2.4.1~~ An AIC shall be ~~originated whenever it is necessary to promulgate aeronautical information which does not qualify~~ used to provide:

a) ~~under the specifications in 15.4.1 for inclusion in an AIP; or~~

b) ~~under the specifications in 15.5.1 of a NOTAM.~~

a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or

b) information of a purely explanatory or advisory nature liable to affect flight safety; or

c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

~~15.7.1.1 15.5.2.4.2~~ An AIC shall be ~~originated whenever it is necessary to promulgate aeronautical information which does not qualify~~: not be used for information that qualifies for inclusion in AIP or NOTAM.

a) ~~under the specifications in 15.4.1 for inclusion in an AIP; or~~

b) ~~under the specifications in 15.5.1 for the origination of a NOTAM.~~

15.5.2.4.3 The validity of AIC currently in force shall be reviewed at least once a year.

~~15.7.2.5 15.2.4.4~~ A checklist of currently valid AIC ~~currently in force~~ shall be issued at least once a year, with distribution as for the AIC regularly provided.

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIC are contained in the PANS-AIM (Doc 10066).

15.5.2.5 The NOTAM originator shall allocate to each NOTAM a series identified by a letter and a four digit number followed by a stroke and a two digit number for the year. The four digit number shall be consecutive and based on the calendar year. e.g. A0010/09. CAAP issues NOTAM in B & C series.

Note.— Letters A to Z, with the exception of S and T, may be used to identify a NOTAM series.

15.5.2.5 Aeronautical Charts

Note.— CAR-ANS Part 4 —Governing Aeronautical Charts provides regulations including provision requirements for each chart type.

~~15.4.1.3 15.5.2.5.1~~ The following aeronautical charts aerodromes/heliports listed in Part 3—Aerodromes (AD)—must, when available, form part of the AIP unless distributed through a separate subscription service. When included in AIP, these charts should be in part 3—aerodromes, or section 3, subsection 23 for heliports, immediately following the tabulations for the aerodrome or heliport concerned. listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

The charts, as appropriate should be included in the following sequence:

- 1a) Aerodrome/Heliport Chart — ICAO;
- 2b) Aerodrome Ground Movement Chart — ICAO;
- 3c) Aerodrome Obstacle Chart — ICAO Type A;
- d) Aerodrome Obstacle Chart — ICAO Type B (when available);
- e) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);
- 4f) Aircraft Parking/Docking Chart — ICAO;
- 6g) Area Chart — ICAO (~~departure and transit routes~~);
- 7h) ATC Surveillance Minimum Altitude Chart — ICAO;
- 11i) Instrument Approach Chart — ICAO (~~for each runway and procedure type~~);
- 5j) Precision Approach Terrain Chart — ICAO (~~precision approach Cat II and III runways~~);
- 10k) Standard Arrival Chart — Instrument (STAR) — ICAO;
- 8l) Standard Departure Chart — Instrument (SID) — ICAO;
- 12m) Visual Approach Chart — ICAO.

Note.— A page pocket may be used in the AIP to include the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media.

15.5.2.5.2 The Enroute Chart — ICAO shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.

15.5.2.5.3 The aeronautical charts listed below shall, when available, be provided as aeronautical information products:

- a) World Aeronautical Chart — ICAO 1:1 000 000;
- b) Aeronautical Chart — ICAO 1:500 000;
- c) Aeronautical Navigation Chart — ICAO Small Scale;
- d) Plotting Chart — ICAO chart; and
- e) ATC Surveillance Minimum Altitude Chart — ICAO.

15.5.2.5.4 Electronic aeronautical charts shall be provided based on digital databases and the use of geographic information systems.

~~15.3.7.1.4~~ 15.5.2.5.5 The order of publication resolution of geographical coordinates shall be that specified in Appendix 15A and Table 15F-I of Appendix 15F, while the order of chart resolution of geographical coordinates shall be that specified in CAR-ANS Part 4, Appendix 6, Table 1. The chart resolution of aeronautical data shall be that as specified for a particular chart.

Note.— Specifications concerning the chart resolution for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

~~15.3.7.2.5 The order of publication resolution of elevation and geoid undulation shall be that specified in Table A7-2 of Appendix 7 while the order of chart resolution of elevation and geoid undulation shall be that specified in Annex 4, Appendix 6, Table 2.~~

~~15.5.2.6 When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued or the erroneous NOTAM shall be cancelled and a new NOTAM issued.~~

15.5.2.6 NOTAM

Note.— Detailed specifications for NOTAM, including formats for ASHTAM, are contained in the PANS-AIM (Doc 10066).

~~15.5.2.13 A checklist of valid NOTAM shall be regularly provided issued as a NOTAM over the aeronautical fixed service (AFS) at intervals of not more than one month using the NOTAM Format specified in Appendix 15E. One NOTAM shall be issued for each series.~~

Note.— Omitting a NOTAM from the checklist does not serve to cancel a NOTAM.

Note.— Detailed specifications concerning the frequency for providing checklists of valid NOTAM are contained in the PANS-AIM (Doc 10066).

~~15.5.2.7 When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated. The series, location indicator and subject of both NOTAM shall be the same. Only one NOTAM shall be cancelled or replaced by a NOTAM.~~

~~15.5.2.8 Each NOTAM shall deal with only one subject and one condition of the subject.~~

Note.— Guidance concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in the MOS Aeronautical Information Services (AIS).

~~15.5.2.9 Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.~~

~~15.5.2.10 Each NOTAM shall be transmitted as a single telecommunication message.~~

~~15.5.2.11 A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.~~

~~15.5.2.12 Location indicators included in the text of a NOTAM shall be those contained in Location Indicators (Doc 7910).~~

~~15.5.2.12.1 In no case shall a curtailed form of such indicators be used.~~

~~15.5.2.12.2 Where no ICAO location indicator is assigned to the location, its place name shall be entered in plain language.~~

~~15.5.2.13 A checklist of valid NOTAM shall be issued as a NOTAM over the Aeronautical Fixed Service (AFS) at intervals of not more than one month using the NOTAM Format specified in Appendix 15E. One NOTAM shall be issued for each series.~~

~~*Note.— Omitting a NOTAM from the checklist does not serve to cancel a NOTAM.*~~

~~15.5.2.13.1 A checklist of NOTAM shall refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed AIC.~~

~~15.5.2.13.2 A checklist of NOTAM shall have the same distribution as the actual message series to which they refer and shall be clearly identified as a checklist.~~

~~15.5.2.13.3 A monthly plain language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements shall be prepared with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.~~

15.5.3 Digital data sets

15.5.3.1 General

15.5.3.1.1 Digital data shall be in the form of the following data sets:

- a) AIP data set;**
- b) terrain data sets;**
- c) obstacle data sets;**
- d) aerodrome mapping data sets; and**
- e) instrument flight procedure data sets.**

Note.— Detailed specifications concerning the content of the digital data sets are contained in the PANS-AIM (Doc 10066).

15.5.3.1.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.

Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).

15.5.3.1.3 A checklist of valid data sets shall be regularly provided.

~~15.5.3.2 NOTAM preparation is in conformity with the relevant provisions of the ICAO communication procedures.~~

15.5.3.2 AIP data set

~~15.5.3.2.1 AFS is employed for NOTAM distribution.~~

15.5.3.2.1 An AIP data set shall be provided covering the extent of information as provided in the AIP.

~~15.5.3.2.2 Exchanged of NOTAM as specified in 15.5.3.4 is sent by means other than the AFS, and a six digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator is being used, preceding the text.~~

15.5.3.2.2 When it is not possible to provide a complete AIP data set, the data subset(s) that are available shall be provided.

15.5.3.2.3 The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

~~15.5.3.3 The originating State shall select the NOTAM that are to be given international distribution.~~

15.5.3.3 Terrain and obstacle data sets

Note 1.— Numerical requirements for terrain and obstacle data sets are contained in the PANS-AIM (Doc 10066), Appendices 1 and 8.

Note 2.— Requirements for terrain and obstacle data collection surfaces are contained in the PANS-AIM (Doc 10066), Appendix 8.

~~15.5.3.3.1 Selective distribution lists should be used when practicable.~~

~~*Note.— These lists are intended to obviate superfluous distribution of information. Guidance material relating to this is contained in the Aeronautical Information Services Manual (Doc 8126).*~~

~~15.10.1.1~~ 15.5.3.3.1 The coverage areas for sets of electronic terrain and obstacle data shall be specified as:

— Area 1: the entire territory of a State the Philippines;

— Area 2: within the vicinity of an aerodrome, subdivided as follows;

— Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

Note.— See MOS for Aerodromes Chapter 6 for dimensions for runway strip.

— Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;

— Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and

— Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;

— Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area.

— Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

Note.— See Appendix 15F for descriptions and graphical illustrations of the coverage areas.

~~15.10.1.2~~ 15.5.3.3.2 Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

15.5.3.3.3 Terrain data sets

~~15.10.2.1~~ 15.5.3.3.3.1 ~~A t~~Terrain data sets shall contain ~~digital sets of data representing the~~ digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. ~~A terrain grid shall be angular or linear and shall be of regular or irregular shape.~~

~~15.10.1.3~~ 15.5.3.3.3.2 ~~Electronic t~~Terrain data shall be provided for Area 1. ~~The obstacle data shall be provided for obstacles in Area 1 higher than 100 m above ground.~~

~~15.10.1.5~~ 15.5.3.3.3.3 ~~From 12 November 2015,~~ at For aerodromes regularly used by international civil aviation, ~~electronic~~ terrain data shall be provided for:

- a) Area 2a;
- b) the take-off flight path area; and
- c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

~~15.10.1.7~~ 15.5.3.3.3.4 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ additional terrain and ~~obstacle~~ data shall be provided within Area 2 as follows: for Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant terrain and obstacle data collection surface specified in Appendix 8, except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

- a) ~~Within in~~ the area covered by a ~~extending to~~ 10 km from the ARP, ~~terrain data shall comply with the Area 2 numerical requirements;~~ and
- b) ~~In~~ within the area between 10 km radius and the TMA boundary or 45-km radius (whichever is smaller) ~~data on~~ where terrain that penetrates the a horizontal plane ~~terrain data collection surface specified as 120 m above the lowest runway elevation shall comply with the Area 2 numerical requirements.~~

~~15.10.1.11~~ 15.5.3.3.3.5 Arrangements shall be made for the coordination of providing ~~Area 2 electronic terrain and obstacle~~ data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same ~~obstacle or~~ terrain is correct.

~~15.10.1.12~~ 15.5.3.3.3.6 ~~At~~ For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share ~~Area 2 electronic terrain and obstacle~~ data.

~~15.10.1.8~~ 15.5.3.3.3.7 ~~At~~ For aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for Area 3 ~~for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8, Figure A8-3.~~

~~15.10.1.9~~ 15.5.3.3.3.8 ~~At~~ For aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for Area 4 ~~for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8,~~ for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.

15.10.1.10 15.5.3.3.3.9 Where additional electronic obstacle or terrain data are is collected to meet other aeronautical requirements, the ~~obstacle and~~ terrain data sets shall be expanded to include these this additional data.

15.5.3.3.4 Obstacle data sets

~~15.10.3.1~~ 15.5.3.3.4.1 Obstacle data sets shall contain ~~comprise~~ the digital representation of the vertical and horizontal extent of the obstacles. ~~Obstacles shall not be included in terrain data sets. Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.~~

~~15.10.3.1~~ 15.5.3.3.4.2 ~~Obstacle data shall comprise the digital representation of the vertical and horizontal extent of the obstacle.~~ Obstacles data shall not be included in terrain data sets. Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.

~~15.10.1.3~~ 15.5.3.3.4.3 ~~Electronic terrain data shall be provided for Area 1.~~ The Obstacle data shall be provided for obstacles in Area 1 ~~higher than~~ whose height is 100 m or higher above ground.

~~15.10.1.4~~ 15.5.3.3.4.4 ~~From 12 November 2015,~~ at For aerodromes regularly used by international civil aviation, electronic obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

~~15.10.1.6~~ 15.5.3.3.4.5 ~~From 12 November 2015,~~ at For aerodromes regularly used by international civil aviation, obstacle data shall be provided for:

a) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;

b) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and

c) penetrations of the aerodrome obstacle limitation surfaces.

Note.- Take-off flight path areas are specified in CAR-ANS Part 4, Section 4.3.8.2. Aerodrome obstacle limitation surfaces are specified in MOS for Aerodromes, Chapter 7.

~~15.10.1.7~~ 15.5.3.3.4.6 At For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data shall be provided for Areas 2b, 2c and 2d for obstacles ~~and terrain~~ that penetrate the relevant ~~terrain and~~ obstacle data collection surface specified as follows: ~~in Appendix 8,~~

a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side. The Area 2b obstacle collection surface has a 1.2 per cent slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;

b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2 per cent slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall be the elevation of the point of Area 2a at which it commences; and

c) Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground;

except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

~~15.10.1.11~~ 15.5.3.3.4.7 Arrangements shall be made for the coordination of providing Area 2 ~~electronic terrain and~~ obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle ~~or terrain~~ are correct.

~~15.10.1.12~~ 15.5.3.3.4.8 At For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share Area 2 ~~electronic terrain and~~ obstacle data.

~~15.10.1.8~~ 15.5.3.3.4.9 At For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data shall be provided for Area 3 for ~~terrain and~~ obstacles that penetrate the relevant obstacle data collection surface ~~specified in Appendix 15G, Figure 15G-3.~~ extending a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.

~~15.10.1.9~~ 15.5.3.3.4.10 At For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data shall be provided for Area 4 for ~~terrain and~~ obstacles that ~~penetrate the relevant obstacle data collection surface specified in Appendix 8,~~ for all runways where precision approach Category II or III operations have been established ~~and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.~~

~~15.10.1.10~~ 15.5.3.3.4.11 Where additional ~~electronic~~ obstacle ~~or terrain~~ data are collected to meet other aeronautical requirements, the obstacle ~~and terrain~~ data sets shall be expanded to include these additional data.

~~15.5.3.4 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. The international exchange of ASHTAM (see 15.5.2.4), and NOTAM where States continue to use NOTAM for distribution of information~~

on volcanic activity, shall include volcanic ash advisory centers and the centers designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long-range operations.

Note.—~~Arrangements may be made for direct exchange of SNOTAM (see Appendix 2) between aerodromes/heliports.~~

15.5.3.4 Aerodrome mapping data sets

~~15.5.3.4.1 Exchanges of NOTAM between international NOTAM offices shall, as far as practicable, be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights.~~

~~15.11.3.2~~ 15.5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome mapping data consisting of aerodrome features.

Note 1.—*Aerodrome features consist of attributes and geometries, which are characterized as points, lines or polygons. Examples include runway thresholds, taxiway guidance lines and parking stand areas.*

Note 2.—~~Aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data are contained in RTCA Document DO-272C and EUROCAE Document ED-99C—User Requirements for Aerodrome Mapping Information. These constraints ensure the connectivity between features on a spatial and functional level in accordance with the connections observed in the real world.~~

Note 3.—~~An application schema applicable to aerodrome mapping data feature definitions may be found in RTCA Document DO-291B and EUROCAE Document ED-119B—Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data. This application schema contains a feature catalogue which specifies the feature types and associated attribute.~~

~~15.5.3.4.2 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Appendix 15D shall be used whenever possible, subject to the requirements of 15.5.3.4.~~

15.5.3.4.2 Aerodrome mapping data sets shall be made available for aerodromes regularly used by international civil aviation.

15.5.3.5 Instrument flight procedure data sets

15.5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

15.5.3.5.2 Instrument flight procedures data sets shall be made available for aerodromes regularly used by international civil aviation.

15.5.4 Distribution services

15.5.4.1 General

~~15.5.3.1~~ 15.5.4.1.1 NOTAM Aeronautical information products shall be distributed to authorized users ~~on the basis of a request~~ who request them.

15.4.5 Distribution

~~15.5.4.1.2~~ AIP, AIP Amendments, and AIP Supplements are distributed to all the operational field stations of CAAP and to the subscribers of AIP Amendment Service and AIC shall be made available by the most expeditious means.

15.5.4.1.3 Global communication networks such as the Internet shall, whenever practicable, be employed for the provision of aeronautical information products.

15.5.4.2 NOTAM distribution

~~15.5.3.1~~ 15.5.4.2.1 NOTAM shall be distributed on the basis of a request.

~~15.5.3.2~~ 15.5.4.2.2 NOTAM shall be ~~preparation~~ prepared is in conformity with the relevant provisions of the ICAO communication procedures.

~~5.3.2.1~~ 15.5.4.2.3 The Aeronautical Fixed Service (AFS) is shall, whenever practicable, be employed for NOTAM distribution.

~~15.5.3.2.2~~ 15.5.4.2.4 When a NOTAM ~~exchanged as specified in 15.5.3.4~~ is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator ~~is being~~ shall be used, preceding the text. The originating State shall select the NOTAM that are to be given international distribution.

~~15.5.3.4~~ 15.5.4.2.5 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. ~~The international exchange of ASHTAM (see 15.5.2.4), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centers and the centers designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long range operations and between the NOTAM offices and multinational NOTAM processing units.~~

15.5.4.2.6 The originating State shall upon request grant distribution of NOTAM series other than those distributed internationally.

~~15.5.3.3.1~~ 15.5.4.2.7 Selective distribution lists ~~should~~ shall be used when practicable.

Note. — These lists are intended to obviate superfluous distribution of information. Guidance material relating to this selective distribution lists is contained in the Aeronautical Information Services Manual (Doc 8126).

~~15.8.1~~ 15.5.5 Pre-Flight Information service

~~15.8.1.1~~ 15.5.5.1 At For any aerodrome/heliport normally used for international air operations, aeronautical information essential for the safety, regularity and efficiency of air navigation and relative to the route stages originating at the aerodrome/heliport shall be made

available to flight operations personnel, including flight crews and services responsible for pre-flight information.

~~15.8.1.2~~ 15.5.5.2 Aeronautical information provided for pre-flight planning purposes at the aerodromes referred to in 15.8.1.1 shall include relevant information of operational significance from the elements of the aeronautical information products.

a) ~~elements of the Integrated Aeronautical Information Package;~~

b) ~~maps and charts.~~

Note. 1.— The documentation listed in a) and b) elements of the aeronautical information products may be limited to national publications and when practicable, those of immediately adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available with between the aerodrome AIS unit and that library.

Note 2.— A recapitulation of valid NOTAM of operational significance and other information of urgent character may be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB). Guidance material on the preparation of PIB is contained in the Aeronautical Information Services Manual (Doc 8126).

~~15.8.3~~ 15.5.6 Post-flight information service

~~15.8.3.1~~ 15.5.6.1 For any aerodrome/heliport used for international air operations, Arrangements shall be made to receive at aerodromes/heliports information concerning the state and operation of air navigation facilities or services noted by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.

~~15.8.3.1~~ 15.5.6.2 Arrangements shall be made to receive at aerodromes/heliports information concerning the state and operation of air navigation facilities or services noted by aircrews and The arrangements specified in 15.5.6.1 shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.

~~15.8.3.2~~ 15.5.6.3 For any aerodrome/heliport used for international air operations, Arrangements shall be made to receive at aerodromes/heliports information concerning the presence of birds wildlife hazard observed by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.

~~15.8.3.2~~ 15.5.6.4 Arrangements shall be made to receive at aerodromes/heliports information concerning the presence of birds observed by aircrews and shall ensure that such information is The information about presence of wildlife hazard shall be made available to the aeronautical information service for such distribution as the circumstances necessitate.

Note.— See MOS for Aerodromes Chapter 10.14.

~~15.6. AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC)~~ ~~AERONAUTICAL INFORMATION UPDATES~~

15.6.1 General specifications

~~15.4.2.9~~ 15.6.1.1 AIP Aeronautical data and aeronautical information shall be amended or reissued at such regular intervals as may be necessary to keep them kept up to date.

15.6.2 Provision of information in paper copy form Aeronautical Information Regulation and Control (AIRAC)

~~15.6.1.1~~ 15.6.2.1 Information concerning the following circumstances listed in Appendix 15C Part 1, shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including ~~14 8 January November 2010~~8: The information notified therein shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

Note. — *Guidance material on the procedures applicable to the AIRAC system is contained in the MOS Aeronautical Information Services (AIS).*

~~1.~~ The establishment and withdrawal of, and premeditated significant changes (including operational trials) to:

~~1.1~~a) Limits (horizontal and vertical), regulations and procedures applicable to:

a)1) flight information regions;

b)2) control areas;

c)3) control zones;

d)4) advisory areas;

e)5) air traffic services (ATS) routes;

f)6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and air defence identification zones (ADIZ);

g)7) permanent areas or routes or portions thereof where the possibility of interception exists;

~~1.2~~b) Positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;

~~1.3~~c) Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;

~~1.4~~d) Transition levels, transition altitudes and minimum sector altitudes;

~~1.5~~e) Meteorological facilities (including broadcasts) and procedures;

~~1.6~~ f) Runways and stopways;

~~1.7~~g) Taxiways and aprons;

~~1.8~~h) Aerodrome ground operating procedures (including low visibility procedures);

~~1.9~~i) Approach and runway lighting; and

1.10j) Aerodrome operating minima if published by a State.

15.6.1.1 15.6.2.2 The information notified therein under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

15.6.2.1 15.6.2.3 Information provided under the AIRAC system in paper copy form shall be distributed made available by the AIS unit at least 42 days in advance of the effective date with the objective of reaching so as to reach recipients at least 28 days in advance of the effective date.

Note.— AIRAC information is distributed by the AIS unit 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.

15.6.1.3 15.6.2.4 When the AIS does information has not receive any information for publication on the next scheduled AIRAC effective date, a NIL Notification shall be originated and distributed by NOTAM at least one cycle (28 days or more) before the AIRAC effective date concerned. been submitted by the AIRAC date, a NIL notification shall be distributed not later than one cycle before the AIRAC effective date concerned.

15.6.1.4 15.6.2.5 Essentially, Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

15.6.1.2 15.6.2.6 Since many of the changes to facilities, services and procedures can be anticipated and become effective in accordance with a predetermined schedule of effective dates, ICAO recommends use of a regulated system (AIRAC) which could also be used for the establishment, withdrawal of, and premeditated significant changes in the circumstances listed in Appendix 15C, Part 2. The regulated system (AIRAC) shall be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below: The establishment and withdrawal of, and premeditated significant changes to:

a) position, height and lighting of navigational obstacles;

b) hours of service of aerodromes, facilities and services;

c) customs, immigration and health services;

d) temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft; and

e) temporary areas or routes or portions thereof where the possibility of interception exists.

15.6.2.2 15.6.2.7 Whenever major changes are planned and where advance notice is desirable and practicable, information provided in paper copy form shall be distributed made available by the AIS so as to reach recipients unit at least 56 days in advance of the effective date. This shall be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 15C, Part 3, below, and other major changes if deemed necessary.

~~3. The establishment of, and premeditated major changes to:~~

~~3.1 a) New aerodromes for international instrument flight rules (IFR) operations;~~

~~3.2 b) New runways for IFR operations at international aerodromes;~~

~~3.3 c) Design and structure of the air traffic services route network;~~

~~3.4 d) Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);~~

~~3.5 e) Circumstances listed in Part 1 15.6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.~~

Note.— Guidance material on what constitutes a major change is included in the Aeronautical Information Services Manual (Doc 8126).

15.6.3 Provision of information as electronic media Aeronautical Information Product updates

~~15.6.3.1 When Philippine AIS establishes an aeronautical data base in electronic form, the following shall be applicable:~~

~~a) when updating its contents concerning the circumstances listed in Appendix 15C, Part 1, ensure that the effective dates of data coincide with the established AIRAC effective dates.~~

15.6.3.1 AIP updates

~~15.4.2.9 15.6.3.1.1 AIP amendments are issued on a regular interval as may be necessary to keep them up to date. Recourse to hand amendments or annotations shall be kept to the minimum. The normal method of amendment shall be by means of replacement sheets. The aeronautical information publication (AIP) shall be amended or reissued at such regular intervals as may be necessary to keep it up to date.~~

~~15.4.3.1 15.6.3.1.2 Permanent changes to the AIP are shall be published as AIP Amendments.~~

~~...~~

~~15.6.3.2 Information provided as electronic media, concerning the circumstances listed in Appendix 15C, Part 1, shall be distributed/made available by the AIS unit so as to reach recipients at least 28 days in advance of the AIRAC effective date.~~

~~15.4.4.1 15.6.3.1.3 Temporary changes of long duration (3 months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.~~

Note.— Guidance material on the use of AIP Supplements together with examples of such use is contained in the MOS for Aeronautical Information Services.

15.6.3.2 NOTAM

~~15.6.3.2 Information provided as electronic media, concerning the circumstances listed in Appendix 15C, Part 1, shall be distributed/made available by the AIS unit so as to reach recipients at least 28 days in advance of the AIRAC effective date.~~

~~15.5.1.1.6~~ 15.6.3.2.1 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a Trigger NOTAM shall be originated giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement. This NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.

Note.— *Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements (“Trigger NOTAM”) is contained in the MOS for Aeronautical Information Services. Detailed specifications concerning the Trigger NOTAM are contained in the PANS-AIM (Doc 10066).*

~~15.5.1.1~~ 15.6.3.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.

Note 1.— *Operationally significant changes concerning circumstances listed in Appendix 15C, Part 1, are issued under the Aeronautical Information Regulation and Control (AIRAC) system specified section 15.6.*

Note 2.— *Information of short duration containing extensive text and/or graphics is published as an AIP Supplement (see 15.4, 4.4).*

~~15.5.1.1.1~~ 15.6.3.2.3 A NOTAM shall be originated and issued concerning the following information:

- a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;
- b) establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.);
- c) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
- d) unavailability of back-up and secondary systems, having a direct operational impact;
- e) establishment, withdrawal or significant changes made to visual aids;
- f) interruption of or return to operation of major components of aerodrome lighting systems;
- g) establishment, withdrawal or significant changes made to procedures for air navigation services;
- h) occurrence or correction of major defects or impediments in the manoeuvring area;

- hi) changes to and limitations on availability of fuel, oil and oxygen;
- ij) major changes to search and rescue facilities and services available;
- jk) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
- kl) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
- lm) presence of hazards which affect air navigation (including obstacles, military exercises, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events outside promulgated sites);
- n) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;
- mo) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
- np) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
- oq) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
- pr) allocation, cancellation or change of location indicators;
- qs) ~~significant changes in aerodrome/heliport rescue and fire fighting category provided changes in the level of protection normally available at an aerodrome/heliport for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see CAAP MOS-Aerodromes);~~
- rt) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
- su) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
- tv) ~~observations or forecasts of solar cosmic radiation, where provided~~ space weather phenomena, the date and time of their occurrence, the flight levels where provided, and portions of the airspace which may be affected by the phenomena;
- uw) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;
- vx) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;

wy) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and

xz) implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services.

Note.— See CAR-ANS 11, 11.2.31 and Attachment IIC.

~~15.5.1.1.3~~ 15.6.3.2.4 The following information shall not be notified by NOTAM:

a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;

b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;

c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;

d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;

e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;

f) the lack of apron marshalling services and road traffic control;

g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;

h) parachuting when in uncontrolled airspace under VFR (see ~~5.1.1.1.4~~ 15.6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;

i) training activities by ground units;

j) unavailability of back-up and secondary systems if these do not have an operational impact;

k) limitations to airport facilities or general services with no operational impact;

l) national regulations not affecting general aviation;

m) announcement or warnings about possible/potential limitations, without any operational impact;

n) general reminders on already published information;

o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;

p) information about laser emissions without any operational impact and fireworks below minimum flying heights;

q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;

r) closure, changes, unavailability in operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours;

is) other non-operational information of a similar temporary nature.

Note.— Information which relates to an aerodrome and its vicinity and does not affect its operational status may be distributed locally during pre-flight or in-flight briefing or other local contact with flight crew members.

15.6.3.3 Data set updates

15.6.3.3.1 Data sets shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.

15.6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a sub-set that includes only the differences from the previously issued complete data set.

15.6.3.3.3 When made available as a completely re-issued data set, the differences from the previously issued complete data set shall be indicated.

15.6.3.3.4 When temporary changes of short duration are made available as digital data (Digital NOTAM), they shall use the same aeronautical information model as the complete data set.

15.6.3.3.5 Updates to AIP and the digital data sets shall be synchronized.

15.8.1 Pre-flight information

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~~15.8.1.2.1 Additional current information relating to the aerodrome of departure shall be provided concerning the following:~~

~~a) construction or maintenance work on or immediately adjacent to the manoeuvring area;~~

~~b) rough portions of any part of the manoeuvring area, whether marked or not, e.g. broken parts of the surface of runways and taxiways;~~

~~e) presence and depth of snow, ice or water on runways and taxiways, including their effect on surface friction;~~

~~d) snow drifted or piled on or adjacent to runways or taxiways;~~

~~e) parked aircraft or other objects on or immediately adjacent to taxiways;~~

~~f) presence of other temporary hazards;~~

~~g) presence of birds constituting a potential hazard to aircraft operations;~~

~~h) failure or irregular operation of part or all of the aerodrome lighting system including approach, threshold, runway, taxiway, obstruction and manoeuvring area unserviceability lights and aerodrome power supply;~~

~~i) failure, irregular operation and changes in the operational status of SSR, ADS-B, ADS-C, CPDLC, D-ATIS, D-VOLMET, radio navigation services, VHF aeromobile channels, RVR observing system, and secondary power supply; and~~

j) presence and operation of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with any associated procedures and/or limitations applied thereof.

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15.9. TELECOMMUNICATION REQUIREMENTS

~~15.9.1 The Manila International NOTAM offices is connected to the aeronautical fixed service (AFS).~~

~~15.9.1.1 The connections shall provide for printed communications.~~

~~15.9.2 Manila International NOTAM office has been connected, through the AFS, to the following:~~

~~a) area control centers/flight information centers;~~

~~b) aerodromes where either an AIS unit has been established or another ATS unit has been designated to provide AIS service.~~

~~15.9.3 Subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements, the use of the public Internet should be permitted for exchange of non-time critical types of aeronautical information.~~

~~Note. — Guidance material on non-time critical types of aeronautical information and relevant aspects of the public Internet is provided in the Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).~~

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15.10.4 Terrain and obstacle data product specifications

~~15.10.4.1 To allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users, the ISO 19100 series of standards for geographic information shall be used as a general data modelling framework.~~

~~15.10.4.2 A comprehensive statement of available electronic terrain and obstacle data sets shall be provided in the form of terrain data product specifications as well as obstacle data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the requirements for their intended use (application).~~

~~Note. — ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information.~~

~~15.10.4.3 Each terrain data product specification shall include an overview, a specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information, and metadata.~~

~~15.10.4.4 The overview of terrain data product specifications or obstacle data product specifications shall provide an informal description of the product and shall contain general information about the data product. Specification of terrain data may not be homogenous across the whole data product but may vary for different parts of the data sets. For each such subset of data, a specification scope shall be identified. Identification information concerning both terrain and obstacle data products shall include the title of the product; a brief narrative summary of the content, purpose, and spatial resolution if appropriate (a general statement~~

about the density of spatial data); the geographic area covered by the data product; and supplemental information.

15.10.4.5 Content information of feature-based terrain data sets or of feature-based obstacle data sets shall each be described in terms of an application schema and a feature catalogue. Application schema shall provide a formal description of the data structure and content of data sets while the feature catalogue shall provide the semantics of all feature types together with their attributes and attribute value domains, association types between feature types and feature operations, inheritance relations and constraints. Coverage is considered a subtype of a feature and can be derived from a collection of features that have common attributes. Both terrain and obstacle data product specifications shall identify clearly the coverage and/or imagery they include and shall provide a narrative description of each of them.

Note 1.— *ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes feature cataloguing methodology for geographic information.*

Note 2.— *ISO Standard 19123 contains schema for coverage geometry and functions.*

15.10.4.6 Both terrain data product specifications and obstacle data product specifications shall include information that identifies the reference system used in the data product. This shall include the spatial reference system and temporal reference system. Additionally, both data product specifications shall identify the data quality requirements for each data product. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.

Note.— *ISO Standard 19113 contains quality principles for geographic information while ISO Standard 19114 covers quality evaluation procedures.*

15.10.4.7 Terrain data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of terrain data. The principles and criteria applied in the maintenance of terrain data sets and obstacle data sets shall also be provided with the data specifications, including the frequency with which data products are updated. Of particular importance shall be the maintenance information of obstacle data sets and an indication of the principles, methods and criteria applied for obstacle data maintenance.

15.10.4.8 Terrain data product specifications shall contain information on how data held with data sets are presented, i.e. as a graphic output, as a plot or as an image. The product specifications for both terrain and obstacles shall also contain data product delivery information which shall include delivery formats and delivery medium information.

Note.— *ISO Standard 19117 contains a definition of the schema describing the portrayal of geographic information including the methodology for describing symbols and mapping of the schema to an application schema.*

15.10.4.9 The core terrain and obstacle metadata elements shall be included in the data product specifications. Any additional metadata items required to be supplied shall be stated in each product specification together with the format and encoding of the metadata.

Note.— *ISO Standard 19115 specifies requirements for geographic information metadata.*

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~~APPENDIX 15A CONTENTS OF AERONAUTICAL INFORMATION PUBLICATION (AIP)~~

~~APPENDIX 15B ASHTAM FORMAT~~

~~APPENDIX 15C INFORMATION TO BE NOTIFIED BY AIRAC~~

~~APPENDIX 15D PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM~~

~~APPENDIX 15E NOTAM FORMAT~~

~~APPENDIX 15F AERONAUTICAL DATA PUBLICATION RESOLUTION AND INTEGRITY CLASSIFICATION~~

~~APPENDIX 15G TERRAIN AND OBSTACLE DATA REQUIREMENTS~~

Editorial Note: Appendices 15A to 15G are not included in the latest Amendment of CAR-ANS Part 15.

— END —

AMENDED REGULATION AFTER REVISION:

CAR-ANS PART 15:

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FOREWORD

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Historical background

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15.1 GENERAL

In compliance with the ICAO SARPS as contained in Annex 15, the object of the aeronautical information service (AIS) is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity, economy and efficiency in an environmentally sustainable manner. The role and importance of aeronautical data and aeronautical information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE). Corrupt, erroneous, late or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation.

This CAR-ANS Part 15 Governing Aeronautical Information Services is to be used in conjunction with the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).

This CAR-ANS Part 15 Governing Aeronautical Information Services is to be used in conjunction with the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).

Guidance material on the organization and operation of the AIS is contained in the Aeronautical Information Services Manual (Doc 8126).

15.1.1 Definitions

When the following terms are used in the CAR-ANS Part 15 Governing Aeronautical Information Services, they have the following meanings:

...

Aeronautical chart - A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

...

Aeronautical fixed service (AFS) - A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

...

Aeronautical information product - Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:

- Aeronautical Information Publication (AIP), including Amendments and Supplements;
- Aeronautical Information Circulars (AIC);
- aeronautical charts;
- NOTAM; and
- digital data sets.

Note.—*Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.*

...

AIP Supplement - Temporary changes to the information contained in the AIP which are provided by means of special pages.

...

Data accuracy – A degree of conformance between the estimated or measured value and the true value.

Data completeness – The degree of confidence that all of the data needed to support the intended use is provided.

Data format – A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

Data integrity (assurance level) – A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

...

Data quality - A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

Data resolution - A number of units or digits to which a measured or calculated value is expressed and used.

...

Data timeliness - The degree of confidence that the data is applicable to the period of its intended use.

Data traceability - The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

...

Navigation specification

...

Note 1 – The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.

Note 2 – The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this CAR-ANS as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

...

Next intended user. The entity that receives the aeronautical data or information from the aeronautical information service.

...

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 that have been assessed as being a hazard to air navigation.

...

Origination (aeronautical data or aeronautical information). The creation of the value associated with new data or information or the modification of the value of existing data or information.

Originator (aeronautical data or aeronautical information). An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and aeronautical information.

...

Terrain. The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.

...

Verification. Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).

Note.— The term “verified” is used to designate the corresponding status.

...

15.1.2 Common reference systems for air navigation

15.1.2.1 Horizontal reference system

15.1.2.1.1 The World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

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

15.1.2.1.2 In precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth’s crust shall be modelled and estimated. To reflect the temporal effect, an epoch shall be included with any set of absolute station coordinates.

Note 1.— The epoch of the WGS-84 (G873) reference frame is 1997.0 while the epoch of the latest updated WGS-84 (G1150) reference frame, which includes a plate motion model, is 2001.0. (G indicates that the coordinates were obtained through Global Positioning System (GPS) techniques, and the number following G indicates the GPS week when these coordinates were implemented in the United States’ National Geospatial- Intelligence Agency’s precise ephemeris estimation process.).

Note 2.— The set of geodetic coordinates of globally distributed permanent GPS tracking stations for the most recent realization of the WGS-84 reference frame (WGS-84 (G1150)) is provided in Doc 9674. For each permanent GPS tracking station, the accuracy of an individually estimated position in WGS-84 (G1150) has been in the order of 1 cm (1σ).

Note 3.— Another precise worldwide terrestrial coordinate system is the International Earth Rotation Service (IERS) Terrestrial Reference System (ITRS), and the realization of ITRS is the IERS Terrestrial Reference Frame (ITRF). Guidance material regarding the ITRS is provided in Appendix C of Doc 9674. The most current realization of the WGS-84 (G1150) is referenced to the ITRF 2000 epoch. The WGS-84 (G1150) is consistent with the ITRF 2000 and in practical realization the difference between these two systems is in the one to two centimeter range worldwide, meaning WGS-84 (G1150) and ITRF 2000 are essentially identical.

15.1.2.2 Vertical reference system

15.1.2.2.1 Mean sea level (MSL) datum shall be used as the vertical reference system for international air navigation.

Note 1.— 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.

Note 2.— Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.

15.1.2.2.2 The Earth Gravitational Model — (EGM-96) shall be used as the global gravity 1996 model for international air navigation.

15.1.2.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).

Note.— Specifications concerning determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports are given in the PANS-AIM (Doc 10066), Appendix 1.

15.1.2.3 Temporal reference system

15.1.2.3.1 Gregorian calendar and Coordinated Universal Time (UTC) are used as the temporal reference system for all AIS publications.

Note 1.— A value in the time domain is a temporal position measured relative to a temporal reference system.

Note 2.— Coordinated Universal Time (UTC) is a time scale maintained by the Bureau International de l'Heure (BIH) and the IERS and forms the basis of a coordinated dissemination of standard frequencies and time signals.

Note 3.— See CAR-ANS Part 5, for guidance material relating to UTC.

Note 4.— ISO Standard 8601 specifies the use of the Gregorian calendar and 24-hour local or UTC for information interchange while ISO Standard 19108 prescribes the Gregorian calendar and UTC as the primary temporal reference system for use with geographic information.

15.1.2.3.2 When a different temporal reference system is used for applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

Note — ISO Standard 191108, Annex D, describes some aspects of calendars that may have to be considered in such a description.

15.1.3 Miscellaneous specifications

15.1.3.1 Aeronautical information products intended for international distribution shall include English text for those parts expressed in plain language.

15.1.3.2 Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.

15.1.3.3 Units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information shall be consistent to the table contained in AIP Philippines GEN 2.1.

15.1.3.4 ICAO abbreviations shall be used in aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.

* ISO Standard

8601	— <i>Data elements and interchange formats — Information interchange — Representation of dates and times</i>
9000	— <i>Quality Management Systems — Fundamentals and Vocabulary</i>
19101	— <i>Geographic information — Reference model</i>
19104	— <i>Geographic information — Terminology</i>
19108	— <i>Geographic information — Temporal schema</i>
19109	— <i>Geographic information — Rules for application schema</i>
19110	— <i>Geographic information — Feature cataloguing schema</i>
19115	— <i>Geographic information — Metadata</i>
19117	— <i>Geographic information — Portrayal</i>
19131	— <i>Geographic information — Data product specification</i>

15.2 RESPONSIBILITIES AND FUNCTIONS

15.2.1 State responsibilities

15.2.1.1 The Civil Aviation Authority of the Philippines shall:

- a) provide an aeronautical information service (AIS); or
- b) agree with one or more other Contracting State(s) for the provision of a joint service; or
- c) delegate the authority for the provision of the service to a nongovernmental agency, provided the Standards and Recommended Practices of this CAR-ANS are adequately met.

15.2.1.2 The Civil Aviation Authority of the Philippines shall ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of air traffic services (ATS).

15.2.1.3 The Civil Aviation Authority of the Philippines shall remain responsible for the aeronautical data and aeronautical information provided in accordance with 15.2.1.2. Aeronautical data and aeronautical information provided for and on behalf of a State shall clearly indicate that they are provided under the authority of that State, irrespective of the format in which they are provided.

15.2.1.4 The Civil Aviation Authority of the Philippines shall ensure that the aeronautical data and aeronautical information provided are of required quality in accordance with 15.3.2.

15.2.1.5 The Civil Aviation Authority of the Philippines shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the AIS in relation to the timely and complete provision of aeronautical data and aeronautical information.

Note.— The scope of aeronautical data and aeronautical information that would be the subject of formal arrangements is specified in 15.4.

15.2.2 AIS responsibilities and functions

15.2.2.1 An AIS shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation are made available in a form suitable for the operational requirements of the air traffic management (ATM) community, including:

a) those involved in flight operations, including flight crews, flight planning and flight simulators; and

b) the ATS unit responsible for flight information service and the services responsible for pre-flight information.

Note.— A description of the ATM community is contained in the Global Air Traffic Management Operational Concept (Doc 9854).

15.2.2.2 An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of ATS. Aeronautical data and aeronautical information shall be provided as aeronautical information products.

Note.— An AIS may include origination functions.

15.2.2.3 An AIS shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:

a) from the AIS of other States; and

b) from other sources that may be available.

Note.— One such source is the subject of a provision in 15.5.6.

15.2.2.4 Aeronautical data and aeronautical information obtained under 15.2.2.3 a) shall when distributed, be clearly identified as having the authority of the originating State.

15.2.2.5 Aeronautical data and aeronautical information obtained under 15.2.2.3 b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

15.2.2.6 An AIS shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with 15.2.2.1.

15.2.3 Exchange of aeronautical data and aeronautical information

15.2.3.1 All elements of aeronautical information products provided by other States shall be addressed to AIS Operations office. Such an office shall be qualified to deal with requests for aeronautical data and aeronautical information provided by other States.

15.2.3.2 Formal arrangements shall be established between those parties providing aeronautical data and aeronautical information on behalf of the States and their users in relation to the provision of the service.

Note.— Guidance material on such formal arrangements is contained in the Aeronautical Information Services Manual (Doc 8126).

15.2.3.3 An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

15.2.3.4 Exchange of aeronautical data and aeronautical information has been established by connecting the NOF and AIS Operations (AIS-OPS) of CAAP Central Office with Manila Aeronautical Fixed Service (AFS) Station in order to facilitate the international exchange of aeronautical data and aeronautical information.

15.2.3.5 Except as provided in 15.2.3.7, one copy of each of the following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency:

- a) Aeronautical Information Publication (AIP), including Amendments and Supplements;
- b) Aeronautical Information Circulars (AIC);
- c) NOTAM; and
- d) Aeronautical Charts.

15.2.3.6 The exchange of more than one copy of the elements of aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, shall be subject to bilateral agreement between the participating Contracting States and entities.

15.2.3.7 When aeronautical data and aeronautical information are provided in the form of digital data sets to be used by the AIS, they shall be provided on the basis of agreement between the Contracting States concerned.

Note.— The intention is that States are able to access data for the purposes specified in 15.2.2.3.

15.2.3.8 The procurement of aeronautical data and aeronautical information, including the elements of aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than Contracting States and by other entities shall be subject to separate agreement between the participating States and entities.

15.2.3.9 Globally interoperable aeronautical data and aeronautical information exchange models shall be used for the provision of data sets.

Note 1.— Specifications concerning globally interoperable aeronautical data and aeronautical information exchange models are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).

Note 2.— Guidance material on globally interoperable aeronautical data and aeronautical information exchange models is contained in Doc 8126.

15.2.4 Copyright

Note.— In order to protect the investment in the products of a State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws.

15.2.4.1 Any aeronautical information product which has been granted copyright protection by the originating State and provided to another State in accordance with 15.2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.

15.2.4.2 When aeronautical data and aeronautical information are provided to a State in accordance with 15.2.3.7, the receiving State shall not provide the digital data sets of the providing State to any third party without the consent of the providing State.

15.2.5 Cost recovery

The overhead cost of collecting and compiling aeronautical data and aeronautical information shall be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082).

Note.— When costs of collection and compilation of aeronautical data and aeronautical information are recovered through airport and air navigation services charges, the charge to an individual customer for the supply of a particular aeronautical information product may be based on the costs of printing paper copies, production of electronic media and distribution.

15.3 AERONAUTICAL INFORMATION MANAGEMENT

15.3.1 Information management requirements

The information management resources and processes established by an aeronautical information service (AIS) shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the air traffic management (ATM) system.

15.3.2 Data quality specifications

15.3.2.1 Data accuracy

The order of accuracy for aeronautical data shall be in accordance with its intended use.

Note.— Specifications concerning the order of accuracy (including confidence level) for aeronautical data are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.

15.3.2.2 Data resolution

The order of resolution of aeronautical data shall be commensurate with the actual data accuracy.

Note 1.— Specifications concerning the resolution of aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

Note 2.— The resolution of the data contained in the database may be the same or finer than the publication resolution.

15.3.2.3 Data integrity

15.3.2.3.1 The integrity of aeronautical data shall be maintained throughout the data chain from origination to distribution to the next intended user.

Note.— Specifications concerning the integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

15.3.2.3.2 Based on the applicable integrity classification, procedures shall be put in place in order to:

- a) for routine data: avoid corruption throughout the processing of the data;
- b) for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
- c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

15.3.2.4 Data traceability

Traceability of aeronautical data shall be ensured and retained as long as the data is in use.

15.3.2.5 Data timeliness

Timeliness of aeronautical data shall be ensured by including limits on the effective period of the data elements.

Note 1.— These limits may be associated with individual data elements or data sets.

Note 2.— If the effective period is defined for a data set, it will account for the effective dates of all of the individual data elements.

15.3.2.6 Data completeness

Completeness of aeronautical data shall be ensured in order to support its intended use.

15.3.2.7 Data format

The format of delivered aeronautical data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

15.3.3 Aeronautical data and aeronautical information verification and validation

15.3.3.1 Material to be issued as part of an aeronautical information product shall be thoroughly checked before it is submitted to the AIS in order to ensure that all necessary information has been included and that it is correct in detail.

15.3.3.2 An AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements are met.

15.3.4 Data error detection

15.3.4.1 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

15.3.4.2 Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 15.3.2.3.

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

15.3.5 Use of automation

15.3.5.1 Automation shall be applied in order to ensure the quality, efficiency and cost-effectiveness of aeronautical information services.

Note.— Guidance material on the development of databases and the establishment of data exchange services is contained in Doc 8126.

15.3.5.2 Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.

Note.— Risks of altering the integrity of data and information may be introduced by automated processes in cases of unexpected systems behaviours.

15.3.5.3 In order to meet the data quality requirements, automation shall:

- a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and
- b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

15.3.6 Quality management system

15.3.6.1 Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in 15.2.2. The execution of such quality management systems shall be made demonstrable for each function stage.

Note.— Guidance material is contained in the Manual on the Quality Management System for Aeronautical Information Services (Doc 9839) (planned for development by November 2019).

15.3.6.2 Quality management shall be applicable to the whole aeronautical data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.

15.3.6.3 The quality management system established in accordance with 15.3.6.1 shall follow the ISO 9000 series of quality assurance standards and be certified by an accredited certification body.

15.3.6.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and abilities.

15.3.6.5 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.

15.3.6.6 The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements.

15.3.6.7 All necessary measures shall be taken to monitor compliance with the quality management system in place.

15.3.6.8 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.

15.3.7 Human factors considerations

15.3.7.1 The organization of an AIS as well as the design, contents, processing and distribution of aeronautical data and aeronautical information shall take into consideration human factors principles which facilitate their optimum utilization.

15.3.7.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

Note.— This may be accomplished through the design of systems, operating procedures or improvements in the operating environment.

15.4 SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

Note.— The scope of aeronautical data and aeronautical information provides the minimum requirement to support aeronautical information products and services, aeronautical navigation data bases, air navigation applications and air traffic management (ATM) systems.

15.4.1 Scope of aeronautical data and aeronautical information

15.4.1.1 The aeronautical data and aeronautical information to be received and managed by the aeronautical information service (AIS) shall include at least the following sub-domains:

- a) national regulations, rules and procedures;
- b) aerodromes and heliports;
- c) airspace;
- d) air traffic services (ATS) routes;
- e) instrument flight procedures;
- f) radio navigation aids/systems;
- g) obstacles;
- h) terrain; and
- i) geographic information.

Note 1.— Detailed specifications concerning the content of each sub-domain are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.

Note 2.— Aeronautical data and aeronautical information in each sub-domain may be originated by more than one organization or authority.

15.4.1.2 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

Note.— Specifications concerning the accuracy and integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

15.4.2 Metadata

15.4.2.1 Metadata shall be collected for aeronautical data processes and exchange points.

15.4.2.2 Metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.

Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).

15.5 AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

15.5.1 General

15.5.1.1 Aeronautical information shall be provided in the form of aeronautical information products and associated services.

Note.— Specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1.

15.5.1.2 When aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

15.5.2 Aeronautical information in a standardized presentation

15.5.2.1 Aeronautical information provided in a standardized presentation shall include the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

Note 1.— Detailed specifications about AIP, AIP Amendments, AIP Supplements, AIC and NOTAM are contained in the PANS-AIM (Doc 10066).

Note 2.— Cases where digital data sets may replace the corresponding elements of the standardized presentation are detailed in the PANS-AIM (Doc 10066).

15.5.2.1.1 The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.

15.5.2.1.2 The AIP, AIP Amendment, AIP Supplement and AIC when provided as an electronic document (eAIP) shall allow for both displaying on electronic devices and printing on paper.

15.5.2.2 Aeronautical Information Publication (AIP)

Note 1.— The AIP is intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation.

Note 2.— The AIP constitutes the basic information source for permanent information and long duration temporary changes.

15.5.2.2.1 AIP shall include:

- a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
- b) the general conditions under which the services or facilities are available for international use;
- c) a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;
- d) the choice made by a State in each significant case where an alternative course of action is provided for ICAO Standards, Recommended Practices and Procedures.

15.5.2.3 AIP Supplement

15.5.2.3.1 A checklist of valid AIP Supplements shall be regularly provided.

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIP Supplements are contained in the PANS-AIM (Doc 10066).

15.5.2.4 Aeronautical Information Circulars

15.5.2.4.1 An AIC shall be used to provide:

- a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
- b) information of a purely explanatory or advisory nature liable to affect flight safety; or
- c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

15.5.2.4.2 An AIC shall not be used for information that qualifies for inclusion in AIP and NOTAM.

15.5.2.4.3 The validity of AIC currently in force shall be reviewed at least once a year.

15.5.2.4.4 A checklist of currently valid AIC shall be regularly provided.

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIC are contained in the PANS-AIM (Doc 10066).

15.5.2.5 Aeronautical charts

Note.— CAR-ANS Part 4 —Governing Aeronautical Charts provides regulations including provision requirements for each chart type.

15.5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

- a) Aerodrome/Heliport Chart — ICAO;
- b) Aerodrome Ground Movement Chart — ICAO;
- c) Aerodrome Obstacle Chart — ICAO Type A;
- d) Aerodrome Obstacle Chart — ICAO Type B (when available);
- e) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);
- f) Aircraft Parking/Docking Chart — ICAO;
- g) Area Chart — ICAO;
- h) ATC Surveillance Minimum Altitude Chart — ICAO;
- i) Instrument Approach Chart — ICAO;
- j) Precision Approach Terrain Chart — ICAO;
- k) Standard Arrival Chart — Instrument (STAR) — ICAO;
- l) Standard Departure Chart — Instrument (SID) — ICAO; and
- m) Visual Approach Chart — ICAO.

Note.— A page pocket may be used in the AIP to include the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media.

15.5.2.5.2 The Enroute Chart — ICAO shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.

15.5.2.5.3 The aeronautical charts listed below shall, when available, be provided as aeronautical information products:

- a) World Aeronautical Chart — ICAO 1:1 000 000;
- b) Aeronautical Chart — ICAO 1:500 000;
- c) Aeronautical Navigation Chart — ICAO Small Scale;
- d) Plotting Chart — ICAO chart; and
- e) ATC Surveillance Minimum Altitude Chart — ICAO.

15.5.2.5.4 Electronic aeronautical charts shall be provided based on digital databases and the use of geographic information systems.

15.5.2.5.5 The chart resolution of aeronautical data shall be that as specified for a particular chart.

Note.— Specifications concerning the chart resolution for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

15.5.2.6 NOTAM

Note.— Detailed specifications for NOTAM, including formats for ASHTAM, are contained in the PANS-AIM (Doc 10066).

A checklist of valid NOTAM shall be regularly provided.

Note.— Detailed specifications concerning the frequency for providing checklists of valid NOTAM are contained in the PANS-AIM (Doc 10066).

15.5.3 Digital data sets

15.5.3.1 General

15.5.3.1.1 Digital data shall be in the form of the following data sets:

- a) AIP data set;
- b) terrain data sets;
- c) obstacle data sets;
- d) aerodrome mapping data sets; and
- e) instrument flight procedure data sets.

Note.— Detailed specifications concerning the content of the digital data sets are contained in the PANS-AIM (Doc 10066).

15.5.3.1.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.

Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).

15.5.3.1.3 A checklist of valid data sets shall be regularly provided.

15.5.3.2 AIP data set

15.5.3.2.1 An AIP data set shall be provided covering the extent of information as provided in the AIP.

15.5.3.2.2 When it is not possible to provide a complete AIP data set, the data subset(s) that are available shall be provided.

15.5.3.2.3 The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

15.5.3.3 Terrain and obstacle data sets

Note 1.— Numerical requirements for terrain and obstacle data sets are contained in the PANS AIM (Doc 10066), Appendices 1 and 8.

Note 2.— Requirements for terrain and obstacle data collection surfaces are contained in the PANS-AIM (Doc 10066), Appendix 8.

15.5.3.3.1 The coverage areas for terrain and obstacle data sets shall be specified as:

— Area 1: the entire territory of the Philippines;

— Area 2: within the vicinity of an aerodrome, subdivided as follows:

— Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists;

Note.— See MOS for Aerodromes Chapter 6 for dimensions for runway strips.

— Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;

— Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and

— Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;

— Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area; and

— Area 4: the area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

15.5.3.3.2 Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

15.5.3.3.3 Terrain data sets

15.5.3.3.3.1 Terrain data sets shall contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.

15.5.3.3.3.2 Terrain data shall be provided for Area 1.

15.5.3.3.3.3 For aerodromes regularly used by international civil aviation, terrain data shall be provided for:

- a) Area 2a;
- b) the take-off flight path area; and
- c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

15.5.3.3.3.4 For aerodromes regularly used by international civil aviation, additional terrain data shall be provided within Area 2 as follows:

- a) in the area extending to a 10-km radius from the ARP; and
- b) within the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.

15.5.3.3.3.5 Arrangements shall be made for coordinating the provision of terrain data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same terrain is correct.

15.5.3.3.3.6 For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share terrain data.

15.5.3.3.3.7 For aerodromes regularly used by international civil aviation, terrain data shall be provided for Area 3.

15.5.3.3.3.8 For aerodromes regularly used by international civil aviation, terrain data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.

15.5.3.3.3.9 Where additional terrain data is collected to meet other aeronautical requirements, the terrain data sets shall be expanded to include this additional data.

15.5.3.3.4 Obstacle data sets

15.5.3.3.4.1 Obstacle data sets shall contain the digital representation of the vertical and horizontal extent of obstacles.

15.5.3.3.4.2 Obstacle data shall not be included in terrain data sets.

15.5.3.3.4.3 Obstacle data shall be provided for obstacles in Area 1 whose height is 100 m or higher above ground.

15.5.3.3.4.4 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

15.5.3.3.4.5 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for:

- a) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have a height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;
- b) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and
- c) penetrations of the aerodrome obstacle limitation surfaces.

Note.- Take-off flight path areas are specified in CAR-ANS Part 4, Section 4.3.8.2. Aerodrome obstacle limitation surfaces are specified in MOS for Aerodromes, Chapter 7.

15.5.3.3.4.6 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Areas 2b, 2c and 2d for obstacles that penetrate the relevant obstacle data collection surface specified as follows:

- a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side. The Area 2b obstacle collection surface has a 1.2 per cent slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;
- b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2 per cent slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c has the elevation of the point of Area 2a at which it commences; and
- c) Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground;

except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

15.5.3.3.4.7 Arrangements shall be made for coordinating the provision of obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle is correct.

15.5.3.3.4.8 For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share obstacle data.

15.5.3.3.4.9 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Area 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.

15.5.3.3.4.10 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established.

15.5.3.3.4.11 Where additional obstacle data is collected to meet other aeronautical requirements, the obstacle data sets shall be expanded to include this additional data.

15.5.3.4 Aerodrome mapping data sets

15.5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome features.

Note.— Aerodrome features consist of attributes and geometries, which are characterized as points, lines or polygons. Examples include runway thresholds, taxiway guidance lines and parking stand areas.

15.5.3.4.2 Aerodrome mapping data sets shall be made available for aerodromes regularly used by international civil aviation.

15.5.3.5 Instrument flight procedure data sets

15.5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

15.5.3.5.2 Instrument flight procedure data sets shall be made available for aerodromes regularly used by international civil aviation.

15.5.4 Distribution services

15.5.4.1 General

15.5.4.1.1 Aeronautical information products shall be distributed to authorized users who request them.

15.5.4.1.2 AIP, AIP Amendments, AIP Supplements and AIC shall be made available by the most expeditious means.

15.5.4.1.3 Global communication networks such as the Internet shall, whenever practicable, be employed for the provision of aeronautical information products.

15.5.4.2 NOTAM distribution

15.5.4.2.1 NOTAM shall be distributed on the basis of a request.

15.5.4.2.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.

15.5.4.2.3 The aeronautical fixed service (AFS) shall, whenever practicable, be employed for NOTAM distribution.

15.5.4.2.4 When a NOTAM is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text. The originating State shall select the NOTAM that are to be given international distribution.

15.5.4.2.5 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned, and between the NOTAM offices and multinational NOTAM processing units.

15.5.4.2.6 The originating State shall, upon request, grant distribution of NOTAM series other than those distributed internationally.

15.5.4.2.7 Selective distribution lists shall be used when practicable.

Note.— Guidance material relating to selective distribution lists is contained in the Aeronautical Information Services Manual (Doc 8126).

15.5.5 Pre-flight information service

15.5.5.1 For any aerodrome/heliport used for international air operations, aeronautical information relative to the route stages originating at the aerodrome/heliport shall be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.

15.5.5.2 Aeronautical information provided for pre-flight planning purposes shall include information of operational significance from the elements of aeronautical information products.

Note 1.— The elements of aeronautical information products may be limited to national publications and when practicable, those of adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available with that library.

Note 2.— A recapitulation of valid NOTAM of operational significance and other information of urgent character may be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB). Guidance material on the preparation of PIB is contained in Doc 8126.

15.5.6 Post-flight information service

15.5.6.1 For any aerodrome/heliport used for international air operations, arrangements shall be made to receive information concerning the state and operation of air navigation facilities or services noted by flight crews.

15.5.6.2 The arrangements specified in 15.5.6.1 shall ensure that such information is made available to the aeronautical information service (AIS) for distribution as the circumstances necessitate.

15.5.6.3 For any aerodrome/heliport used for international air operations, arrangements shall be made to receive information concerning the presence of wildlife hazards observed by flight crews.

15.5.6.4 The information about presence of wildlife hazards shall be made available to the aeronautical information service for distribution as the circumstances necessitate.

Note.— See MOS for Aerodromes Chapter 10.14.

15.6 AERONAUTICAL INFORMATION UPDATES

15.6.1 General specifications

15.6.1.1 Aeronautical data and aeronautical information shall be kept up to date.

15.6.2 Aeronautical information regulation and control (AIRAC)

15.6.2.1 Information concerning the following circumstances shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including 8 November 2018:

a) limits (horizontal and vertical), regulations and procedures applicable to:

- 1) flight information regions;
- 2) control areas;
- 3) control zones;
- 4) advisory areas;
- 5) air traffic services (ATS) routes;
- 6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and air defence identification zones (ADIZ);
- 7) permanent areas or routes or portions thereof where the possibility of interception exists;

b) positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;

c) holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;

d) transition levels, transition altitudes and minimum sector altitudes;

e) meteorological facilities (including broadcasts) and procedures;

f) runways and stopways;

g) taxiways and aprons;

h) aerodrome ground operating procedures (including low visibility procedures);

i) approach and runway lighting; and

j) aerodrome operating minima if published by a State.

15.6.2.2 The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

15.6.2.3 Information provided under the AIRAC system shall be made available by the aeronautical information service (AIS) so as to reach recipients at least 28 days in advance of the effective date.

Note.— AIRAC information is distributed by the AIS unit 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.

15.6.2.4 When information has not been submitted by the AIRAC date, a NIL notification shall be distributed not later than one cycle before the AIRAC effective date concerned.

15.6.2.5 Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

15.6.2.6 The regulated system (AIRAC) shall be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below:

- a) position, height and lighting of navigational obstacles;
- b) hours of service of aerodromes, facilities and services;
- c) customs, immigration and health services;
- d) temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft; and
- e) temporary areas or routes or portions thereof where the possibility of interception exists.

15.6.2.7 Whenever major changes are planned and where advance notice is desirable and practicable, information shall be made available by the AIS so as to reach recipients at least 56 days in advance of the effective date. This shall be applied to the establishment of, and premeditated major changes in, the circumstances listed below, and other major changes if deemed necessary:

- a) new aerodromes for international instrument flight rules (IFR) operations;
- b) new runways for IFR operations at international aerodromes;
- c) design and structure of the ATS route network;
- d) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);
- e) circumstances listed in 15.6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

Note.— Guidance material on what constitutes a major change is included in the Aeronautical Information Services Manual (Doc 8126).

15.6.3 Aeronautical information product updates

15.6.3.1 AIP updates

15.6.3.1.1 The aeronautical information publication (AIP) shall be amended or reissued at such regular intervals as may be necessary to keep it up to date.

15.6.3.1.2 Permanent changes to the AIP shall be published as AIP Amendments.

15.6.3.1.3 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.

15.6.3.2 NOTAM

15.6.3.2.1 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a Trigger NOTAM shall be originated.

Note.— Detailed specifications concerning the Trigger NOTAM are contained in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).

15.6.3.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration, or when operationally significant permanent changes or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.

15.6.3.2.3 A NOTAM shall be originated and issued concerning the following information:

- a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;
- b) establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.);
- c) establishment, withdrawal or significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
- d) unavailability of back-up and secondary systems, having a direct operational impact;
- e) establishment, withdrawal or significant changes to visual aids;
- f) interruption of or return to operation of major components of aerodrome lighting systems;
- g) establishment, withdrawal or significant changes to procedures for air navigation services;
- h) occurrence or correction of major defects or impediments in the manoeuvring area;
- i) changes to and limitations on availability of fuel, oil and oxygen;
- j) major changes to search and rescue facilities and services available;

- k) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
- l) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
- m) presence of hazards which affect air navigation (including obstacles, military exercises, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events outside promulgated sites);
- n) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;
- o) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
- p) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
- q) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
- r) allocation, cancellation or change of location indicators;
- s) changes in aerodrome/heliport rescue and firefighting category provided (see CAAP MOS-Aerodromes);
- t) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
- u) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
- v) observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;
- w) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;
- x) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
- y) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
- z) implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services.

Note.— See CAR-ANS 11, 11.2.31 and Attachment IIC.

15.6.3.2.4 The following information shall not be notified by NOTAM:

- a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;
- b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;
- c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;
- d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;
- e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;
- f) the lack of apron marshalling services and road traffic control;
- g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;
- h) parachuting when in uncontrolled airspace under VFR (see 15.6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;
- i) training activities by ground units;
- j) unavailability of back-up and secondary systems if these do not have an operational impact;
- k) limitations to airport facilities or general services with no operational impact;
- l) national regulations not affecting general aviation;
- m) announcement or warnings about possible/potential limitations, without any operational impact;
- n) general reminders on already published information;
- o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;
- p) information about laser emissions without any operational impact and fireworks below minimum flying heights;
- q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
- r) closure or unavailability of, or changes in, operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours; and
- s) other non-operational information of a similar temporary nature.

Note.— Information which relates to an aerodrome and its vicinity and does not affect its operational status may be distributed locally during pre-flight or in-flight briefing or other local contact with flight crews.

15.6.3.3 Data set updates

15.6.3.3.1 Data sets shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.

15.6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a subset that includes only the differences from the previously issued complete data set.

15.6.3.3.3 When made available as a completely reissued data set, the differences from the previously issued complete data set shall be indicated.

15.6.3.3.4 When temporary changes of short duration are made available as digital data (digital NOTAM), they shall use the same aeronautical information model as the complete data set.

15.6.3.3.5 Updates to AIP and digital data sets shall be synchronized.

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- i. **Separability Clause.** - If, for any reason, any provision of this Memorandum Circular is declared invalid or unconstitutional, the other part or parts thereof which are not affected thereby shall continue to be in full force and effect.
 - ii. **Repealing Clause.** - All orders, rules, regulations and issuances, or parts thereof which are inconsistent with this Memorandum Circular are hereby repealed, superseded or modified accordingly.
 - iii. **Determination of changes.** – To highlight the amendments and/or revisions in the Memorandum Circular, the deleted text shall be shown with strikethrough and the new inserted text shall be highlighted with grey shading, as illustrated below:
 1. Text deleted: ~~Text to be deleted is shown with a line through it.~~
 2. New text inserted: **New text is highlighted with grey shading.**
 3. New text replacing existing text: ~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.
 - iv. **Effectivity Clause.** - This Memorandum Circular shall take effect 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.

So Ordered. Signed this 16th day of May 2019, at the Civil Aviation Authority of the Philippines, MIA Road, Pasay City, Metro Manila, 1301.


CAPTAIN JIM C. SYDIONGCO