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Manual of Standards for Aeronautical Information Services

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MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES AMENDMENT RECORD

AMENDMENT RECORD

Amendment Number	Details	Entered by	Date
	This 2 nd Edition to MOS-AIS revises Version 1.0 of the manual to adopt the procedures contained in PANS-AIM (ICAO Doc 10066) and incorporate amendments 1 and 2 to Doc 10066. Additional information was added pertaining to the Aeronautcal Data Catalogue and material based on the Manual on the Quality Management System for Aeronautical Information Services (ICAO Doc. 9839) to cover the subject on Quality Management System. All explanatory materilal found in the initial issue of MOS-AIS has been developed into an Advisory Circular for AIS.	DG Jim C. Sydiongco	August 2020

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MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES TABLE OF CONTENTS

TABLE OF CONTENTS

		Page
FOREWOR	D	vii
INTRODUC		ix
Chapter 4	Definitione	1 1
Chapter 1.	Demnitions	1-1
Chapter 2. Aeronautical information management		
.		2-1
2.1 2.2	Data integrity monitoring and assurance	2-3
Chapter 3. Quality Management		
31	Quality management system	3-1
3.2	Quality planning	3-1
3.3	Quality control	3-2
3.4	Quality assurance	3-2
3.5	Quality improvement	3-2
3.6	Quality management priinciples	3-3
3.7	The process model	3-4
3.8	Management responsibility	3-6
3.9	Resource management	3-8
3.10	Measurement, analysis and improvement	3-11
3.11	QMS documentation	3-17
Chapter 4. Aeronautical data requirements		
4 1	Data origination requirements	4-1
4.2	Metadata requirements	4-1
Chapter 5.	Aeronautical information products and services	5-1
5.1	General	5-1
5.2	Aeronautical information in a standardized presentation	5-1
5.3	Digital data	5-11
5.4	Distribution services	5-16
5.5	Pre-flight information services	5-17
Chapter 6. Aeronautical information updates		
6.1	Aeronautical information product updates	6-1

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES TABLE OF CONTENTS

Appemdix 1. Aeronautical Data Catalogue	A1-1
Appemdix 2. Contents of the Aeronautical Information Publication (AIP)	A2-1
Appemdix 3. NOTAM Format	A3-1
Appemdix 4. SNOWTAM Format	A4-1
Appemdix 5. ASHTAM Format	A5-1
Appemdix 6. Terrain and obstacle attributes provision requirements	A6-1
Appemdix 7. Predetermined distribution system for NOTAM	A7-1
Appemdix 8. Terrain and obstacle data requirements	A8-1

FOREWORD

The Civil Aviation Authority of the Philippines (CAAP), is responsible under Republic Act No. 9497 or known as the Civil Aviation Authority Act of 2008, to formulate and establish rules and regulations governing the civil aviation in the Philippines. The CAAP exercises regulatory oversight by developing and promulgating appropriate, clear and enforceable aviation safety standards.

This Manual of Standards for Aeronautical Information Services (MOS–AIS) is issued by CAAP specifying the standards, requirements and procedures pertaining to the provision of aeronautical information services by the relevant air navigation service provider within the Philippine Flight Information Region.

This Manual of Standards – Aeronautical Information Services (MOS-AIS) is made to complement the standards, requirements and procedures pertaining to the provision of aeronautical charts and aeronautical information services, which is based mainly on the rules and regulations stipulated in CAR-ANS Part 15, *Governing Aeronautical Information Services* and CAR-ANS Part 4, *Governing Aeronautical Charts*.

Amendment to this Manual of Standards – Aeronautical Information Services is the responsibility of the Head of the Aerodrome and Air Navigation Safety Oversight Office (AANSOO), CAAP. Readers should forward advice of errors, inconsistencies or suggestions for improvement to this Manual to the AANSOO Chief at the Civil Aviation Authority of the Philippines, Old MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines 1300.

DIONGCO Director General

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INTRODUCTION

1 Manual of Standards for Aeronautical Information Services (MOS-AIS)

- 1.1 The MOS-AIS is complementary to the rules and regulations contained in CAR-ANS Part 15, *Governing Aeronautical Information Services* and CAR-ANS Parts 4, *Governing Aeronautical Charts*. It is supplemented whenever necessary by regional procedures contained in the *Regional Supplementary Procedures* (Doc 7030). Compliance with the provisions contained in this manual shall apply to Air Navigation Service Provider (ANSP) providing Charting and Aeronautical Information Services.
- 1.2 This document is divided into the following sections:

Chapter 1 contains a list of terms and their technical meanings as used in this document.

- Chapter 2 describes the main aeronautical information management functions that include the collection, processing, quality control and distribution of aeronautical data and aeronautical information, as well as data integrity monitoring and assurance.
- Chapter 3 focuses on the quality management aspect of AIM. It explains the general requirements of the quality management system related to AIM processes.
- Chapter 4 outlines the data origination requirements and how data is to be collected and transmitted to the AIS in accordance with accuracy requirements and integrity classifications as specified in Appendix 1. The chapter also deals with the minimum metadata requirements.
- Chapter 5 outlines the specifications regarding the provision of aeronautical information products (in printed or electronic form) and services. This includes the Aeronautical Information Publication (AIP), AIP Amendments and Supplements and Aeronautical Information Circulars (AIC). The chapter also provides general specifications on NOTAM, number and series allocation, NOTAM checklist and distribution. In addition, the chapter includes specifications for pre-flight information services. General provisions for digital data are also explained, as well as specific details on the various data sets: AIP data sets; terrain and obstacle data sets; aerodrome mapping data sets; and instrument flight procedure data sets.
- Chapter 6 details how to update aeronautical information products and services.
- Appendix 1 presents the scope of data and information to be collected and maintained by an AIS. The Aeronautical Data Catalogue symbolizes the shift from product-centric to data-centric environments, is considered the point of reference for all provisions related to aeronautical data origination and publication, and represents the common language for data originators and the AIS. Data element properties, sub-properties and descriptions and quality requirements (accuracy, resolution, integrity) are contained in Appendix 1.
- Appendix 2 contains the contents of the Aeronautical Information Publication

- Appendices 3, 4, and 5 contains the format and instructions for completion of NOTAM, SNOWTAM and ASHTAM, respectively.
- Appendix 6 details the terrain and obstacle attributes provision requirements.

Appendix 7 details the predetermined distribution of NOTAM.

Appendix 8 details the terrain and obstcale data requirements.

- 1.3 The material in this manual are based on ICAO Doc. 10066, Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM) and in part on ICAO Doc. 8126, Aeronautical Information Services Manual and ICAO Doc. 9839, Manual on the Quality Management System for Aeronautical Information Services. Although the MOS-AIS is generally directed to providers of Aeronautical Information Services, data originators, commercial data houses of aeronautical data and aeronautical information and other users should be familiar with the procedures contained in this manual.
- 1.4 One of the objectives of Aeronautical Information Management is to ensure that the integrity of aeronautical data is maintained through the data process from survey/origination to distribution to the next intended user. The provisions and procedures in this manual do not relieve the end users of aeronautical data and aeronautical information of their responsibility to ensure accuracy and integrity of aeronautical data and information received.
- 1.5 This MOS-AIS specifies, in greater detail than the regulatory standards in CAR-ANS Part 15 and CAR-ANS Part 4, the actual procedures to be applied by AIM units in providing the various aeronautical information services to other aviation stakeholders.
- 1.6 This manual includes topics that are relevant to the provision of harmonized procedures in the AIS/AIM domain, provides a framework for the delivery of uniform aeronautical information services in future AIM environments and represents a vehicle for emerging technical requirements.
- 1.7 The following may also be issued as and when required to supplement the Manual of Standards:
 - a) Memorandum Circular (MC) this is a mandatory requirement to be complied by the ANSP. It is published for purposes of immediate promulgation of local standards and recommended practices in response to, but not limited to, amendments to ICAO Annexes and PANS-AIM. The MC is incorporated as an amendment to this manual after it is duly promulgated.
 - b) Advisory Circular (AC) this is developed for purposes of providing supplementary guidance material to the procedures in this manual. An AC is intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means, of complying with the procedures. It may provide interpretive and expalanatory information on how conformance to certain procedures may be achieved.
- 1.8 In this manual, where compliance with a requirement is recognized as necessary for the safety or regularity of air navigation, the term "shall" or "must" is applied. This indicates that the requirement is mandatory. Where

the service provider is unable to comply with a requirement in this manual, the service provider shall explain the basis for its non-compliance and propose alternative steps, including safety assessments undertaken to ensure that an equivalent level of safety is established and an indication of when compliance with the required procedures can be expected. The ATMSID will review the service provider's proposal and may impose conditions or restrictions prior to granting an approval. The alternative means of compliance shall be included in the AIS operations manual and must be updated by the time compliance to the required stadard is met.

1.9 Where a procedure is considered as desirable in the interest of safety, regularity, or efficiency of air navigation, the word "should" or 'may' is used. This indicates that the service provider may either follow the recommeded procedure or choose to adopt an alternate means that will deliver a similar outcome

2. Differences Published in AIP

A list of significant differences between the MOS-AIS and ICAO Doc. 10066, *Procedures for Air Navigation Services – Aeronautical Information Management* (PANS-AIM) shall be included and published in AIP Philippines.

3. Related regulations

This manual should be read in conjunction with the following regulations:

- a) CAR-ANS Part 15 Aeronautical Information Services
- b) CAR-ANS Part 4 Aeronautical Charts

4. Related documents

The users of MOS-AIS are invited to read the following documents for guidance and additional information:

- a) CAAP Advisory Circular on Aeronautical Information Services (AC ANS 15.1)
- b) ICAO Doc 7030 Regional Supplementary Procedures
- c) ICAO Doc 8126 Aeronautical Information Services Manual
- d) ICAO Doc 8697 Aeronautical Chart Manual
- e) ICAO Doc 9674 World Geodetic System 1984 (WGS-84) Manual
- f) ICAO Doc 9839 Manual on the Quality Management System for Aeronautical Information Services
- g) Aeronautical Information Publication (AIP) Philippines

5. Previous publications

This edition of MOS-AIS supersedes the following earlier version/edition of this manual:

a) Manual of Standards for Aeronautical Information Services (MOS-AIS), Version 1.0 July 2016

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CHAPTER 1 DEFINITIONS

When the following terms are used in this document, they have the following meanings:

Aerodrome. A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome mapping data (AMD). Data collected for the purpose of compiling aerodrome mapping information.

Note.— Aerodrome mapping data is collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.

Aerodrome mapping database (AMDB). A collection of aerodrome mapping data organized and arranged as a structured data set.

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

Aeronautical data. A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

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. Information resulting from the assembly, analysis and formatting of aeronautical data.

Aeronautical Information Circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical information management (AIM). The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

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 Publications (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.

2nd Edition

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical information service (AIS). A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

AIP Amendment. Permanent changes to the information contained in the AIP.

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

AIRAC. An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.

Air defence identification zone (ADIZ). Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services.

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) – safely, economically and efficiently – through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

Application. Manipulation and processing of data in support of user requirements (ISO 19104). All ISO Standards are listed at the end of this chapter.

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note.— Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

Area navigation route (Applicable as of 04 November 2021). An ATS route established for the use of aircraft capable of employing area navigation.

ASHTAM. A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

Assemble. A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.

Note.— The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.

ATS surveillance service. Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

2nd Edition

August 2020

Note.— A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

Automatic dependent surveillance — broadcast (ADS-B). A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Automatic dependent surveillance — contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note.— The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Automatic terminal information service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

Bare Earth. Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made objects.

Calendar. Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108). All ISO Standards are listed at the end of this chapter.

Canopy. Bare Earth supplemented by vegetation height.

Confidence level. The probability that the true value of a parameter is within a certain interval around the estimate of its value.

Note.— The interval is usually referred to as the accuracy of the estimate.

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

Conventional navigation route (Applicable as of 04 November 2021). An ATS route established by reference to ground navigation aids..

Culture. All man-made features constructed on the surface of the Earth, such as cities, railways and canals.

Cyclic redundancy check (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

2nd Edition

August 2020

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 product. Data set or data set series that conforms to a data product specification (ISO 19131). All ISO Standards are listed at the end of this chapter.

Data product specification. Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131). All ISO Standards are listed at the end of this chapter.

Note.— A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.

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.

Data set. Identifiable collection of data (ISO 19101). All ISO Standards are listed at the end of this chapter.

Data set series. Collection of data sets sharing the same product specification (ISO 19115). All ISO Standards are listed at the end of this chapter.

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.

Datum. Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104). All ISO Standards are listed at the end of this chapter.

Digital Elevation Model (DEM). The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.

Note.— Digital Terrain Model (DTM) is sometimes referred to as DEM.

Direct transit arrangements. Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

2nd Edition

August 2020

Ellipsoid height (geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Feature. Abstraction of real world phenomena (ISO 19101). All ISO Standards are listed at the end of this chapter.

Feature attribute. Characteristic of a feature (ISO 19101). All ISO Standards are listed at the end of this chapter.

Note.— A feature attribute has a name, a data type and a value domain associated with it.

Feature operation. Operation that every instance of a feature type may perform (ISO 19110*).

Note.— An operation upon the feature type dam is to raise the dam. The result of this operation is to raise the level of water in the reservoir.

Feature relationship. Relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101*). All ISO Standards are listed at the end of this chapter.

Feature type. Class of real world phenomena with common properties (ISO 19110). All ISO Standards are listed at the end of this chapter.

Note.— In a feature catalogue, the basic level of classification is the feature type.

Geodesic distance. The shortest distance between any two points on a mathematically defined ellipsoidal surface.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Note.— The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.

Note.— In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

Gregorian calendar. Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108). All ISO Standards are listed at the end of this chapter.

Note.— In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

Height. The vertical distance of a level, point or an object considered as a point, measured from a specific datum.

August 2020

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

- a) *routine data:* 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;
- b) essential data: 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) *critical data:* 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.

International airport. Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

International NOTAM office (NOF). An office designated by a State for the exchange of NOTAM internationally.

Logon address. A specified code used for data link logon to an ATS unit.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Metadata. Data about data (ISO 19115). All ISO Standards are listed at the end of this chapter.

Note.— A structured description of the content, quality, condition or other characteristics of data.

Minimum en-route altitude (MEA). The altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance.

Minimum obstacle clearance altitude (MOCA). The minimum altitude for a defined segment of flight that provides the required obstacle clearance.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron.

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

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

Note 2.— The concept of RNP has been overtaken by the concept of PBN. The term "RNP" 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.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

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

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

Obstacle/terrain data collection surface. A defined surface intended for the purpose of collecting obstacle/terrain data.

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 information.

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Pavement classification rating (PCR) (Applicable as of 28 November 2024). A number expressing the bearing strength of a pavement.

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

Note.— A required communication performance (RCP) specification includes communication performance requirements that are allocated to system components in terms of the

2nd Edition

August 2020

communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

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

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

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

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

Portrayal. Presentation of information to humans (ISO 19117). All ISO Standards are listed at the end of this chapter.

Position (geographical). Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth.

Post spacing. Angular or linear distance between two adjacent elevation points

Precision. The smallest difference that can be reliably distinguished by a measurement process.

Note.— In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when taking measurements

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Quality. Degree to which a set of inherent characteristics fulfils requirements (ISO 9000). All ISO Standards are listed at the end of this chapter.

Note 1.— The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2.— "Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic.

Quality assurance. Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000). All ISO Standards are listed at the end of this chapter.

Quality control. Part of quality management focused on fulfilling quality requirements (ISO 9000). All ISO Standards are listed at the end of this chapter.

Quality management. Coordinated activities to direct and control an organization with regard to quality (ISO 9000). All ISO Standards are listed at the end of this chapter.

Radio navigation service. A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

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

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

Requirement. Need or expectation that is stated, generally implied or obligatory (ISO 9000). All ISO Standards are listed at the end of this chapter

Note 1.— "Generally implied" means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

Note 2.— A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

Note 3.— A specified requirement is one which is stated, for example, in a document.

Note 4.— Requirements can be generated by different interested parties.

Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Route stage. A route or portion of a route flown without an intermediate landing.

SNOWTAM (Applicable as of 04 November 2021). 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.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

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.

Traceability. Ability to trace the history, application or location of that which is under consideration (ISO 9000). All ISO Standards are listed at the end of this chapter

Note.— When considering product, traceability can relate to:

- the origin of materials and parts;
- the processing history; and
- the distribution and location of the product after delivery.

Validation. Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000). All ISO Standards are listed at the end of this chapter.

Verification. Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000). All ISO Standards are listed at the end of this chapter.

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

VOLMET. Meteorological information for aircraft in flight.

Data link-VOLMET (D-VOLMET). Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

VOLMET broadcast. Provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

List of ISO Standards:

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

CHAPTER 2 AERONAUTICAL INFORMATION MANAGEMENT

2.1 INFORMATION MANAGEMENT REQUIREMENTS

Management of aeronautical data and aeronautical information shall include the following processes:

- a) collection;
- b) processing;
- c) quality control; and
- d) distribution.

2.1.1 Collection

- 2.1.1.1 The identification of data originators shall be documented based on the scope of aeronautical data and aeronautical information to be collected.
- 2.1.1.2 A record of data originators should be maintained.

Note.— Metadata requirements in Chapter 4 specify the information to be recorded for each originator.

- 2.1.1.3 Each data element to be collected should be mapped to an identified data originator, in accordance with the formal arrangements established between data originators and the aeronautical information service (AIS).
- 2.1.1.4 The list of aeronautical information subjects and their properties, as contained in Appendix 1, should be used to establish formal arrangements between the originators and the AIS.
- 2.1.1.5 Valid codes for the code lists of the aeronautical data properties and subproperties, as contained in Appendix 1, should be defined in the formal arrangements between the originators and the AIS.
- 2.1.1.6 Appendix 1 shall be considered as a reference for aeronautical data and aeronautical information origination and publication requirements.

Note 1.— Appendix 1 presents the scope of data and information that can be collected and maintained by the AIS.

Note 2.— Appendix 1 provides a common language that can be used by data originators and the AIS.

2.1.2 Processing

2.1.2.1 Collected data shall be verified and validated for compliance with data quality requirements.

Note 1.— Appendix 1 contains aeronautical data attributes and quality requirements (accuracy, resolution and integrity).

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).

Note 3.— Supporting data quality material in respect of data accuracy, publication resolution, and integrity of aeronautical data, together with

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 2 - AERONAUTICAL INFORMATION MANAGEMENT

guidance material in respect to the rounding convention for aeronautical data, is contained in Radio Technical Commission for Aeronautics (RTCA) Document DO-201A/European Organization for Civil Aviation Equipment (EUROCAE) Document ED-77 —Standards for Aeronautical Information (or equivalent).

Note 4.— Guidance material on the management of aeronautical data quality is included in the Manual on the Quality Management System for Aeronautical Information Management (*Doc* 9839).

Note 5.— Verification activities may include:

- a) comparison processes in which data and information are compared with an independent source;
- b) feedback processes in which data and information are compared between their input and output state;
- c) processing through multiple independent and different systems, comparing the output of each; this includes performing alternative calculations; and
- d) processes in which data and information are compared to the originator's request.

Note 6.— Validation activities may include:

- a) application processes in which data and information are tested;
- b) processes in which data and information are compared between two different outputs; and
- c) processes in which data and information are compared to an expected range, value or other business rules.
- 2.1.2.2 Automation systems implemented for processing aeronautical data and aeronautical information shall ensure traceability of the performed actions.

2.1.3 Quality control

Note — Error-producing faults in the entire process may be mitigated by additional data quality assurance techniques as may be required. These may 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.

- 2.1.3.1 Quality checks shall be implemented to ensure compliance with product specifications contained in Chapter 5.
- 2.1.3.2 When the same data is duplicated in different aeronautical information products, consistency checks shall be undertaken.

2.1.4 Distribution

(To be developed)

2.2 DATA INTEGRITY MONITORING AND ASSURANCE

- 2.2.1 Data integrity should be assured by employing cryptographic technologies (e.g. hash functions, message authentication codes, asymmetric and symmetric encryption, and digital certificates).
- 2.2.2 The technical means used for data error detection should be based on the use of systematic cycling codes.

Note.— The means to implement systematic cycling codes include the use of hash functions and cyclic redundancy check (CRC).

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 2 - AERONAUTICAL INFORMATION MANAGEMENT

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CHAPTER 3 QUALITY MANAGEMENT

3.1 QUALITY MANAGEMENT SYSTEM

Note.— This chapter provides general requirements on the quality management system (QMS) related to aeronautical information management (AIM) processes

- 3.1.1 The general requirements for a QMS shall be to:
 - a) develop a quality manual that includes the scope of a QMS as applied to AIM processes;
 - b) identify the processes needed for the QMS;
 - c) determine the sequence and interaction of these processes;
 - d) determine criteria and methods required to ensure the effective operation and control of these processes;
 - e) ensure the availability of information necessary to support the operation and monitoring of these processes;
 - f) measure, monitor and analyse these processes, and implement action necessary to achieve planned results and continual improvement; and
 - g) maintain appropriate records that are necessary to provide confidence of conformity of the processes and resulting product.
- 3.1.2 As defined in ISO 9000:2015, a QMS is part of a management system which is a set of interrelated or interacting elements of an organization to establish policies, objectives and processes to achieve those objectives with regard to quality. Activities generally include the following:
 - a) establishment of a quality policy and quality objectives;
 - b) quality planning;
 - c) quality control;
 - d) quality assurance; and
 - e) quality improvement.
- 3.1.3 The intent of the ISO 9000 QMS is to provide a management framework for the organization to comply with applicable requirements, control its processes and minimize their risk, and ultimately satisfy customer needs and expectations.

Note.— The term "customer" is frequently referred to in ISO 9000. The equivalent term used at ICAO is "user ".

3.2 QUALITY PLANNING

The primary intention of quality planning is to demonstrate how the QMS (Quality Management System) is applied to a specific case, for example, when an organization is conducting more complex processes or some processes that need additional information. It is also used to meet statutory, regulatory and customer requirements, to optimize use of resources in meeting quality objectives, to minimize the risk of nonconforming to the requirements and many other purposes. The beauty of quality planning is that it can contain a great amount of important information in simple and

systematic form and be more useful than conventional procedures.

3.3 QUALITY CONTROL

The quality control function of an organization first evolved when inspectors were hired to inspect products to differentiate between the good and the bad. The 100 per cent inspection later evolved into sampling inspection. Quality control is a part of quality management focused on fulfilling quality requirements. In other words, the operational techniques and activities, such as sampling inspection mentioned above, are used to fulfill the requirements for quality. The nature of this approach remains more or less detection and that is considered a reactive downstream approach, i.e correction only after problems occur.

3.4 QUALITY ASSURANCE

Quality assurance is also a part of quality management but it is focused on providing confidence that quality requirements will be fulfilled. In other words, it pertains to all those planned and systematic actions necessary to provide adequate confidence that a product will satisfy the requirements for quality. This is a fundamental shift in concept from the reactive downstream approach of quality control by means of detection, to a proactive upstream approach that controls and manages the upstream activities to prevent problems from arising.

3.5 QUALITY IMPROVEMENT

- 3.5.1 Quality improvement is another part of quality management that is focused on increasing the ability to fulfill quality requirements. It is not concerned with correcting errors but concerned with doing things better to improve system efficiency and effectiveness.
- 3.5.2 ISO offers the PDCA cycle as a useful tool for continual improvement. The methodology applies to both high-level strategic processes and to simple operational activities. Figure 3-1 illustrates the PDCA cycle.



Figure 3-1 The Plan-Do-Check-Act (PDCA) Cycle

QUALITY MANAGEMENT PRINCIPLES

3.6

The seven quality management principles on which the standards of the revised ISO 9000 series are based from the collective experience and knowledge of the international experts who participated in ISO Technical Committee. These principles reflect best practice and are designed to enable continual improvement of the system. They can be used by senior management of AIM authorities as a framework to guide their organizations towards improved performance. These principles are as follows:

- Customer focus. Organizations depend on their customers and 1) therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer requirements. authorities should document AIM customer requirements and monitor the quality of services as perceived by the customers. The means to achieve this may include the conduct of regular customer satisfaction surveys, liaison meetings with representatives of the customers and visits to the operation facilities of the customers. All customer feedback and complaints should be formally recorded and followed up without delay. Details of action taken and recommendations for improvement should be documented. It is also important to give a formal response to the customer before the feedback or complaint is considered "closed".
- 2) Leadership. Leaders establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which people can become fully involved in achieving the organization's objectives. The implementation of a QMS will hardly be successful if there is lack of commitment from top management. As such, it is critical that top management has a sound appreciation and understanding of all facets of quality management and, in particular, issues pertaining to quality assurance. This understanding and appreciation should be obtained through appropriate training and experience. It must also be remembered that leadership can be found at all levels within an organization and identifying this quality may be of great benefit in establishing a quality culture within a specific section of an organization or throughout the organization as a whole.
- 3) Engagement of people. People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit. Staff must be suitably qualified and competent in their jobs, as the quality of their work directly affects the quality of service. This can be achieved through the provision of appropriate training and evaluation. Quality awareness training should also be provided to all relevant staff to heighten responsibility, accountability and quality consciousness, that is, to assist in building a quality-focused culture. With the implementation of the QMS, staff needs to take on additional responsibilities such as the day-to-day consistency checks as part of the data for product quality assurance and control processes.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 3 - QUALITY MANAGEMENT

4) Process approach. A desired result is achieved more efficiently when activities and related resources are managed as a process. A process is a set of interrelated or interacting activities that transform inputs into outputs. A QMS can be thought of as a single large process that uses many inputs to generate many outputs. In turn, this large process is made up of many smaller processes. All activities and resources related to AIM, including operational and administrative, have to be managed as processes.

Identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives. AIM providers may already have documented many of the operational and administrative processes for service provision. These processes should be reviewed and any differences between the ISO requirements and existing processes identified. Quality system procedures should then be developed for these differences and applied so that the processes to achieve the best results can be aligned and integrated.

- 5) Improvement. Continual improvement of the organization's overall performance should be a permanent objective of the organization. Specifically, the effectiveness and suitability of the QMS have to be evaluated and areas for improvement identified and rectified. Management reviews have to be conducted regularly using the data collected from the monitoring and measurement process to identify areas for further improvement. Channels may need to be established to allow all staff in the organization to make suggestions on ways to improve the service.
- 6) Evidence based decision making. Effective decisions are based on the analysis of data and information. Among other things, an AIS automation system should be developed to ensure the accuracy of each of the information elements. Other performance statistics or indicators, such as timeliness and conformance to the specification, user satisfaction survey results and supplier performance records should also be collected in the data and analysis process.
- 7) Relationship management. An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value. Suppliers should be evaluated and selected on the basis of their ability to meet purchase order requirements and on their past performance.

3.7 THE PROCESS MODEL

- 3.7.1 Activities that receive inputs and convert them to outputs can be considered to be a process. In many cases, an output from one process will form the input to the next process; for example, data is received from an aerodrome operator, entered into the AIM database, and when combined with other data, is provided as an output for charting or a document.
- 3.7.2 To function effectively within a quality system, AIM must identify and manage numerous linked processes. Systematic identification and management of these many processes and the interactions between these

processes that are used within an AIM are often referred to as a "process approach".

- 3.7.3 A more sophisticated conceptual process model recognizes the role that the customer plays in the definition of requirements as inputs. By monitoring customer satisfaction, or in some cases dissatisfaction, we are able to monitor and evaluate whether or not defined customer requirements have been met.
- 3.7.4 Figure 3-2 demonstrates that the process approach model and the quality system starts and finishes with the customer. In the first instance there is the customer requirement on the left hand side of the diagram, on the right hand side there is the degree of customer satisfaction with the product or service that has been provided as a result of a number of inputs. Customer satisfaction is measurable against the initial requirements and specifications. Perhaps the most important feature of the model is the need to obtain information about customer satisfaction, this feeds back into the monitoring and evaluation phase, which are in turn is a measure of overall performance. The loop into management responsibility is there to show that management has an important role to review customer feedback to ensure that the appropriate policies, objectives and strategies are in place, along with the necessary resources, to meet the quality challenges.



Figure 3-2 Process approach model

3.7.5 Resources are a key component of the quality system. Resources are the equipment, materials and people that make the overall system work. Human resources need to be properly trained and competent to achieve the desired outcomes. A quality system will strive for excellence, always looking

for ways to do the work better through a program of continuous improvement. A quality system will continue to challenge the outputs against the customer requirements and specifications to ensure that customer's expectations are met and exceeded. This is why all of the elements in the continuous improvement program are so important.

3.8 MANAGEMENT RESPONSIBILITY

- 3.8.1 AIM Managers have a number of demonstrable responsibilities within the quality system. These responsibilities relate to:
 - a) quality policy;
 - b) commitment to quality;
 - c) customer focus;
 - d) planning;
 - e) management representation; and
 - f) management review.

Each of these responsibilities is addressed in further detail below.

3.8.2 A quality system is dependent on all those involved in its provision being quite clear about their responsibilities and authorities. The development and use of accurate position descriptions for all staff in AIM that address both the responsibilities and authorities of each position can accomplish this.

Quality Policy

- 3.8.3 A quality policy shall be established by the top management and shall be in writing and visible to all staff. The quality policy forms an important element for the work of the AIM, and establishes:
 - a) a commitment to quality;
 - b) what the quality objectives or the organization are; and
 - c) how the objectives relate to customers expectations.

3.8.4 The quality policy must address these issues and ensure that it:

- a) is appropriate for the needs of the organization;
- b) includes commitment to meeting requirements and continual improvement;
- c) provides a framework for establishing and reviewing quality objectives;
- d) is communicated, understood and implemented throughout the organization; and
- e) is reviewed for continuing suitability.
- 3.8.5 A quality policy includes AIM's definition of quality and how management and staff will demonstrate their commitment to the policy, and provides an identifiable focus for all staff in their daily activities.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 3 - QUALITY MANAGEMENT

- 3.8.6 One of the best techniques to develop a quality policy is a facilitated meeting of all staff at which individual definitions of "quality" can be consolidated to provide a definition and statement that encapsulates all staff's beliefs and understandings.
- 3.8.7 Quality objectives are tangible goals that shall be established and reviewed by the top management with respect to the quality policy. Quality objectives shall have measurable outcomes on which basis improvements in the QMS are planned. Quality objectives shall be reviewed quarterly for applicability. One of the fundamental goals of a QMS is to introduce quality checks at the outset, into each and every process, rather than do so after the failure of a process is manifested. Another is to provide products and services that satisfy the users' needs and expectations.
- 3.8.8 Once the AIM quality policy and objectives have been defined, they shall be communicated to all staff. At the same time, the importance of implementing a QMS shall be fully explained.

Commitment To Quality

- 3.8.9 AIS top management shall take an active responsibility in the establishment and maintenance of a quality system. This role includes:
 - a) definition and implementation of quality policy;
 - b) communicating the quality policy within the organization, including the importance of meeting customer, regulatory and legal requirements;
 - c) setting objectives, strategies and targets derived from the policy;
 - d) position descriptions that describe the role, responsibilities and authorities for all staff;
 - e) ensuring that resources are adequate;
 - f) appointment and support of a management representative; and
 - g) regular reviews of the effectiveness of the system.

Customer Focus

3.8.10 Meeting customer and regulatory requirements is AIM's primary business. To ensure that these requirements are met, and that customer confidence is maintained, AIM must have a clear understanding and defined specifications in the form of user requirements. Measurement and analysis of outcomes will be difficult, if not impossible without this specification.

Planning

3.8.11 The step that follows the publication of the quality policy is the setting of objectives, strategies and targets that will show how the organization expects to implement the quality policy. Targets need to be realistic, relate to the customer's statement of requirements and measurable. The plan must include details of the continual improvement programme.

3.9 RESOURCE MANAGEMENT

Provision of Resources

- 3.9.1 Organizations are required under the International Standards to determine and provide in a timely manner, the resources needed to:
 - a) implement and improve the processes of the QMS; and
 - b) address customer satisfaction.

In this context, the term "resource" applies to personnel, materials, facilities and equipment.

- 3.9.2 AIS shall ensure that the raw materials brought into AIS are satisfactory. AIS purchasing processes are controlled and documented to ensure that the purchased product conforms to requirements. The type and extent of control shall be dependent upon the effect on subsequent realization processes and their output.
- 3.9.3 AIS shall evaluate and select suppliers based on their ability to supply products in accordance with AIM's requirements. Criteria for selection and periodic evaluation shall be defined and recorded.

Human Resources

- 3.9.4 Staff who is assigned responsibilities defined in the QMS must be competent on the basis of applicable education, training, skills and experience.
- 3.9.5 People assigned to carry out quality activities are required to be competent to do them, otherwise a quality product or service is less likely to result. The standards require competence to be based on appropriate or applicable education and training and also on skill and experience that the people possess. There is however, no requirement to have all four, only those applicable to the particular task.
- 3.9.6 Appropriately qualified and experienced staff in sufficient numbers is prerequisites for an AIM organization to provide safe and timely aeronautical information.
- 3.9.7 The most obvious users of aeronautical information are pilots. Other users of the information represent those engaged in airline operational control and those involved in the provision of ATS. The AIM must be technically oriented in the nature of the services being provided. Given the relevance of aeronautical information to global air traffic, it is important to promote the correct level of technical proficiency within the AIM and that the AIM has an appropriate status in the parent civil or military organization.
- 3.9.8 This part of the quality system requires AIM to have procedures in place for assessing the competence of personnel required by the organization to check, edit and publish aeronautical information. These procedures should include the levels of training, qualification and experience necessary to achieve expeditious publication of information.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 3 - QUALITY MANAGEMENT

- 3.9.9 Equally, staff responsible for the collection, collation, checking, coordination and edition information published in the AIS products must have a thorough understanding of the content, standards, format and other user requirements related to the material being published.
- 3.9.10 Ideally, staff responsible for checking, coordinating and editing aeronautical information should have an extensive background as a pilot or within ATS, or have received specialist training in AIM.

Training, Awareness and Competency

- 3.9.11 This part of the standard requires an organization to:
 - a) determine competency needs for personnel performing activities affecting conformity to product requirements ;
 - b) where applicable provide training to achieve the necessary competence;
 - c) evaluate the effectiveness of the training provided;
 - ensure that its employees are aware of the relevance and importance of their activities and how they contribute to the achievement of quality objectives; and
 - e) maintain appropriate records of education, experience, training and qualifications.

Checking Competence and Training

- 3.9.12 AIM needs to regularly review the competence, experience, qualifications, capabilities and abilities of its staff to ensure that any skills and qualifications needed by the AIM are available for the tasks to be completed.
- 3.9.13 Training is required when deficiencies are noted, or when new employees start work. Any training that is required may be carried out in stages, and may be in the workplace, in-house or at an external location.
- 3.9.14 The scope of the training and checking is largely a matter for the organization to determine, but generally, training for AIM would include the following topics:
 - a) principles of the AIS;
 - b) organization of AIM;
 - c) responsibilities and functions of AIM:
 - ICAO documents;
 - AIM products;
 - responsibilities and limitations;
 - d) the IAIP;
 - e) relationships with external agencies;

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 3 - QUALITY MANAGEMENT

- f) change management;
 - applicable policies and procedures;
 - standard operating procedures;
 - quality processes;
 - coordination requirements;
 - collation and processing;
 - data entry and verification;
 - data structures;
 - formats to be used;
 - checking procedures and processes;
 - file management;
 - record keeping;
 - publication and production;
 - distribution;
- g) AIM automation.
- 3.9.15 Records should be maintained to show what competences staff possess, and to show what training has been carried out, and the results of that training. Records that demonstrate successful completion, i.e. effectiveness, of a training program and the competence of staff can and should be kept simple.

Facilities and the Work Environment

- 3.9.16 In addition to adequate numbers of suitably experienced and competent personnel, AIM also requires appropriate accommodation and adequate facilities to get the work done and so provide quality services.
- 3.9.17 This part of the ISO Standards call for AIM to determine, provide and maintain the facilities it needs to achieve product conformity, including:
 - a) workspace;
 - b) equipment, hardware and software; and
 - c) supporting services

In simple terms, this means that AIM needs to identify, provide and maintain adequate space, suitable equipment, tools and systems to enable staff to do their job.

3.9.18 AIM organizations are moving more and more towards automated systems to improve the efficiency, accuracy and cost effectiveness of their businesses. AIM needs to ensure that any systems automation and services are designed with the intent of avoiding incompatibilities, divergences and unnecessary duplication of effort and importantly that there is an overall systems integration management plan in place. Standardisation of procedures, products and services is essential for the successful automation of AIS.
3.10 MEASUREMENT, ANALYSIS AND IMPROVEMENT

Control of Non-conformity

3.10.1 AIM shall ensure that products that do not conform to requirements are identified and controlled to prevent unintended use or delivery. These activities shall be defined in a documented procedure. Non-conforming products shall be corrected and subject to re-verification after correction to demonstrate conformity. When non-conforming products are detected after delivery or use has started, the organization shall take appropriate action regarding the consequences of the non-conformity.

Analysis of Data

- 3.10.2 This part of the Standard requires AIM to collect and analyse appropriate data to determine the suitability and effectiveness of the QMS and to identify improvements that can be made. This includes data generated by measuring and monitoring activities and other relevant sources. In this regard, the AIM must analyse data to provide information on:
 - a) customer satisfaction and/or dissatisfaction;
 - b) conformance to customer requirements;
 - c) characteristics of processes, product and their trends; and
 - d) suppliers.

Do the measurements reveal any trends?

3.10.3 As a result of the measuring and monitoring activities, AIM probably will have collected significant amounts of data, which can be analysed to indicate any trends. Any trends that AIM may find could suggest where there are problems in the QMS, which indicates areas where improvement is needed. AIM may also find activities that, although effective as they are now performed, could be improved further. AIM may find that statistical techniques are useful tools for the analysis process. The Standard identifies four areas where analysis is to be applied but AIM can extend data analysis to whatever areas provide AIM with useful information.

Planning for Continual Improvement

3.10.4 Understandably, AIM must plan and manage the processes necessary for the continual improvement of the QMS to facilitate the continual improvement of the QMS through the use of the quality policy, objectives, audit results, analysis of data, corrective and preventive action and management review.

What improvements does AIM plan to make?

3.10.5 Continual improvement of the QMS is now a mandatory requirement. It is important to understand that continual improvement doesn't mean that it occurs without a break or without ceasing. Instead, improvement should be interpreted as a repeated activity to be implemented as each opportunity is identified and there is justification for proceeding. The standard lists a

number of tools and inputs that AIM can use to both plan and actually implement improvement.

Corrective Action

- 3.10.6 AIM shall take corrective action to eliminate the cause of non-conformities in order to prevent recurrence. Corrective action must be appropriate to the impact of the problems encountered. The documented procedure for corrective action must define requirements for:
 - a) identifying non-conformities (including customer complaints);
 - b) determining the causes of non-conformity;
 - c) evaluating the need for actions to ensure that non-conformities do not recur;
 - d) determining and implementing the corrective action needed; and
 - e) recording results of action taken reviewing of corrective action taken.

Preventive Action

- 3.10.7 AIM must identify preventive action to eliminate the causes of potential nonconformities to prevent occurrence. Preventive actions taken shall be appropriate to the impact of the potential problems. The documented procedure for preventive action must define requirements for:
 - a) identifying potential non-conformities and their causes;
 - b) determining and ensuring the implementation of preventive action needed;
 - c) recording results of action taken; and
 - d) reviewing of preventive action taken.

Fixing the Causes of Problems

3.10.8 Both corrective and preventive action can be seen as steps in a quality improvement cycle. The need for corrective action can arise when an internal nonconformity (product and/or service or QMS) occurs, or from external sources such as a customer complaint or warranty claim, or problems encountered with a supplier. Corrective action involves finding the cause of the particular problem and then putting in place the necessary actions to prevent the problem recurring. Preventive action starts with considering and analysing the data from all the incidences of nonconformities, all the customer complaints, all the warranty claims, all the problems with suppliers as well as any other sources of problems to find out if any trend is occurring. Where this analysis shows that the potential for problems exists, preventive action then involves putting in place the necessary steps to eliminate these potential causes. The documented procedures for both corrective and preventive actions should define the responsibilities and authorities for these activities.

Fixing the Cause of Known Problems

- 3.10.9 There is a difference between carrying out corrective action and fixing a non-conformity. Fixing a non-conformity is about making good the problem either by reworking, replacing or any of the other activities described in the guidance material. A corrective action is concerned with finding out why the non-conformity occurred and making sure that the problem does not occur again. The need for corrective action could be indicated by a number of factors, some of which could be:
 - a) customer complaints;
 - b) non-conformances;
 - c) rework or repairs; and
 - d) audit reports.
- 3.10.10 Analysis of the causes may suggest some solutions such as retraining employees or amending a process control practice. The size of the problem and the associated risks to the business will determine the actions that AIM need to take. When corrective action is taken, it should be recorded and followed up within a reasonable period to find out whether it has worked. It may be necessary to change the quality manual, documented procedures, instructions and any other relevant documentation. Changes should be made in accordance with the provisions shown for the Control of documents.

Fixing the Cause of Potential Problems

- 3.10.11 AIM should use your records to see if any trends exist which show a potential problem could arise. Typical examples of where information might be found and used for such analysis are from such sources as:
 - a) difficulties with suppliers;
 - b) in-process problems, rework rates, wastage levels;
 - c) final inspection failures; and
 - d) customer complaints and customer surveys.

Other sources might include market surveys, audit reports and quality records.

- 3.10.12 Where a potential problem is identified, a course of action may need to be developed and put in place to reduce or eliminate the risk of the problem. If preventive action is found to be necessary, it should be recorded and followed up within a reasonable period to find out whether it has worked. As a result of preventive action, the quality manual, documented procedures, instructions and any other relevant documentation may need to be changed. Examples of where preventive action may be applied include:
 - a) identifying possible situations where product damage may occur and implementing practices to prevent it from happening;
 - b) feedback from personnel may indicate a more efficient process; and
 - c) re-assessment of suppliers to overcome potential supply problems.

3.10.13 In AIM, there is little justification in separating management review arrangements from long-term corrective and preventive action. Where there are few personnel and the same people are involved in both activities, an artificial separation may result in duplication of effort. If this approach is taken, it should be included in the quality manual.

Customer Satisfaction

3.10.14 The Standards require AIM to monitor information on customer satisfaction and/or dissatisfaction as one of the measurements of the performance of the QMS. The methodologies for obtaining and using this information must be determined.

How satisfied are the customers?

3.10.15 AIM is required to monitor its performance as a supplier to the customers. More specifically, AIM is required to monitor information on satisfaction or dissatisfaction. To do this AIM will need to find out how satisfied their customers are.

Monitoring Satisfaction

3.10.16 In the framework of the QMS, a user feedback system shall be defined and implemented.

Note 1.— Quality management may be provided by a single QMS or a series of QMS.

Note 2.— The International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme.

Note 3.— Formal arrangements concerning data quality between the originator and the aeronautical information service (AIS) and between the AIS and the next intended user may be used to manage the aeronautical information data chain.

Note 4.— Guidance material concerning a training methodology to ensure the competency of personnel is contained in the Aeronautical Information Management Training Development Manual (Doc 9991).

Among the most widely used way of gathering user feedbacks are:

- a) telephone calls made periodically or after delivery of product and/or service;
- b) questionnaires and surveys;
- c) using a market research company; and
- d) focus groups/conferences.

All of these have merits and disadvantages. For a small AIM organization, it is recommended that AIM starts with simple methods such as calling the customers. AIM may gain a useful insight by calling someone who is senior to the one that AIM normally deals with. Such a person is likely to know how AIM performs and is likely to tell AIM, good or bad. Surveys and questionnaires are being extensively used. For example, how many does

AIM receive in a year? AIM may get some good ideas from the ones sent to AIM. AIM can give the customers the option of giving their name or staying anonymous. AIM may get more negative responses from anonymous people, because some people do not like being the bearer of bad news. If they can hide their identity, they may tell AIM something they would not otherwise do. Remember criticism is vital information, which will help grow your business. Questionnaires and surveys have their disadvantages because they are time consuming. If using a questionnaire, keep it simple. Choose the questions very carefully. Ensure that they are clear.

3.10.17 If AIM really wants to know what the customers think, it is probably best left to the professional market research companies. Their independence enables them to gather an objective perspective of the performance and the customers' satisfaction. Customer focus groups or conferences are a powerful tool for finding out the reasons behind the measure of satisfaction. A group of customers is brought together in a small meeting where they discuss the merits of your product and/or service. This needs facilitation, which is best left to a professional.

Satisfaction as a Measure of the System Performance

3.10.18 AIM is to use customer satisfaction as a measure of the performance of the QMS. At its simplest, this could be the percentage of dissatisfied, satisfied and delighted customers. In reality, it tends to be more complicated than that. One customer may be both satisfied and dissatisfied. He or she may be satisfied with the product and/or service but dissatisfied with the delivery performance, for example. Therefore, AIM needs to think it through and come up with a practical measure. Perhaps AIM could ask the customers to rate the performance on a scale from 1 to 10. Alternatively, perhaps it would be worthwhile measuring several aspects of the business, for example, appearance, delivery performance, packaging, functionality, and value for money.

Internal Audit

- 3.10.19 AIS internal quality auditors (IQA) shall conduct periodic internal audits to determine whether the QMS:
 - a) conforms to the requirements of the International Standard; and
 - b) has been effectively implemented and maintained.
- 3.10.20 AIS internal quality auditors (IQA) shall plan the audit program taking into consideration the status and importance of the activities and areas to be audited as well as the results of previous audits. The audit scope, frequency and methodologies must be defined. Audits must be conducted by personnel other than those who performed the activity being audited. A documented procedure must include the responsibilities and requirements for conducting audits, ensuring their independence, recording results and reporting to management. AIM Management must take timely corrective action on deficiencies found during the audit. Follow-up actions shall include the verification of implementation of corrective action and the reporting of verification results.

3.10.21 AIM management shall provide internal quality auditors with training on how to conduct the audit.

What Is the Internal Audit?

- 3.10.22 Audits are about getting information, in a planned way, from a variety of sources and comparing it all to confirm that things are being done properly. The steps of gathering this information should include:
 - a) reading the documented procedures;
 - b) reading relevant process control documents;
 - c) observing processes being carried out;
 - d) talking to the people carrying out the processes; and
 - e) looking at the records.

All these need to tell the same story; i.e. that you are doing things right, the way you said you would.

- 3.10.23 For a well-organized and run AIM, where familiarity with the day-to-day activities is the norm, a properly conducted audit can be beneficial. AIM should use audits to stand back and look at the business objectively to confirm that the QMS is helping AIM does what AIM wants to do and what AIM needs to do. AIM needs to find some form of evidence, documented or otherwise, which can confirm that the QMS is performing in the way it was intended. It is not sufficient to simply do an overview and conclude without any proper basis or supporting evidence that the QMS is operating satisfactorily. This requirement is reinforced to require you to develop some means for measuring how the QMS is performing.
- 3.10.24 Seeking out areas for improvement is now particularly important as it is this information that is required to be added to the data to be analysed. The information from internal audits should also be used as part of the management review. The better the audit, the more useful the management review will be. When an internal quality audit shows up non-conformances and inconsistencies, you need to develop the necessary corrective actions and then put them in place. These may be as simple as:
 - a) writing or revising a documented procedure or a process control document;
 - b) redesigning a form to incorporate more information; and
 - c) arranging for employee retraining.
- 3.10.25 Audits shall be scheduled to cover all the quality-related activities and all the requirements of the standard. In deciding how to manage the audit schedule and how often any particular aspect should be audited, the following factors may be considered:
 - a) Are there any complex procedures or processes that would justify individual audits?
 - b) Are there any aspects or areas that have a history of problems?
 - c) Does your 'hands-on' approach indicate a need for less frequent audits?

- 3.10.26 A report or summary of each audit shall be made out, listing the findings and what action if any is to be taken. The record need not necessarily be complex. For example, a simple entry in a daybook may be sufficient. If the previous audit recommended or required action to be taken, the current audit should check how effective the change was and this should be recorded. There is a requirement in the Standards that "audits shall be conducted by personnel other than those who performed the activity being audited". For example, it is acceptable for the office personnel to audit the production/service activities and vice-versa. This can provide benefits in developing an understanding of each other's problems.
- 3.10.27 In a small AIM where there may be only one or two people in the entire management structure, this requirement may not be achievable. It is suggested that in such cases, the manager, carrying out the duties of an auditor tries to step back from direct involvement in the business operations and be very objective about the audit.
- 3.10.28 Another approach would be to seek the cooperation of another work area and each provides the internal quality audit facility for the other. This may prove attractive if there are good relations between the two businesses.
- 3.10.29 Effective use of internal quality audits is an area that AIM may use to minimize the ongoing costs of certification/registration. If the auditor from the certification/registration body can see that internal quality audits are being used to effectively monitor and control the QMS, the auditor does not need to spend as much time verifying the QMS operation. Again it must be emphasized that what the auditor will be seeking is objective evidence with respect to internal quality audits.

3.11 QMS DOCUMENTATION

3.11.1 Documentation

- 3.11.1.1 The purpose of documentation in a QMS is to provide a ready reference for how, when, where, by whom, and, if necessary, why an activity is performed. It should be designed so that tasks are performed systematically and with repeatable outcomes. It is important to keep written documentation simple, consistent and easy to amend. It should provide the basis for continual improvement and the evidence that a QMS is in place and is operating effectively.
- 3.11.1.2 There is no need to rewrite what has already been documented. Existing documentation, such as operating or work instructions, should be referred to in the quality manual and controlled.
- 3.11.1.3 Implementation of the QMS should not create unnecessary paperwork. Documented procedures should show how a job is done, not how it should be done. Only documentation that is relevant to the work of AIM should be included in the QMS documentation.
- 3.11.1.4 Procedures, forms, instructions, job descriptions and records should be developed according to a standard format. Whether an existing format is used or whether a new format is created, document templates should be

created to simplify and standardize the work of developing documentation.

3.11.2 Documented Procedures

- 3.11.2.1 ISO requirements for a quality system call for 6 QMS procedures to be in place. These are mandatory written procedures that describe how the organization performs the activities described in each of the six QMS procedures described below:
 - a) control of documents;
 - b) control of records;
 - c) internal audit;
 - d) control of non-conforming product
 - e) corrective action; and
 - f) preventive action.
- 3.11.2.2 Documented procedures should indicate who does what, where and when they do it, why they do it, and how. It is up to the organization itself to decide the level of detail that is included in the documented procedures. Largely, this will depend on:
 - a) methods used;
 - b) skills needed;
 - c) training; and
 - d) extent of supervision required.
- 3.11.2.3 Documented procedures should not contain what you would like to happen in the organization, but rather an accurate description of what really happens. A robust QMS will involve staff, to the extent that they can contribute, in the writing of Documented procedures. The earlier and the more staff that are involved will lead to greater staff involvement, understanding and "buy-in" to the procedures and practices.

3.11.3 Document Master List

3.11.3.1 Each controlled document has one master copy to which all changes are made and from which further copies are issued. Each controlled document also has an owner who is the person (or persons) authorized to review and approve changes to the document. The location of the master copy and the name of the document owner are recorded on a document master list.

3.11.4 Quality Manual

- 3.11.4.1 A quality manual is a controlled document that is perhaps the most important part of the quality system. This is where it begins and includes the details of:
 - a) the scope of the QMS;
 - b) the documented procedures or a suitable reference; and
 - c) a description of the sequence and interaction of the processes included in the QMS.

- 3.11.4.2 The quality manual is the "map" for the organization, and where the following items would be found:
 - a) the quality policy;
 - b) the activities of the business
 - c) how the documentation works and where people might look to find information about how to do things;
 - d) a definition of any terms having a unique meaning to your business; and
 - e) statements of responsibility and authority.
- 3.11.4.3 The quality manual should also include information about the AIM and its activities, about the manual itself and where to find information and guidance, a description of the organizational structure and statements of responsibilities and authorities, and, if appropriate, a glossary and appendices for supportive data.
- 3.11.4.4 It is not necessary for QMS procedures to be included in the quality manual. They may be published and maintained as a separate AIM standards and procedures document. However, reference to the QMS procedures should be made in the quality manual.
- 3.11.4.5 As a final step in the preparation of the quality manual, a draft of the manual should be circulated to personnel for review comment to ensure the material included is completes and correct.

3.11.5 Control of Documents

- 3.11.5.1 The procedures required for the control of documents relate to documents originated by AIM as well as those used for AIM activities that originate elsewhere, and the need to ensure that personnel have access to information that is relevant to their activities and can rely on it to be up to date. In this regard, it is necessary that there are procedures in place to:
 - a) approve documents for adequacy prior to issue;
 - b) review and update documents as necessary and re-approve documents;
 - c) ensure that changes and the current revision status of documents are identified;
 - d) ensure that relevant versions of applicable documents are available at points of use;
 - e) ensure that documents remain legible and readily identifiable;
 - f) ensure that documents of external origin are identified and their distribution controlled; and
 - g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.
- 3.11.5.2 Documents defined as quality records must also be controlled. Document control is about making sure that the document in use is the "right" document. A controlled document will be the latest approved and applicable version for the work to be done. This is particularly important if staff is to

have the information they need to do the job correctly. The simplest way to control documents is to make them available on the computing network, preferably without any paper copies. A number of computing software packages makes document control relatively simple. For example, the "save date" can be saved in a footer or header of every page. A statement can be added to the effect that any paper copy is uncontrolled and that it is up to the reader to ensure that the copy being used is the latest version by checking on the network.

3.11.5.3 There is no limit to the number of documents that can be controlled in a quality system, but the additional overhead in controlling the document must be balanced against any potential problems caused by using an inaccurate or obsolete version.

3.11.6 Document Master Copy

3.11.6.1 Each controlled document has one master copy. This is the copy to which all changes are initially made and from which further copies are made and issued as required. The location of the master copy is recorded on the Document Master List.

3.11.7 Document Owner

3.11.7.1 Each controlled document has an owner. This is the person or persons authorized to review and approve changes requested to the document. The document owner is also recorded on the Document Master List.

3.11.8 Controlled and Uncontrolled Copies

- 3.11.8.1 Documents may be issued as controlled or uncontrolled copies. Controlled copies are those issued to particular persons with a record of who has which copy. This record is kept with the document master copy. For controlled copies the document owner is responsible for ensuring that the registered holder of the copy is given an updated copy when the document is modified.
- 3.11.8.2 Uncontrolled copies are issued with no record of who has a copy. For uncontrolled copies the document holder is responsible for ensuring that the copy they have is up-to-date.

3.11.9 Control of Records

- 3.11.9.1 Records exist in all organizations. Quality Records are required to provide evidence of conformance with requirements and of effective operation of the QMS. Procedures must be documented for the identification, storage, retrieval, protection, retention time and disposition of quality records.
- 3.11.9.2 The minimum retention period for records shall depend on existing laws or regulations in order to maintain a "paper trail" for the purposes of audit, inquiries or proof in the event of litigation. Records may be kept longer than the minimum period if there is adequate space. Regardless of whether records are stored in paper form or electronically, a procedure shall be created for storage and disposal of records to be kept beyond the minimum retention period.

CHAPTER 4 AERONAUTICAL DATA REQUIREMENTS

4.1 DATA ORIGINATION REQUIREMENTS

- 4.1.1 Data shall be collected and transmitted to the aeronautical information service (AIS) in accordance with the accuracy requirements and integrity classification specified in Appendix 1.
- 4.1.2 Positional data shall be classified as: surveyed points (e.g. navigation aid positions, runway threshold); calculated points (mathematical calculations from the known surveyed points of points in space, fixes); or declared points (e.g. flight information region boundary points).
- 4.1.3 Geographical coordinates indicating latitude and longitude shall be determined and reported to the AIS in terms of the World Geodetic System 1984 (WGS-84) geodetic reference datum.
- 4.1.4 Geographical coordinates that have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the applicable requirements contained in Appendix 1 shall be identified.
- 4.1.5 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 2 shall also be published.

4.2 METADATA REQUIREMENTS

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

- a) the names of the organizations or entities performing any action of originating, transmitting or manipulating the data;
- b) the action performed; and
- c) the date and time the action was performed.

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

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES CHAPTER 4 - AERONAUTICAL DATA REQUIREMENTS

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August 2020

CHAPTER 5 AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

5.1 GENERAL

- 5.1.1 Aeronautical data shall be provided in accordance with the resolution requirements contained in Appendix 1.
- 5.1.2 Geographical coordinates whose accuracy does not meet the requirements specified in Appendix 1 shall be identified.
- 5.1.3 The identification of geographical coordinates whose accuracy does not meet the requirements may be made either with an annotation or by explicitly providing the actual accuracy value.
- 5.1.3. In aeronautical information products that are distributed on paper, the identification should be done with an asterisk following the coordinate value concerned.

5.2 AERONAUTICAL INFORMATION IN A STANDARDIZED PRESENTATION

5.2.1 Aeronautical Information Publication (AIP)

- 5.2.1.1 Contents
- 5.2.1.1.1 The AIP shall contain concise, current information relating to, and arranged under, the subject headings listed in Appendix 2. This facilitates both the locating of information under a specific heading and the storage/retrieval of the information using automated processing.
- 5.2.1.1.2 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 2, an indication should be given as to which of these circumstances applies (e.g. "NIL" or "Not AVBL").
- 5.2.1.1.3 Until 3 November 2021, when the AIP data set (as specified in 5.3.3.1) is provided, the following sections of the AIP may be omitted and reference to the data set availability shall be provided:
 - a) GEN 2.5 List of radio navigation aids;
 - b) ENR 2.1 FIR, UIR, TMA and CTA;
 - c) ENR 3.1 Lower ATS routes;
 - d) ENR 3.2 Upper ATS routes;
 - e) ENR 3.3 Area navigation routes;
 - f) ENR 3.4 Helicopter routes;
 - g) ENR 3.5 Other routes;
 - h) ENR 3.6 En-route holding;
 - i) ENR 4.1 Radio navigation aids en-route;
 - j) ENR 4.2 Special navigation systems;

- k) ENR 4.4 Name-code designators for significant points;
- I) ENR 4.5 Aeronautical ground lights en-route;
- m) ENR 5.1 Prohibited, restricted and danger areas;
- n) ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ);
- o) ENR 5.3.1 Other activities of a dangerous nature;
- p) ENR 5.3.2 Other potential hazards;
- q) ENR 5.5 Aerial sporting and recreational activities;
- r) ****AD 2.17 Air traffic services airspace;
- s) **** AD 2.19 Radio navigation and landing aids;
- t) **** AD 3.16 Air traffic services airspace; and
- u) **** AD 3.18 Radio navigation and landing aids.
- 5.2.1.1.3 As of 4 November 2021, when the AIP Data Set (as specified in 5.3.3.1) is provided, the following sections of the AIP may be omitted and a reference to the data set availability shall be provided:
 - a) GEN 2.5 List of radio navigation aids;
 - b) ENR 2.1 FIR, UIR, TMA and CTA;
 - c) ENR 3.1 Conventional navigation routes;
 - d) ENR 3.2 Area navigation routes;
 - e) ENR 3.3 Other routes;
 - f) ENR 3.4 En-route holding;
 - g) ENR 4.1 Radio navigation aids en-route;
 - h) ENR 4.2 Special navigation systems;
 - i) ENR 4.4 Name-code designators for significant points;
 - j) ENR 4.5 Aeronautical ground lights en-route;
 - k) ENR 5.1 Prohibited, restricted and danger areas;
 - I) ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ);
 - m) ENR 5.3.1 Other activities of a dangerous nature;
 - n) ENR 5.3.2 Other potential hazards;
 - o) ENR 5.5 Aerial sporting and recreational activities;
 - p) ****AD 2.17 Air traffic services airspace;
 - q) **** AD 2.19 Radio navigation and landing aids;
 - r) **** AD 3.16 Air traffic services airspace; and
 - s) **** AD 3.18 Radio navigation and landing aids.
- 5.2.1.1.4 When the Obstacle Data Set (as specified in 5.3.3.2.2) is provided, the following sections of the AIP may be omitted and a reference to the data set availability shall be provided:
 - a) ENR 5.4 Air navigation obstacles;

- b) ****AD 2.10 Aerodrome obstacles; and
- c) ****AD 3.10 Heliport obstacles.
- 5.2.1.2 General specification
- 5.2.1.2.1 The issuing State and publishing authority shall be clearly indicated.
- 5.2.1.2.2 Each AIP shall be self-contained and shall include a table of contents.

Note.— If it is necessary by reason of bulk or 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).

- 5.2.1.2.3 Each AIP shall not duplicate information within itself or from other sources.
- 5.2.1.2.4 An AIP shall be organized in three parts (GEN, ENR and AD), sections and subsections, except when the AIP, or a volume of the AIP, is designed to facilitate operational use in flight, in which case the precise format and arrangement may be left to the discretion of CAAP provided that an adequate table of contents is included.
- 5.2.1.2.5 Each AIP shall be dated.
- 5.2.1.2.5.1 The date, consisting of the day, month (by name) and year, shall be the publication date or the effective date (AIRAC) of the information.
- 5.2.1.2.6 Charts, maps or diagrams should be used to complement or as a substitute for the tabulations or text of AIP.

Note.— Where appropriate, charts produced in conformity with CAR-ANS Part 4 may be used to fulfil this requirement. Guidance material as to the specifications of index maps and diagrams included in AIP is contained in AC ANS15.1.

- 5.2.1.2.7 When listing locations, the city or town should be given in capital letters followed, where the facility is an aerodrome/heliport or is located at an aerodrome/heliport, by an oblique stroke and the name of the aerodrome/heliport in smaller capital letters or lower case type. Unless otherwise indicated, the list should be in alphabetical order.
- 5.2.1.2.8 The spelling of place names shall conform with local usage, transliterated where necessary into the ISO basic Latin alphabet.
- 5.2.1.2.9 In the indication of the geographical coordinates of a location:
 - a) the latitude should be given first;
 - b) symbols for degrees, minutes or seconds should be omitted;
 - two digits should always be used in expressing values of less than 10 degrees of latitude;
 - d) three digits should always be used in expressing values of less than 100 degrees of longitude; and
 - e) the letters N, S, E, W should be used to indicate the cardinal points of the compass to the latitude and longitude as appropriate.

- 5.2.1.2.10 When describing periods of activity, availability or operation, the applicable days and times shall be specified.
- 5.2.1.2.11 The units of measurement selected for use in the AIP, e.g. dimensions on aerodromes, distances, elevations or altitudes, should be consistently followed and should adhere to CAR-ANS Part 5, *Governing Units of Measurement to be Used in Air and Ground Operations.*
- 5.2.1.2.12 Index maps and diagrams included in the AIP should comply with the following specifications:
 - a) *Base map:* The base map should be an outline map of the area adapted from existing material with general details. Graticules, topography and other details should be as simple as possible. Political subdivisions should be shown and identified. It should be produced in one colour.
 - b) Sheet size and scale: The overall dimensions should be 210 mm × 297 mm. If a larger map is required, it should be folded to conform to this size. A uniform scale should be used for all charts produced as a series and other charts where practicable.
 - c) *Title and marginal notes:* The title should be shown on the top border and should be as short and simple as possible.
 - d) *Colours:* The number of colours used should be kept to a minimum. If more than one colour is used, the colours should offer adequate contrast.
 - e) Symbols: Symbols should conform, where practicable, to the ICAO chart symbols shown in CAR-ANS Part 4, Appendix 2. The basic, general purpose symbols for AIP index maps are a filled circle and an empty circle ○. Except when the symbols used are self-explanatory, a legend should be provided. For details for which no ICAO symbol has been provided, any appropriate symbol may be chosen provided it does not conflict with an ICAO symbol.
- 5.2.1.3 Specifications for AIP Amendments
- 5.2.1.3.1 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.
- 5.2.1.3.2 CAAP shall establish the publication dates of AIP amendments based on the AIRAC cycle. These dates shall be included in the AIP, Part 1 General (GEN).
- 5.2.1.3.3 New or revised information contained in the AIP shall be identified.
- 5.2.1.3.4 Each AIP Amendment shall be allocated a serial number, which shall be consecutive.
- 5.2.1.3.5 Each AIP Amendment shall contain a publication date.
- 5.2.1.3.6 Each AIRAC AIP Amendment shall contain an effective date.

2nd Edition

- 5.2.1.3.6.1 When an effective time other than 0000 UTC is used, the effective time shall also be indicated.
- 5.2.1.3.7 When an AIP Amendment is issued, it shall include references to the serial number of the AIP Supplement or the series and number of the NOTAM which has been incorporated into the amendment.
- 5.2.1.3.8 A brief indication of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.
- 5.2.1.3.9 Each amendment shall include a checklist giving the current date of each loose-leaf page in the AIP, and shall provide a recapitulation of any outstanding manuscript corrections. The checklist shall carry both the page number and date.
- 5.2.1.4 Specifications for AIP Supplements

Note.— Since the AIP is subject to frequent change, provisions exist for its continual updating. In addition, changes of a temporary nature affecting the contents of an AIP are often required to cater for unexpected circumstances or, in some cases, planned modifications to a service/facility.

5.2.1.4.1 Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.

Note.— Guidance material on the use of AIP Supplements together with examples of such use is contained in AC ANS 15.1.

- 5.2.1.4.2 Each AIP Supplement shall be provided on distinctive pages allowing for easy identification from the regular AIP content.
- 5.2.1.4.3 Whenever an AIP Supplement is issued as a replacement of a NOTAM, a reference to the series and number of the NOTAM shall be included.
- 5.2.1.4.4 A checklist of valid AIP Supplements shall be issued at intervals of not more than one month as part of the checklist of NOTAM required by 5.2.5.3 and with distribution as for the AIP Supplements.
- 5.2.1.4.5 Each AIRAC AIP Supplement page shall show a publication date and an effective date.

5.2.2 Aeronautical Information Circulars (AIC)

- 5.2.2.1 An AIC shall be provided whenever it is desirable to promulgate:
 - a) forecasts of important changes in the air navigation procedures, services and facilities provided;
 - b) forecasts of implementation of new navigation systems;
 - c) significant information arising from aircraft accident/incident investigation which has a bearing on flight safety;
 - d) information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;
 - e) advice on medical matters of special interest to pilots;
 - f) warnings to pilots concerning the avoidance of physical hazards;

- g) effect of certain weather phenomena on aircraft operations;
- h) information on new hazards affecting aircraft handling techniques;
- i) regulations relating to the carriage of restricted articles by air;
- j) reference to the requirements of, and publication of changes in, national legislation;
- k) flight crew licensing arrangements;
- I) training of aviation personnel;
- m) application of, or exemption from, requirements in national legislation;
- n) advice on the use and maintenance of specific types of equipment;
- actual or planned availability of new or revised editions of aeronautical charts;
- p) carriage of communication equipment;
- q) explanatory information relating to noise abatement;
- r) airworthiness directives;
- s) changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format;
- t) other information of a similar nature.
- 5.2.2.2 CAAP shall select the AIC that are to be given international distribution.
- 5.2.2.3 CAAP shall give AIC selected for international distribution the same distribution as for the AIP.
- 5.2.2.4 Distribution of AIC on a national basis is left to the discretion of CAAP.
- 5.2.2.5 Each AIC shall be allocated a serial number which shall be consecutive and based on the calendar year.

Note.— Since AIC information is often effective for long periods and requires little amendment, it will usually be found that AIC can, if necessary, remain outstanding for several years without inconvenience. A review and re-issue on a yearly basis is however advisable.

- 5.2.2.6 In the event that AIC are provided in more than one series, each series shall be separately identified by a letter (e.g. A 2/02, B 4/02).
- 5.2.2.7 A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.
- 5.2.2.8 A checklist of AIC provided internationally shall be included in the NOTAM checklist.

5.2.3 Printed products

- 5.2.3.1 Printed AIP
- 5.2.3.1.1 When the AIP is issued as a printed volume, it should be published in looseleaf form unless the complete publication is reissued at frequent intervals.

- 5.2.3.1.2 Each AIP issued as a printed volume and each page of an AIP issued in loose-leaf form shall be so annotated as to indicate clearly:
 - a) the identity of the AIP;
 - b) the territory covered and subdivisions when necessary;
 - c) the identification of the issuing State and producing organization (authority); and
 - d) page numbers/chart titles.
- 5.2.3.1.3 The normal method of amendment of the printed volume AIP shall be by means of replacement sheets.
- 5.2.3.1.4 New or revised information shall be identified by an annotation against it in the margin. A thick black vertical line or, where the change incorporated covers one line only or a part of a line, a thick black horizontal arrow, is sufficient to identify the change.
- 5.2.3.1.5 Each AIP Amendment page, including the cover sheet, shall contain a publication date and, when applicable, an effective date.
- 5.2.3.1.6 When the AIP is provided in more than one volume, each volume shall include a:
 - a) preface;
 - b) record of AIP Amendments;
 - c) record of AIP Supplements;
 - d) checklist of AIP pages; and
 - e) list of current hand amendments.
- 5.2.3.1.7 When the AIP is published as one volume, the above-mentioned subsections appear only in Part 1 GEN and the annotation "not applicable" shall be entered against each of these subsections in Parts 2 and 3.
- 5.2.3.1.8 A system of page numbering adaptable to the addition or deletion of sheets should be adopted. The page number should include:
 - a) an identification of the part of the AIP;
 - b) the section; and
 - c) the subsection, as applicable;

thus creating a separate set of numbers for each subject (e.g. GEN 2.1-3, ENR 4.1-1 or AD 2.2-3).

- 5.2.3.1.9 A checklist giving the current date of each page in the AIP shall be reissued frequently to assist the user in maintaining a current publication.
- 5.2.3.1.10 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.
- 5.2.3.1.11 When a small number of charts are to be included and chart size is not larger than 210 mm × 297 mm or allows for folding to these dimensions,

2nd Edition

August 2020

they should be contained in the AIP. If, on the other hand, there are many charts and they are frequently amended, it may be convenient to place them in a separate volume with a separate subscription service.

- 5.2.3.1.12 Maps and charts included in the AIP should be paginated in the same manner as other material.
- 5.2.3.1.13 AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow.
- 5.2.3.1.14 AIP Supplement pages should be kept as the first item in the AIP parts.

Note.— To eliminate the need to continuously refer to the front of the AIP for the required information, the Supplements may be divided into specific parts (e.g GEN, ENR, AD) for insertion in each AIP part, as necessary.

- 5.2.3.1.15 AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.
- 5.2.3.2 Printed AIC
- 5.2.3.2.1 Differentiation and identification of AIC topics according to subjects using colour coding should be practised where the numbers of AIC in force are sufficient to make identification in this form necessary.
- 5.2.3.2.2 AIC should be colour coded by subject where there are sufficient circulars in force to warrant such identification, e.g.:
 - a) white administrative;
 - b) yellow air traffic control (ATC);
 - c) pink safety;
 - d) mauve danger area map; and
 - e) green maps/charts.

5.2.4 Electronic AIP (eAIP)

- 5.2.4.1 When provided, the information content of the eAIP and the structure of chapters, sections and subsections shall follow the content and structure of the paper AIP. The eAIP shall include files that allow for printing a paper AIP.
- 5.2.4.2 New or revised information shall be identified either by an annotation against it in the margin or by a mechanism that allows comparing the new/revised information with the previous information.
- 5.2.4.3 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).

5.2.5 NOTAM

- 5.2.5.1 General specifications
- 5.2.5.1.1 Except as otherwise provided in 5.2.5.1.4 and 5.2.5.1.5, each NOTAM shall contain the information in the order shown in the NOTAM Format in Appendix 3.

Note.— Detailed guidance material covering NOTAM, SNOWTAM, ASHTAM and pre-flight information bulletin (PIB) production is contained in AC ANS15.1.

5.2.5.1.2 NOTAM text 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 1.— The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO abbreviations, are contained in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).

Note 2.— Additional procedures covering the reporting of runway surface conditions are contained in the Manual of Standards — Aerodromes (MOS-Aerodromes).

- 5.2.5.1.3 All NOTAM shall be issued in the English language.
- 5.2.5.1.4 As of 4 November 2021, information concerning standing water on the movement area shall be disseminated by means of a SNOWTAM, and shall contain the information in the order shown in the SNOWTAM Format in Appendix 4.
- 5.2.5.1.5 Information concerning an operationally significant change in volcanic activity, 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 5.
- 5.2.5.1.6 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.
- 5.2.5.1.7 When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated.
- 5.2.5.1.7.1 The series, location indicator and subject of both NOTAM shall be the same.
- 5.2.5.1.8 Only one NOTAM shall be cancelled or replaced by a NOTAM.
- 5.2.5.1.9 Each NOTAM shall deal with only one subject and one condition of the subject.

Note.— Guidance material concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in AC ANS15.1.

- 5.2.5.1.10 Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.
- 5.2.5.1.11 Each NOTAM shall be transmitted as a single telecommunication message.
- 5.2.5.1.12 A NOTAM containing permanent information or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.
- 5.2.5.1.13 Location indicators included in the text of a NOTAM shall be those contained in *Location Indicators* (Doc 7910).
- 5.2.5.1.13.1 In no case shall a curtailed form of such indicators be used.
- 5.2.5.1.14 Where no ICAO location indicator is assigned to the location, its place name shall be entered in plain language, spelt in conformity with local usage, transliterated, when necessary, into the ISO basic Latin alphabet.
- 5.2.5.2 NOTAM number and series allocation
- 5.2.5.2.1 The international NOTAM office 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.
- 5.2.5.2.2 Letters S and T shall not be used to identify a NOTAM series.
- 5.2.5.2.3 All NOTAM shall be divided in series based on subject, traffic or location or a combination thereof, depending on end-user needs. NOTAM for aerodromes allowing international air traffic shall be issued in international NOTAM series.
- 5.2.5.2.4 The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, section GEN 3.
- 5.2.5.2.5 Series allocation shall be monitored and, if required, appropriate measures shall be taken to assure that no series reach the maximum possible number of issued NOTAM before the end of the calendar year.
- 5.2.5.3 NOTAM checklist
- 5.2.5.3.1 A checklist of valid NOTAM shall be issued as a NOTAM checklist at intervals of not more than one month.

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

- 5.2.5.3.2 One NOTAM checklist shall be issued for each series.
- 5.2.5.3.3 A NOTAM checklist shall refer to the latest AIP Amendments, AIP Supplements, data sets and at least the internationally distributed AIC, and, when it is selected, include the checklist of AIP Supplements
- 5.2.5.3.4 A NOTAM checklist shall have the same distribution as the actual message series to which it refers and shall be clearly identified as a checklist.

5.3 DIGITAL DATA

5.3.1 General provisions

- 5.3.1.1 To facilitate and support the use of exchange of digital data sets between data providers and data users, the ISO 19100 series of standards for geographic information should be used as a reference framework.
- 5.3.1.2 A description of available digital data sets shall be provided in the form of data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the equirements for their intended use (application).

Note.— ISO Standard 19131 outlines the specifications for geographic data products. This may include an overview, 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.

5.3.1.3 The content and structure of digital data sets shall be defined in terms of an application schema and a feature catalogue.

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

- 5.3.1.4 The aeronautical information model used should encompass the aeronautical data and aeronautical information to be exchanged.
- 5.3.1.5 The aeronautical information model used should:
 - a) use 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 4.2 and 5.3.2; and
 - d) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.
- 5.3.1.6 The aeronautical data exchange model used should:
 - 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 5.3.1.5; 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) and JavaScript Object Notation (JSON).

5.3.1.7 Charts, maps or diagrams should be used to complement digital data sets.

5.3.2 Metadata

Each data set shall include the following minimum set of metadata:

- a) the names of the organization or entities providing the data set;
- b) the date and time when the data set was provided;
- c) period of validity of the data set; and
- d) any limitations with regard to the use of the data set.

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

5.3.3 Data sets

Note.— A data subject may appear in multiple data sets.

5.3.3.1 AIP data set

Note.— The purpose of the AIP data set is to support the transition of the ATM domain towards the use of digital data sets instead of paper products. Therefore, its scope is defined considering the likelihood that the data contained in this set is being used in digital format by service providers, ATC and instrument flight rules/visual flight rules (IFR/VFR) airspace users.

- 5.3.3.1.1 The AIP data set shall include data about the following subjects, with the properties indicated in brackets being included as a minimum (if applicable):
 - a) air traffic services (ATS) airspace (type, name, lateral limits, vertical limits, class of airspace);
 - b) special activity airspace (type, name, lateral limits, vertical limits, restriction, activation);
 - c) ATS route and other route (designator, flight rules);
 - d) route segment (navigation specification, from point, to point, track, length, upper limit, lower limit, minimum en-route altitude (MEA), minimum obstacle clearance altitude (MOCA), direction of cruising level, required navigation performance);
 - e) waypoint en-route (identification, location, formation);
 - f) aerodrome/heliport (ICAO location indicator, name, designator IATA, served city, certified ICAO, certification date, certification expiration date, control type, field elevation, reference temperature, magnetic variation, reference point);
 - g) runway (designator, nominal length, nominal width, surface type, strength);
 - runway direction (designator, true bearing, threshold, take off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA), landing distance available (LDA));
 - i) final approach and take-off (FATO) (designation, length, width, threshold point);

- j) touchdown and lift-off (TLOF) (designator, center point, length, width, surface type);
- k) radio navigation aid (type, identification, name, aerodrome/heliport served, hours of operation, magnetic variation, frequency/channel, position, elevation, magnetic bearing, true bearing, zero bearing direction);

Note 1.— The description of the data subjects, together with their properties, data type and applicable data quality requirements, is provided in Appendix 1.

Note 2.— The AIP data set includes relevant AIP Amendments and AIP Supplements.

- 5.3.3.1.2 When a property is not defined for a particular occurrence of the subjects listed in 5.3.3.1.1, the AIP data subset shall include an explicit "not applicable" indication.
- 5.3.3.2 Terrain and obstacle data sets

Note.— Terrain and obstacle data is intended to be used in the following air navigation applications:

- a) ground proximity warning system with forward looking terrain avoidance function and minimum safe altitude warning (MSAW) system;
- b) determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;
- c) aircraft operating limitations analysis;
- d) instrument procedure design (including circling procedure);
- e) determination of en-route "drift-down" procedure and en-route emergency landing location;
- f) advanced surface movement guidance and control system (A-SMGCS); and
- g) aeronautical chart production and on-board databases.

The data may also be used in other applications, such as training/flight simulator and synthetic vision systems, and may assist in determining the height restriction or removal of obstacles that pose a hazard to air navigation.

- 5.3.3.2.1 Terrain data set
- 5.3.3.2.1.1 A terrain grid shall be angular or linear and shall be of regular or irregular shape.
- 5.3.3.2.1.2 Sets of terrain data shall include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, and exclude obstacles. Depending on the acquisition method used, this shall represent the continuous surface that exists at the bare Earth, the top

of the canopy or something in-between, also known as "first reflective surface".

- 5.3.3.2.1.3 In terrain data sets, only one feature type, i.e. terrain, shall be provided. Feature attributes describing terrain shall be those listed in Appendix 6, Table A6-1. The terrain feature attributes listed in Appendix 6, Table A6-1 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data set.
- 5.3.3.2.1.4 Terrain data for each area shall conform to the applicable numerical requirements in Appendix 1.
- 5.3.3.2.2 Obstacle data set
- 5.3.3.2.2.1 Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.
- 5.3.3.2.2.2 In an obstacle data set, all defined obstacle feature types shall be provided and each of them shall be described according to the list of mandatory attributes provided in Appendix 6, Table A6-2.

Note.— By definition, obstacles can be fixed (permanent or temporary) or mobile. Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Appendix 6, Table A6-2 as optional attributes. If these types of obstacles are to be provided in the data set, appropriate attributes describing such obstacles are also required.

- 5.3.3.2.2.3 Obstacle data for each area shall conform to the applicable numerical requirements contained in Appendix 1.
- 5.3.3.2.2.4 The obstacle data product specification, supported by geographical coordinates for each aerodrome included within the data set, shall describe the following areas:
 - a) Areas 2a, 2b, 2c, 2d;
 - b) the take-off flight path area; and
 - c) the obstacle limitation surfaces.

Note.— Area 4 terrain data and Area 2 obstacle data are normally sufficient to support the production of the Precision Approach Terrain Chart — ICAO. When more detailed obstacle data are required for Area 4, these may be provided in accordance with the Area 4 obstacle data requirements specified in Appendix 6, Table A6-2. Guidance on appropriate obstacles for this chart is given in the Aeronautical Chart Manual (Doc 8697).

5.3.3.3 Aerodrome mapping data sets

Note 1.— Aerodrome mapping data includes aerodrome geographic information that supports applications which improve the user's situational awareness or supplements surface navigation, thereby increasing safety margins and operational efficiency. Aerodrome mapping data sets with appropriate data element accuracy support requirements for collaborative decision making, common situational awareness and aerodrome guidance applications are intended to be used, among others, in the following air navigation applications:

- a) position and route awareness including moving maps with own ship position, surface guidance and navigation (e.g. A-SMGCS);
- b) traffic awareness including surveillance and runway incursion detection and alerting;
- c) facilitation of aerodrome-related aeronautical information, including NOTAM;
- d) resource and aerodrome facility management; and
- e) aeronautical chart production.

The data may also be used in other applications such as training/flight simulator and synthetic vision systems.

Note 2.— Aerodrome mapping data is organized and arranged in aerodrome mapping databases (AMDBs) for ease of electronic storage and usage by appropriate applications.

Note 3.— The content of the aerodrome mapping data sets is defined in Radio Technical Commission for Aeronautics (RTCA) Document DO 272D/European Organization for Civil Aviation Equipment (EUROCAE) Document ED 99 — User Requirements for Aerodrome Mapping Information.

Note 4.— Metadata elements applicable to aerodrome mapping data are contained in RTCA DO-291B/EUROCAE ED-119B — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data.

5.3.3.3.1 Aerodrome mapping data — requirements for provision

Aerodrome mapping data should be supported by electronic terrain and obstacle data for Area 3 in order to ensure consistency and quality of all geographical data related to the aerodrome.

Note 1.— Accuracy and integrity requirements for aerodrome mapping data are contained in Appendix 1.

Note 2.— Electronic terrain and obstacle data pertaining to Area 3 and aerodrome mapping data may be originated using common acquisition techniques and managed within a single geographic information system (GIS).

Note 3.— The content of the aerodrome mapping data sets is defined in RTCA DO 272D/EUROCAE ED-99D.

5.3.3.4 Instrument flight procedure data set

Note.— The purpose of the instrument flight procedure data set is to support the transition of the ATM domain towards the use of digital data sets instead of paper products. Therefore, its scope is defined considering the likelihood that the data contained in this set is being used in digital format by service providers, ATC and IFR/VFR airspace users.

- 5.3.3.4.1 The instrument flight procedure data set shall include data about the following data subjects, with the properties indicated in brackets being included as a minimum (if applicable):
 - a) procedure (all properties);

- b) procedure segment (all properties);
- c) final approach segment (all properties);
- d) procedure fix (all properties);
- e) procedure holding (all properties); and
- f) helicopter procedure (all properties).

Note.— The description of the data subjects, together with their properties, data type and applicable data quality requirements, is provided in Appendix 1.

5.3.3.4.2 The instrument flight procedure data set should also cover the data publication requirements contained in the *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), Volume II — *Construction of Visual and the Instruments Flight Procedures.*

5.4 DISTRIBUTION SERVICES

5.4.1 General

- 5.4.1.1 Distribution to the next intended user will differ in the delivery method applied which may either be:
 - a) *Physical distribution.* The means by which aeronautical data and aeronautical information distribution is achieved through the delivery of a physical package (e.g. postal services); or
 - b) *Direct electronic distribution.* The means by which aeronautical data and aeronautical information distribution is achieved automatically through the use of a direct electronic connection between the AIS and the next intended user.
- 5.4.1.2 Different delivery methods and data media may require different procedures to ensure the required data quality.

Note.— Further guidance on digital data set distribution can be found in the Manual on System-wide Information Management (SWIM) Concept (Doc 10039).

- 5.4.1.3 A checklist of the available data sets, including their effective and publication dates, shall be made available to allow the users to ensure that current data is being used.
- 5.4.1.4 The checklist of the data sets shall be made available through the same distribution mechanism as is used for the data sets.

5.4.2 NOTAM distribution

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

Note.— Arrangements may be made for direct exchange of SNOWTAM (see Appendix 4) between aerodromes.

5.4.2.2 The international exchange of ASHTAM (see 5.2.5.1.6), or NOTAM for the 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 Secure Aviation Data Information Service (SADIS) and the World Area Forecast System (WAFS) Internet file service (WIFS), and shall take account of the requirements of long-range operations.

- 5.4.2.3 The exchange of NOTAM between international NOTAM offices and between the international NOTAM offices and multinational NOTAM processing units shall, as far as practicable, cover the needs of operations personnel including flight crew members.
- 5.4.2.4 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with CAR-ANS Part 15, 15.6.3.2.3 shall be used whenever possible, subject to the requirements of 5.4.2.3.
- 5.4.2.5 CAAP shall, upon request, grant distribution of NOTAM series other than those distributed internationally.

5.5 PRE-FLIGHT INFORMATION SERVICES

- 5.5.1 Geographic coverage for pre-flight information services should be determined and periodically reviewed. In general, the coverage zone should be limited to the flight information region (FIR) within which the aerodrome/heliport is located, the FIR(s) adjacent thereto, and all air route or portion of route flown without an intermediate landing, originating at the aerodrome/heliport and extending beyond the FIR(s) mentioned.
- 5.5.2 Although NOTAM with purpose "M" are regarded not subject for a briefing but available on request, all NOTAM shall be provided for briefing by default and that content reduction should be at user's discretion.
- 5.5.3 Automated pre-flight information systems shall be used to make aeronautical data and aeronautical information available to operations personnel including flight crew members for self-briefing, flight planning and flight information service purposes. The aeronautical data and aeronautical information made available shall comply with the provisions of CAR-ANS Part 15.
- 5.5.4 Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the AIS by telephone or other suitable telecommunications means. The human/machine interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.
- 5.5.5 Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:
 - a) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;
 - b) permit access to the system by operations personnel including flight crew members, aeronautical personnel concerned and other aeronautical users through suitable telecommunications means;

- c) ensure provision, in paper copy form, of the aeronautical data and aeronautical information accessed, as required;
- d) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven user interface or other appropriate mechanism as agreed between the civil aviation authority and operator concerned; and
- e) provide for rapid response to a user request for information.

Note.— ICAO abbreviations and codes and location indicators are given respectively in the PANS-ABC (Doc 8400) and Doc 7910.

- 5.5.6 Automated pre-flight information systems providing a harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical data and aeronautical information in accordance with 5.5.3 and meteorological information in accordance with CAR-ANS Part 3, 3.9.4.1, should be established by an agreement between the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with CAR-ANS Part 15, 15.2.1.1 c) and the relevant meteorological authority.
- 5.5.7 Where automated pre-flight information systems are used to provide the harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical data, aeronautical information and meteorological information, the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with CAR-ANS Part 15, 15.2.1.1 c) shall remain responsible for the quality and timeliness of the aeronautical data and aeronautical information provided by means of such a system.

Note.— The meteorological authority concerned remains responsible for the quality of the meteorological information provided by means of such a system in accordance with CAR-ANS Part 3, 3.9.4.3.

CHAPTER 6 AERONAUTICAL DATA REQUIREMENTS

6.1 AERONAUTICAL INFORMATION PRODUCT UPDATES

6.1.1 The same update cycle shall be applied to the Aeronautical Information Publication (AIP) and the digital data sets in order to ensure the consistency of the data items that appear in multiple aeronautical information products.

6.1.2 Specifications for AIP amendments

- 6.1.2.1 The AIP Amendment regular interval shall be specified in the AIP, Part 1 General (GEN).
- 6.1.2.2 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 NOTAM checklist.
- 6.1.2.3 Recourse to hand amendments or annotations shall be kept to a minimum.
- 6.1.2.4 When the AIP is provided in more than one volume, each volume should include separate amendment services.

6.1.3 Specifications for AIP Supplements

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

Note 2.— Guidance material on the use of AIP Supplements together with examples of such use is contained in AC ANS 15.1

6.1.4 Specifications for NOTAM

- 6.1.4.1 NOTAM should be published with sufficient lead time for the affected parties to take any required action, except in the case of unserviceability, volcanic activity, release of radioactive material, toxic chemicals and other events that cannot be foreseen.
- 6.1.4.2 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.
- 6.1.4.3 At least seven 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.
- 6.1.4.3.1 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 24 hours' advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.

- 6.1.4.4 Within three months from the issuing of a permanent NOTAM, the information contained in the NOTAM shall be included in the aeronautical information products affected.
- 6.1.4.5 Within three months from the issuing of a temporary NOTAM of long duration, the information contained in the NOTAM shall be included in the AIP Supplement.
- 6.1.4.6 When a NOTAM with estimated end of validity unexpectedly exceeds the three-month period, a replacement NOTAM shall be issued, unless the condition is expected to last for a further period of more than three months; in this case, an AIP Supplement shall be issued.
- 6.1.4.7 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a so-called "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.
- 6.1.4.7.1 The Trigger NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the preflight information bulletin for a period of fourteen days.
- 6.1.4.7.2 In the case of an AIP Supplement, the Trigger NOTAM shall remain valid for a period of fourteen days.
- 6.1.4.7.3 In the case of an AIP Supplement that is valid for less than fourteen days, the Trigger NOTAM shall remain valid for the complete validity period of the AIP Supplement.
- 6.1.4.7.4 In the case of an AIP Supplement that is valid for fourteen days or more, the Trigger NOTAM shall remain valid for at least 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 AC ANS15.1.

6.1.5 Specifications for digital data updates

6.1.5.1 The update interval for the digital data sets shall be specified in the data product specification.

APPENDIX 1 AERONAUTICAL DATA CATALOGUE

Note 1.— The Aeronautical Data Catalogue is available electronically and provided here as part of the MOS-AIS.

Note 2.— The Aeronautical Data Catalogue is a general description of the aeronautical Information management (AIM) data scope and consolidates all data that can be collected and maintained by the aeronautical information service (AIS). It provides a reference for aeronautical data origination and publication requirements.

Note 3.— The Aeronautical Data Catalogue provides a means for CAAP to facilitate the identification of the organizations and authorities responsible for the origination of the aeronautical data and aeronautical information. It also provides a common list of terms and facilitates the formal arrangements between data originators and the AIS. It includes data quality requirements applicable from origination through to publication

Note 4.— The Aeronautical Data Catalogue provides detailed descriptions of all subjects, properties and sub-properties, the data quality requirements and the data types.

Note 5.— The data types describe the nature of the property and subproperty and specify the data elements to be collected.

Note 6.— The tables of the Aeronautical Data Catalogue are composed of the following columns:

- (1) Subject for which data can be collected.
- (2) (3) Property is an identifiable characteristic of a subject which can be further defined into sub-properties. The classification of a catalogue element as subject, property or sub-property does not impose a certain data model.
- (4) The data is classified in different types. See Table A1-9 for more information on data types.
- (5) A description of the data element.
- (6) Notes are additional information or conditions of the provision.
- (7) Accuracy requirements for aeronautical data are based on a 95 per cent confidence level. For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies. Accuracy requirements for obstacle and terrain data are based on a 90 per cent confidence level.
- (8) Integrity classification.
- (9) Origination type. Positional data is identified as surveyed, calculated or declared.
- (10) Publication resolution. The publication resolutions for geographical position data (latitude and longitude) are applicable to coordinates formatted in degrees, minutes and seconds. When a different format is used (such as degrees

with decimals for digital data sets) or when the location is significantly further to the north/south, the publication resolution needs to be commensurate with the accuracy requirements.

(11) Chart resolution

The Aeronautical Data Catalogue shall contain the aeronautical data subjects, properties and sub-properties as shown in the following tables:

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerodrome / Heliport	Designato			A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft. Designator of the					-	
	r	ICAO location indicator	Text	aerodrome / heliport The four letter ICAO location indicator of the aerodrome/ heliport, as listed in ICAO DOC 7910 (Location Indicators).	if any					
		Designa tor IATA	Text	The identifier that is assigned to a location in accordance with rules (resolution 767) governed by the International Air Transport Association (IATA).	if any					
		Other	Text	A locally defined airport identifier, if other than an ICAO Location Indicator						
	Name		Text	The primary official name of an aerodrome as designated by an appropriate authority.						
	Served Text city		The full name of the city or town the aerodrome/heliport is serving							

Table A1-1 Aerodrome data (Airport-Heliport)

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 1 - AERONAUTICAL DATA CATALOGUE

Table A1-1 Aerodrome data (Airport-Heliport) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerodrome / Heliport (cont.)	Type of traffic permitted									
		Internati onal_ national	Code list	Indication if international and/or national flights are permitted at the aerodrome/heliport						
		IFR_ VFR	Code list	Indication if IFR and/or VFR flights are permitted at the aerodrome/heliport						
		Schea_ nonsche d	Code list	Indication if scheduled and/or nonscheduled flights are permitted at the aerodrome/heliport						
		Civil_mil itary	Code list	Indication if civil commercial aviation and/or general aviation and/or military flights are permitted at the aerodrome/heliport						
		Restrict ed_use	Text	Indication if an aerodrome or heliport is not open for the public (Only for the use of the owners).						
	Heliport type		Text	The type of the heliport as mentioned in MOS-Aerodromes, Chapter 15 (Surface- level, elevated, shipboard or helideck)						
	Control type		Text	Indication if an aerodrome is under civil control, military control or joint control						
	Certified ICAO		Text	Indication if airport is/is not certified according to the ICAO rules						
	Certificati on date		Date	The date when the airport certification has been issued by the supervising authority.						
	Certificati on expiration date		Date	The date when the airport certification will become invalid.						
	Field elevation									
		Elevatio n	Elevatio n	The vertical distance above Mean Sea Level (MSL) of the highest point of the landing area.		0.5 m	essentia I	surveyed	1m or 1 ft	1 m or 1 ft
		Geoid undulati on	Height	Geoid undulation at the aerodrome/ heliport elevation position	where appropriate	0.5 m	essentia I	surveyed	1 m or 1 ft	1 m or 1 ft

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 1 - AERONAUTICAL DATA CATALOGUE

Table A1-1 Aerodrome data (Airport-Heliport) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerodrome / Heliport (cont.)	Reference temperatur e		Value	The monthly mean of the daily maximum temperatures for the hottest month of the year at an aerodrome. This temperature should be averaged over a period of years. (ICAO recommendation)						
	Mean low temperatu re		Value	The mean lowest temperature of the coldest month of the year, for the last five years of data at the aerodrome elevation.		5 degrees				
	variation			between True North and Magnetic North.						
		Angle	Angle	The magnetic variation angle value		1 degree	essentia I	surveyed	1 degree	1 degree
		Date	Date	The date on which the magnetic variation had the corresponding value.						
		Annual change	Value	The annual rate of change of the magnetic variation.						
	Referenc e point			The designated geographical location of an aerodrome.						
		Position	Point	Geographical location of aerodrome reference point.		30 m	routine	surveyed/ calculated	1 sec	1 sec
		Site	Text	The location of the reference point on the aerodrome.						
		Direction	Text	Direction of aerodrome reference point from center of the city or town which the aerodrome serves						
		Distance	Distance	Distance of aerodrome reference point from center of the city or town which the aerodrome serves						
Landing direction indicator				A device to indicate visually the direction currently designated for landing and for take-off.						
	Location		Text	Location of landing direction indicator						
	Lighting		Text	Lighting of landing direction indicator	if any					
Table A1-1 Aerodrome data (Airport-Heliport) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Secondary Power Supply										
, one, ouppy	Character istics		Text	The description of the secondary power supply						
	Switch- over time		Value	Secondary power supply switch-over time						
Anemometer				Device used for measuring wind speed						
	Location		Text	Location of anemometer						
	Lighting		Text	Lighting of anemometer	if any					
ABN / IBN				Aerodrome beacon / identification beacon used to indicate the location of an aerodrome/heliport from the air.						
	Location		Text	Location of aerodrome/heliport beacon/identification beacon	if any					
	Character istics		Text	Description of aerodrome/heliport beacon/identification beacon						
	Hours of operation		Schedule	Hours of operation of aerodrome/heliport beacon/identification beacon						
Wind Direction										
	Location		Text	Location of wind direction indicator						
	Lighting		Text	Lighting of wind direction indicator						
RVR observation site	_	·		The observation site of Runway Visual Range.						
	Position		Point	Geographical location of runway visual range (RVR) observation sites						
Frequency Area				Designated part of a surface movement area where a specific frequency is required by air traffic control or ground control.						
	Station		Text	Name of the station providing the service						
	Frequency		Value	Frequency of the station providing the service						
	Boundary		Polygon	Area boundary of the frequency area						

Table A1-1 Aerodrome data (Airport-Heliport) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Hot spot				A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.						
	Identifier		Text	The indentifier of the hot spot						
	Annotation		Text	Additional information about the hot spot						
	Geometry		Polygon	The geographical area of the hot spot						

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway				A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft. (MOS-Aerodromes)		-	-	-	-	-
	Designator		Text	The full textual designator of the runway, used to uniquely identify it at an aerodrome/heliport. E.g. 09/27, 02R/20L,						
	Nominal length		Distance	RWY 1. The declared longitudinal extent of the runway for operational (performance) calculations.		1 m	critical	surveyed	1 m or 1 ft	1 m
	Nominal width		Distance	The declared transversal extent of the runway for operational (performance) calculations.		1 m	essentia I	surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geometries of RunwayElement, RunwayDisplacedAre a and RunwayIntersection						
	Center line points									
		Position	Point	The geographical location of runway center line at each end of the runway, at the stopway and at the origin of each take-off flight path area, and at each significant change in slope of runway and stopway	Definition from CAR- ANS Part 4, 4.3.8.4.2	1 m	critical	surveyed		
		Elevation	Elevation	The elevation of the corresponding center line point. (See MOS-Aerodromes 5.1.4.20: for non-precision approaches any significant high and low intermediate points along the runway shall be measured to the accuracy of one-half meter or foot) See Note 3)		0.25 m	critical	surveyed		
		Geoid undulation	Height	The geoid undulation at the correspoding center line point						

Table A1-1 Aerodrome data (Runway)

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway (cont.)	RWY exit line									
		Exit guidance line	Line	The geographical location of the runway exit line		0.5 m	essentia I	surveyed	1/100 sec	1 sec
		Colour	Text	Colour of runway exit line						
		Style	Text	Style of runway exit line						
		Directionality	Code List	Directionality of RWY exit line (one-way or two-way)						
	Surface type		Text	The surface type of the runway defined as specified in MOS- Aerodromes						
	Strength	DONI		-						
		PCN [*]	lext	Pavement classification number						
		PCR [†]	Text	Pavement classification rating						
		Pavement type*	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN) determination						
		Pavement type [†]	Text	Pavement type for aircraft classification rating — pavement classification rating (ACR-PCR) determination						
		Subgrade category	Text	Subgrade strength category						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used						
	Strip			A defined area including the runway and the stop-way if provided a) to reduce the risk of damage to aircraft running off a runway; and b) to protect aircraft flying over it during						
		Longit	Dictor	take-off or landing operations						
		Length	Distance	extent of the runway strip.						
		Width	Distance	The transversal extent of the runway strip						
		Surface type	Text	The surface type of the runway strip						

* Applicable until 27 November 2024

† Applicable as of 28 November 2024

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway (cont.)	Shoulder			An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.						
		Geometry	Polygon	The geographical location of the shoulders						
		Surface type	Text	The surface type of the shoulder						
		Width	Distance	The width of the runway shoulder		1m	essentia I	surveyed	1 m or 1 ft	
	Blastpad	I		The area provided to reduce the erosive effects of jet blast and propeller wash.						
		Geometry	Polygon	The geographical location of the blastpad						
	Obstacle free zone		Text	Existence of an obstacle-free zone for a precision approach runway category I	when provided					
	RWYmar king									
		Туре	Text	Type of runway marking						
		Descriptio n	Text	Description of the runway markings						
		Geometry	Polygon	The geographical location of the runway marking						
	RWY center line LGT									
		Length	Distance	The longitudinal extent of the runway center line lights						
		Spacing	Distance	Spacing of runway center line lights						
		Colour	Text	Colour of runway center line lights						
		Intensity	Text	Intensity of runway center line lights						
		Position	Point	Geographical location of each individual light of the runway center line lights						

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway (cont.)	RWY Edge LGT									
		Length	Distance	The longitudinal extent of the runway edge lights						
		Spacing	Distance	Spacing of the runway edge lights						
		Colour	Text	Colour of runway edge lights						
		Intensity	Text	Intensity of runway edge lights						
		Position	Point	Geographical location of each individual light of the runway edge lights						
	Reference Code	Number	Code list Code list	The intent of the reference code is to provide a simple method for interrelating the numerous specifications concerning the characteristics of aerodromes so as to provide a series of aerodrome facilities that are suitable for the aeroplanes that are intended to operate at the aerodrome A number based on the aeroplane reference field length A letter based on the aeroplane wingspan and outer main gear wheel span						
	Restriction		Text	Description of restrictions imposed on runway						
Runway Direction				· · · · · · · · · · · · · · · · · · ·						
	Designator		Text	The full textual designator of the landing and take-off direction. Examples: 27, 35L, 01R.						
	True bearing		Bearing	The true bearing of the runway.		1/100 deg	Routine	surveyed	1/100 degree	1 degree
	туре		Text	rype of runway: precision (CAT I, II, III) / non-precision / non- instrument						

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway Direction (cont.)	Threshold			The beginning of that portion of the runway usable for landing.						
		Position	Point	Geographical location for runway threshold		1 m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the runway threshold				See Note	1)	
		Geoid undulation	Height	WGS-84 Geoid undulation at runway threshold position				See Note 2	2)	
		Туре	Text	The indication if the threshold is displaced/ not displaced. A displaced threshold is not located at the extremity of a runway.						
		Displacement	Distance	Distance of displaced threshold	If displaced threshold	1 m	routine	surveyed	1m or 1ft	
	Runway end			Runway end (flight path alignment point)						
		Position	Point	Location of the runway end in the direction of departure		1 m	critical	surveyed	1/100 sec	1 sec
	Departure	Elevation	Elevation	Elevation of the end position of the runway		See Note 3				
	Departure end of runway			Departure end of the runway (DER), which is the end of the area declared suitable for take-off (i.e. the end of the runway or, where a clearway is provided, the end of the clearway).	Beginning of departure procedure					
		Position	Point	Geographical location of DER						
		Elevation	Elevation	The elevation of DER is the elevation of the end of the runway or the elevation of the end of the clearway, whichever is higher.						
	Touchdown zone			The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.						
		Elevation	Elevation	Highest elevation of the touchdown zone of a precision approach runway	precision approach RWY	0.25 m or 1 ft				
		Slope	Value	The slope of the runway touchdown zone						
	Slope		Value	Slope of the runway						

Table A1-1 Aerodrome data (Runway) (cont.)	Table	A1-1	Aerodrome	data	(Runway)	(cont.))
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Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway Direction (cont.)	LAHSO			Land and Hold Short Operations						
		Geometry	Line	Geographical location of Land and Hold Short Operations (LAHSO)						
		Protected element	Text	Name of runway or taxiway being protected						
	Displaced area			That portion of a runway between the beginning of the runway and the displaced threshold.						
		Geometry	Polygon	Geographical location of the displaced area						
		PCN*	Text	Pavement classification number of the displaced area						
		PCR [†]	Text	Pavement classification rating of the displaced area						
		Surface type	Text	The surface type of the displaced area						
		Aircraft restriction	Text	Usage restriction for specific aircraft type						
	Stopway			A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.						
		Length	Distance	The longitudinal extent of stopway	if any	1 m	critical	surveyed	1 m or 1 ft	1 m
		Width	Distance	Width of the stopway		1 m	critical	surveyed	1 m or 1 ft	1 m
		Geometry	Polygon	Geographical location of the stopway						
		Slope	Value	Slope of stopway						
		Surface type	Text	The surface type of the stopway						

* Applicable until 27 November 2024

† Applicable as of 28 November 2024

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway Direction (cont.)	Clearway	Lenath	Distance	A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height. The lonoitudinal		1 m	essentia	surveyed	1 m or 1	
				extent of the clearway			I		ft	
		Width	Distance	The transversal extent of the clearway		1 m	essentia I	surveyed	1 m or 1 ft	
		Ground profile		The vertical profile (or slope) of the clearway	if any					
	RESA			An area symmetrical about the extended runway center line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.						
		Length	Distance	The longitudinal extent of Runway End Safety Area						
		Width	Distance	The transversal extent of the Runway End Safety Area						
		Longitudin I slope	Value	Longitudinal slope of Runway End Safety Area						
		Transverse slope	Value	Tranverse slope Runway End Safety Area						
	Declared distances									
		TORA	Distance	Take-off run available - The length of runway declared available and suitable for the ground run of an aeroplane taking off.		1 m	critical	surveyed	1 m or 1 ft	1 m
		TODA	Distance	Take-off distance available - The length of the take-off run available plus the length of the clearway, if provided.		1 m	critical	surveyed	1 m or 1 ft	1 m

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway Direction (cont.)	Declared distances (cont.)	ASDA	Distance	Accelerate-stop distance available - The length of the take- off run available plus the length of the stopway, if provided.		1 m	critical	surveyed	1 m or 1 ft	1 m
		LDA	Distance	Landing distance available - The length of runway which is declared available and suitable for the ground run of an aeroplane landing.		1 m	critical	surveyed	1 m or 1 ft	1 m
		Remarks	Text	Remarks including runway entry or start point where alternative reduced declared distances have been declared.						
	RWY End LGT									
		Colour	Text	Colour of runway end lights						
		Position	Point	Geographical location of each individual light of the runway end lights						
	SWY LGT									
		Length	Distance	The longitudinal extent of stopway lights						
		Colour	Text	Colour of stopway lights						
		Position	Point	Geographical location of each individual light of the stopway lights						
	Approach lighting system									
		Туре	Text	Classification of the approach lighting system using as criteria the standards in MOS-Aerodromes						
		Length	Distance	The longitudinal extent of approach lighting system						
		Intensity	Text	A code indicating the relative intensity of the lighting system						
		Position	Point	Geographical location of each individual light of the approach lighting system						

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway Direction (cont.)	RWY threshold lights									
		Colour	Text	Colour of runway threshold lights						
		Wing bar color	Text	Colour of runway threshold wing bars						
		Position	Point	Geographical location of each individual light of the threshold and wing bar lights						
	Touchdown zone lights									
	5	Lenght	Distance	The longitudinal extent of the runway touchdown zone lights						
		Position	Point	Geographical location of each individual light of the touchdown zone lights						
	Visual approach slope indicator system									
		MEHT	Height	Minimum Eye Height over the Threshold						
		Position	Point	Geographical location of Visual approach slope indicator system						
		Angle	Angle	Nominal approach slope angle(s)						
		Туре	Text	Type of VGSI (VASI, PAPI etc.)						
		Displacem nt angle	Angle	Where the axis of the system is not parallel to the runway center line, the angle of displacement						
		Displacem nt directior	Text	Where the axis of the system is not parallel to the runway center line, the direction of displacement, i.e. left or right						
	Arresting gear		Line	Geographical location of the arresting gear cable across the runway						

Table A1-1 Aerodrome data (Runway) (cont.)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res	Chart Res.
Runway	Arresting			High energy						
Direction (cont.)	system			absorbing material						
(com.)				runway or stopway						
				designed to crush						
				under the weight of an						
				aircraft as the material						
				exerts deceleration						
				forces on the aircraft						
		Geometry	Polyaon	The geographical						
		Coomouy	ronygon	location of the						
				arresting system						
		Setback	Distance	Setback of the						
				arresting system						
		Length	Distance	I he longitudinal						
				extent of arresting						
		Width	Distance	The transverse extent						
				of arresting system						
Radio altimeter										
area		1								
	Length		Distance	The longitudinal						
				extent of radio						
	Width		Distanco	The transverse extent						
	WIGHT		DISIGNUE	of radio altimeter area						
	Geometry		Polygon	Geographical location						
			,,,	of radio altimeter area						

Note 1)	Threshold elevation for runways with non-precision approaches	0.5 m	essential	surveyed	1 m or 1 ft.	1 m or 1 ft.
	Threshold elevation for runways with precision approaches	0.25 m	critical	surveyed	0.1 m or 0.1 ft.	0.5 m or 1 ft.
Note 2)	WGS-84 geoid undulation at runway threshold, non-precision approaches	0.5 m	essential	surveyed	1 m or 1 ft.	1 m or 1 ft.
	WGS-84 geoid undulation at runway threshold, precision approaches	0.25 m	critical	surveyed	0.1 m or 0.1 ft.	0.5 m or 1 ft.
Note 3)	Elevation of the runway end and any significant high and low intermediate points along the runway for non- precision approaches	0.5 m or 1 ft.				
	Elevation of the runway end and the highest elevation of the touchdown zone for precision approach runways	0.25 m or 1 ft.				

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
FATO				Final approach and take-off area. A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by helicopters operated in performance class 1, the defined area includes the rejected take-off area available.						
	Threshold			The beginning of that portion of the FATO usable for landing.						
		Position	Point	Geographical location of FATO threshold		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the FATO threshold				See Note	1)	
		Geoid undulation	Height	WGS-84 Geoid undulation at FATO threshold position				See Note 2	2)	
	Departure end of runway			Departure end of the runway (DER), which is the end of the area declared suitable for take-off (i.e. the end of the runway or, where a clearway is provided, the end of the clearway or the end of the final approach and take- off (FATO) area).						
		Position	Point	Geographical location of DER		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	The elevation of the DER is the higher of the elevations of the beginning and end of the runway/FATO.						
	Туре		Text	Type of FATO according to ICAO Heliport Manual (Doc 9261)						
	Designation		Text	The full textual designator of the landing and take-off area.						
	Length		Distance	The longitudinal extent of FATO		1m	critical	surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of FATO						

Table A1-1 Aerodrome data (TLOF-FATO)

Table A1-1 Aerodrome data (TLOF-FATO) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
FATO (cont.)	Geometry		Polygon	Geographical location of FATO						
	Slope		Value	The slope of FATO						
	Surface type		Text	The surface type of FATO						
	True bearing		Bearing	The true bearing of FATO		1/100 deg	routine	surveyed	1/100 degree	
	Declared									
	UISIGNILES	TODAH	Distance	Take-off distance available - The length of the FATO plus the length of helicopter clearway (if provided)	and if applicable , alternativ e reduced declared distances;	1m	critical	surveyed	1 m or 1 ft	
		RTODAH	Distance	Rejected Take-off distance available - The length of the FATO declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off.		1m	critical	surveyed	1 m or 1 ft	
		LDAH	Distance	Landing distance available - The length of the FATO plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height		1m	critical	surveyed	1 m or 1 ft	
		Remarks	Text	Remarks including entry or start point where alternative reduced declared distances have been declared.						
	FATO									
	пакіну	Description	Text	Description of FATO markings						
	Approach lighting system									
		Туре	Text	Classification of the approach lighting system using as criteria the MOS- Aerodromes standards						
		Length	Distance	The longitudinal extent of approach lighting system.						
		Intensity	Text	A code indicating the relative intensity of the lighting system.						
		Position	Point	Geographical location of each individual light of the approach lighting system						

Table A1-1 Aerodrome data (TLOF-FATO) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
FATO (cont.)	Area lights									
		Description	Text	Characteristics of area lights						
		Position	Point	Geographical location of each individual light of the area lights						
	Aiming point lights									
	J	Description	Text	Characteristics of aiming point lights						
		Position	Point	Geographical location of each individual light of the aiming point lights						
TLOF				Touchdown and lift- off area. An area on which a helicopter may touch down or lift off.						
	Designator		Text	The full textual designator of TLOF						
	Center point									
		Position	Point	Geographical location of TLOF geometric center		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the TLOF geometric center				See Note 1))	
		Geoid undulation	Height	WGS-84 Geoid undulation at TLOF geometric center position				See Note 2))	
	Length		Distance	The longitudinal extent of TLOF		1m	critical	surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of TLOF		1m	critical	surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geographical location of TLOF element						
	Slope		Value	The slope of TLOF						
	Surface type		Text	The surface type of TLOF						
	Bearing strength		Value	The bearing strength of TLOF					1 tone	
	Visual approach slope indicator system type Marking		Text	Type of visual approach slope indicator system						
		Description	Text	Description of TLOF						
				markings						

Table A1-1 Aerodrome data (TLOF-FATO) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Safety area		· · · · · · · · · · · · · · · · · · ·		A defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.						
	Length		Distance	The longitudinal extent of safety area						
	Width		Distance	The transversal extent of safety area						
	Surface type		Text	The surface type of safety area						
Helicopter clearway				A defined area on the ground or water, selected and/or prepared as a suitable area over which a helicopter operated in performance class 1 may accelerate and achieve a specific height.						
	Length		Distance	The longitudinal extent of the helicopter clearway						
	Ground profile		Value	Vertical profile (or slope) of helicopter clearway						

Note 1)	FATO threshold, for heliports with or without a PinS approach	0.5 m	essential	surveyed	1 m or 1 ft.
	FATO threshold, for heliports intended to be operated in accordance with IMOS-Aerodromes, Appendix 7, 7.2.	0.25 m	critical	surveyed	1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)
Note 2)	WGS-84 geoid undulation at FATO threshold, TLOF geometric center, for heliports with or without a PinS approach	0.5 m	essential	surveyed	1 m or 1 ft.
	WGS–84 geoid undulation at FATO threshold, TLOF geometric center, for heliports intended to be operated in accordance with IMOS-Aerodromes, Appendix 7, 7.2.	0.25 m	critical	surveyed	1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)

Subject	Droporty	Sub Property	Туро	Description	Note		Integrity		Dub Dos	Chart Pos
Annan	Property	Sub-Property	Туре		Note	Accuracy	Integrity	Ung Type	Pup. Res.	Chart Nes.
Apron				A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.						
	Designator		Iext	name or designator used to identify an apron at an aerodrome/heliport						
	Geometry		Polygon	Geographical location of the apron element		1m	routine	surveyed	1/10 sec	1 sec
	Туре		Text	Classification of the primary use for the apron						
	Aircraft restriction		Text	Usage restriction (prohibition) for specified aircraft type						
	Surface type		Text	The surface type of the apron						
	Strength									
		PCN*	Text	Pavement classification number of apron						
		PCR [†]	Text	Pavement classification rating of apron						
		Pavement type*	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN) determination						
		Pavement type [†]	Text	Pavement type for aircraft classification rating — pavement classification rating (ACR-PCR) determination						
		Subgrade category	Text	Subgrade strength category of apron						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used to determine the apron strength						
	Elevation		Elevation	The elevation of the apron						

Table A1-1 Aerodrome data (Apron-Taxiway)

* Applicable until 27 November 2024

† Applicable as of 28 November 2024

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Taxiway				A defined path on						
-				a land aerodrome						
				established for the						
				taxiing of aircraft						
				and intended to						
				provide a link						
				of the aerodrome						
				and another.						
	Designator		Text	The full textual						
	5			designator of the						
				taxiway.						
	Width		Distance	The transversal		1m	essential	surveyed	1 m or 1 ft	
				extent of the						
			D.L	taxiway.					<u> </u>	
	Geometry		Polygon	Geographical						
				taxiway olomont						
	Bridge		Toxt	Type of bridge						
	Dridge		TCAL	(none, overpass,						
				underpass)						
	Surface		Text	Surface type of						
	type			taxiway						
	Strength	<u> </u>								
	-	PCN*	Text	Pavement					1	
			1.0/11	classification						
				number of taxiway						
		PCR [†]	Text	Pavement						
				classification rating						
			T 1	of taxiway						
		Pavement	Text	Pavement type for						
		type		number — navement						
				classification number						
				(ACN-PCN)						
				determination						
		Pavement	Text	Pavement type for						
		type [†]		aircraft classification						
				rating — pavement						
				classification rating						
				(ACR-PCR)						
		Subgrade	Text	Subarade strenath						
		category	TCAL	category of taxiway						
		Allowable	Text	Maximum allowable						
		pressure		tire pressure						
				category or						
				maximum allowable						
				tire pressure value					ļ	
		Evaluation	Text	I he evaluation						
		method		method used to						
				taxiway strength						
	Aircraft		Text	Usage restriction						
	restrictions		1 OAR	(prohibition) for						
				specified aircraft						
				type						
	Reference		Code list	A letter based on						
	code letter			the aeroplane						
				wingspan and						
				outer main gear						
				wheel span						

* Applicable until 27 November 2024

† Applicable as of 28 November 2024

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Taxiway (cont.)	Location for wing tips extension ^{††}	Position	Point	For aerodromes accommodating aeroplanes with folding wing tips, the location where to extend the wing tips						
	Center line									
	points	Position	Point	Geographical coordinates of taxiway center line points		0.5m	essential	surveyed	1/100 sec	1/100 sec
		Elevation	Elevation	Elevation of taxiway center line points		1m	essential	surveyed		
	Shoulder			An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.						
		Geometry	Polygon	Geographical location of the taxiway shoulder						
		Surface type	Text	Surface type of taxiway shoulder		1m	occontial	currioved	1 m or 1 ft	
		width	Distance	taxiway shoulder		1111	essential	suiveyeu		
	Guidance lines									
		Geometry	Line	Geographical location of guidance lines		0.5 m	essential	surveyed	1/100 sec	1/100 sec
		Colour	Text	Colour of taxiway						
		Style	Text	Style of taxiway guidance lines						
		Wingspan	Value	Wingspan						
		Maxspeed	Value	Maximum speed						
		Direction	Text	Direction		0.5			4/4.00	1
	Intermedia te holding position marking line		Line	Intermediate holding position marking line		0.5 m	essential	surveyed	1/100 sec	1 sec
	Taxiway									
	marking	Description	Text	Description of taxiway marking						
	Taxiway edge lights	I								
	5 5	Description	Text	Description of taxiway edge lights						
		Position	Point	Geographical location of each individual light of the taxiway edge lights						

†† Applicable as of 4 November 2021

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Taxiway (cont.)	Taxiway center line lights									
	0	Description	Text	Description of taxiway center line lights						
		Position	Point	Geographical location of each individual light of the taxiway center line lights						
	Stop bars			U						
		Description	Text	Description of the stop bars	if any					
		Geometry	Line	Location of the stop bar						
	Runway guard lights									
		Description	Text	Description of the runway guard lights and other runway protection measures	if any					
		Position	Point	Location of the stop bar	Configura tion A					
		Geometry	Line	Location of the stop bar	Configura tion B					
	Runway holding position	Coometry	line	A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/ MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.		0.5m	occontial	curround	1/100 coc	1 coc
		Geometry	Line	Geographical location of runway holding position		0.5m	essential	surveyed	1/100 sec	I Sec
		Protected runway	Text	Designator of the runway protected						
		Catstop	Code list	CAT of runway (0, I, II, III)						
		RWY ahead text	Text	Actual text as it exists in the marking. For example, RWY AHEAD or RUNWAY AHEAD.						

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Taxiway (cont.) Intermedia te holding position Geometry Line Geographical location of intermediate	
position lintermediate	
holding position - A	
designated position	
intended for traffic	
vehicles shall stop	
and hold until	
further cleared to	
proceed, when so	
aerodrome control	
tower.	
Helicopter A ground taxiway	
ground intended for the	
dround movement	
undercarriage	
helicopters. (MOS-	
Aerodromes)	
Designator lext The full textual designator of	
helicopter ground	
taxiway	
Center line Point Geographical 0.5m essential surveyed/	
points location of calculated	
center line taxiway	
points	
Elevation Elevation of 1m essential surveyed	
helicopter ground	
UdXIWdy Im essential surveyord	
extent of the	
helicopter ground	
taxiway	
Surface I ext I ne surface type of type	
ground taxiway	
Intersectio Line Helicopter ground 0.5 m essential surveyed 1/100 sec 1	sec
n marking taxiway	
Ine Intersection marking line	
Description Text Description of	
helicopter ground	
taxiway light	
Position Point Geographical	
individual light of	
the helicopter	
ground taxiway	
Marking lights	
Description Text Description of helicopter ground	

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Helicopter air taxiway				A defined path on the surface established for the air taxiing of helicopters. (MOS- Aerodromes)						
	Designator			The full textual designator of helicopter air taxiway						
	Center line points		Point	Geographical location of helicopter air taxiway center line points		0.5m	essential	surveyed/ calculated		
	Elevation		Elevation	Elevation of helicopter air taxiway		1m	essential	surveyed		
	Width		Distance	The transversal extent of the helicopter air taxiway		1m	essential	surveyed		
	Surface type		Text	Surface type of helicopter air taxiway						
	Lighting									
		Description	Text	Description of helicopter air taxiway lighting						
		Position	Point	Geographical location of each individual light of the helicopter air taxiway lights						
	Marking	<u> </u>	1	toning						
		Description	Text	Description of helicopter air taxiway marking						
Helicopter air transit routes				A defined path established for the movement of helicopters from one part of a heliport to another. A taxi-route includes a helicopter air or ground taxiway which is centerd on the taxi-route.						
	Designator		Text	Designator of helicopter air transit route						
	Geometry		Line	Geographical location of helicopter air transit route						
	Width		Distance	The transversal extent of the helicopter air transit route		1m	essential	Surveyed		
INS checkpoint										
спескропт	Position		Point	Geographical location of the INS check point	where available	0.5m	routine	surveyed	1/100 sec	1/100 sec

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
VOR checkpoint										
	Position		Point	Geographical location of the VOR check point	where available					
	Frequency		Value	Frequency of the VOR check point						
Altimeter checkpoint										
	Position		Point	Geographical location of altimeter checkpoints						
	Elevation		Elevation	Elevation of altimeter checkpoints						
Aircraft stand				A designated area on an apron intended to be used for parking an aircraft						
	Name		Text	Name of the aircraft stand point						
	Acft stand points	Position	Point	Geographical location of aircraft stand point		0.5m	routine	surveyed	1/100 sec	1/100 sec
		Aircraft types	Code list	Aircraft types						
	Identificati on sign		Text	Description of aircraft stand identification sign						
	Visual docking parking guidance system		Text	Description of visual docking/parking guidance system at the aircraft stand						
	Parking stand area		Polygon	Geographical location of parking stand area						
	Jetway		Code list	Jetway available at aircraft stand						
	Fuel		Code list	Fuel available at aircraft stand						
	Ground power		Code list	Ground power available at aircraft stand						
	Towing		Code list	Towing available at aicraft stand						
	Terminal		Text	Terminal building reference						
	Surface type		Text	Surface type of the aircraft stand						
	Aircraft restriction		Text	Usage restriction (prohibition) for specified aircraft type						
	PCN*		Text	Pavement classification number of aircraft stand						
	PCR [†]		Text	Pavement classification rating of aircraft stand						

* Applicable until 27 November 2024

† Applicable as of 28 November 2024

Table A1-1 Aerodrome data (Apron-Taxiway) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aircraft stand (cont)	Stand guidance line									
		Geometry	Line	Geographical location of stand guidance line		0.5m	essential	surveyed	1/100 sec	
		Elevation	Elevation	Parking guidance line points elevation		1m	essential	surveyed		
		Direction	Text	Direction of stand guidance line						
		Wingspan	Value	Wingspan						
		Colour	Code list	Colour of stand guidance line						
		Style	Code list	Style of stand guidance line						
Helicopter stand				An aircraft stand which provides for parking a helicopter and where ground taxi operations are completed or where the helicopter touches down and lifts off for air taxi operations. (MOS- Aerodromes)						
	Name		Text	Name of helicopter						
	Position		Point	Geographical location of helicopter stand point/ INS checkpoints		0.5m	essential	surveyed	1/100 sec	
De-icing area				A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/or where clean surfaces of the aeroplane receive protection (anti- icing) against the formation of frost or ice and accumulation of snow or slush for a limited period of time.						
	Identifier		Text	Identifier of de- icing area						
	Geometry		Polygon	Geographical location of de-icing area		1m	routine	surveyed	1/10 sec	1 sec
	Surface type		Text	The surface type of the deicing area						
	Idbase		Text	Name of underlying Taxiway, Parkingstand or Apron Element						
	Aircratt restriction		Text	Usage restriction (prohibition) for specified aircraft type						

	-			-				• ·		
Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Communi cation facility										
	Service designation		Text	Designation of the service provided						
	Call sign		Text	Call sign of the communication facility						
	Channel		Text	Channel/Frequency of the communication facility						
	Logon address		Text	The logon address of the facility	as appropriate					
	Hours of operation		Schedule	Operational hours of the station serving the unit						

Table A1-1 Aerodrome data (Communication Facility)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS Airspace	Tung		Tout	Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.						
	Туре		Text	airspace according to CAR-ANS Pt. 11.						
	Name		Text	The designator given to an airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the Airspace				see Note 1	1)	
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace		50 m	routine	calculate d	50 m or 100 ft	50 m or 100 ft
	Class of airspace		Code list	A categorisation of airspace which determines the operating rules, flight requirements, and services provided, as indicated in CAR- ANS Pt. 11, Section 11.2.6 and Appendix 11.4						
	Transition altitude		Altitude	The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.						
	Hours of applicability		Schedule	The hours of applicability of the airspace						

Table A1-2 Airspace data (ATS Airspace)

Table A1-2 Airspace Data (ATS Airspace) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS Airspace (cont.)	ATS Unit			Unit providing service						
		Name	Text	The name of the unit providing the service						
		Call sign	Text	The call sign of the aeronautical station serving the unit						
		Language	Code list	Information on the language(s) used, specifying area and conditions, when and where to be used, if applicable						
		Applicability	Text	Information on the area and conditions when to be used						
		Hours of service	Schedule	Operational hours of the station serving the unit						
	SATVOIC E number									
		Value	Value	The SATVOICE number of the ATS aispace						
		Purpose	Text	Indications for specific purposes of the SATVOICE number.						
			Note 1)	FIR LIIR		2 km	routine	declared	1 min	as plotted
			NOICE I)	TMA, CTA		100 m	essential	calculated	1 sec	as plotted
				CTR		100 m	essential	calculated	1 sec	as plotted

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Special activity airspace										
	Туре		Code list	Type of special activity airspace (See Note 1)						
	Identification		Text	The identification assigned to uniquely identify the airspace						
	Name		Text	The name given to the airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace			See N	Note 2) for P,R,I) Areas only	
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						
	Restriction		Text	Type of restriction or nature of hazard						
	Activation		Text	Information on system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures;						
	Time of activity		Schedule	Time interval when the special activity takes place						
	Risk of interception		Text	Risk of interception in the event of penetration						

Table A1-2 Airspace data (Special Activities Airspace)

Note 1) type	Prohibited Area Restricted Area	Note 2)	inside CTA/CTR outside CTA/CTR	100 m 2 km	essential routine	calculated declared	1 sec 1 min	as plotted as plotted
	Danger Area Military Exercise Area Military Training Area Air Defence Identification Zone (ADIZ) Other							

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerial sporting activities airspace			-	Airspace with intensive aerial sporting and recreational activities						
	Type of activity		Text	Type of aerial sporting or recreational activity						
	Designator		Text	The designation of the airspace						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						
	Time of activity		Schedule	Time interval when the activity takes place						
	Operator		Text	Contact details (Tel. Nr. or Frequency) of operator / user						

Table A1-2 Airspace data (Aerial Sporting Activities)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Other regulated airspace										
	Туре		Text	Type of airspace (RVSM, ELT etc.)						
	Identification		Text	The identification assigned to uniquely identify the airspace						
	Name		Text	The name given to the airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						
	Restriction		Text	Type of restriction if any						
	Activation		Text	Information on system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures.						
	Time of activity		Schedule	Time interval when the special activity takes place						

Table A1-2 Airspace data (Other Regulated Airspace)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS control sector										
	Identification		Text	The identification given to the sector						
	Lateral limits		Polygon	The surface defining the horizontal shape of the ATC-sector						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the sector						
		Lower limit	Altitude	The lower limit of the sector						

Table A1-2 Airspace data (ATC Sectors)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS Route	ł	L		A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.						
Other	Designator		Text	Designators for ATS routes according to CAR- ANS Pt. 11, Appendix 11.1 (or Appendix 11.3 for standard departure and arrival routes). A specified route designed for						
Noule				channelling the flow of traffic as necessary without provision of air traffic services						
	Designato r		Text	Designator of the route						
	Туре		Text	Type of route (e.g. VFR uncontrolled navigation routes)						
	Flight rules		Code list	Information on the flight rules that apply on the route (IFR / VFR)						

Table A1-3 ATS and other routes data (ATS Route)

Table A1-3 ATS and other routes	s data (ATS Route) (cont.)
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Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Route										
	Navigation specification*		Text	Designation of the navigation specification(s) applicable to a specified segment(s) - There are two kinds of navigation specifications: Required navigation performance (RNP) specification A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. Area navigation specification. A navigation specification. A navigation specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.						
	From point			Reference to the first point of a route segment						
		Designator	Text	The coded designators or name-codes of significant point						
		Reporting	Code list	Indication of ATS / MET reporting requirement "compulsory" or"on-request"						

* Applicable until 3 November 2021

Table A1-3 ATS and other routes data (ATS Route) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Route	To point	II		Reference to the						
segment (cont.)				second point of a route segment						
. ,		Designator	Text	The coded						
				name-codes of						
		D	0 1 1 1	significant point						
		Reporting	Code list	Indication of the ATS / MET						
				reporting						
				"compulsory" or						
	Track		Poaring	"on-request" Track VOP radial		1/10	routino	calculated	1 dogroo	1 dogroo
	HACK		Dealing	or magnetic		degree	(terminal	(terminal	(terminal	(terminal arrival
				bearing of a route		(terminal	arrival	arrival doparturo)	arrival	departure)
				segment		departure)	ueparture))	
	Chango		Doint	The point at which	in case of)				
	over point		FUIII	an aircraft	VOR					
				navigating on an	radial					
				defined by						
				reference to very high frequency						
				omnidirectional						
				expected to						
				transfer its primary						
				reference from the						
				facility behind the						
				facility ahead of the						
	Longth		Distanco	aircraft.						
	Lengui		Distance	distance between				See Note '	2)	
				from point and to					-)	
	Upper		Altitude	The upper limit of						
	limit Lower		Altitude	the route segment						
	limit		, initiado	the route segment						
	MEA		Altitude	Minimum en-route	Lower ATS	50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
				altitude for an en-	Routes*				100 11	
				route segment that provides adequate						
				reception of						
				facilities and ATS						
				communications,						
				airspace structure						
				and provides the						
				clearance.						
	MOCA		Altitude	Minimum obstacle	Lower	50 m	routine	calculated	50 m or 100 ft	50 m or 100
				(MOCA). The	routes*				100 10	
				minimum altitude						
				segment of flight						
				that provides the required obstacle						
				clearance.						

* Applicable until 3 November 2021

Table A1-3 ATS and other routes data ((ATS Route) (cont.)
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Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Route segment (cont.)	Minimum flight altitude		Altitude	Minimum flight altitude	Helicopter route*	50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
	Lateral Limits		Distance	Lateral limits of route						
	Restrictions		Text	Indication on any area speed and level/altitude restrictions where established.						
	Direction of cruise levels		-	Indication on the direction of the cruising level (even, odd, NIL)						
		Foward	Code list	Indication on the direction of the cruising level (even, odd, NIL) from first point to second point of route segment						
	-	Backward	Code list	Indication on the direction of the cruising level (even, odd, NIL) from second point to first point of route segment						
	Availability		Text	Information on the route availability						
	Class of airspace		Text	Classification of airspace (A, B, G) which determines the operating rules, flight requirements, and services provided. According to CAR- ANS Pt. 11,, Appendix 11.4						
	PBN requirements			Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace requirements	PBN only					

* Applicable until 3 November 2021

Table A1-3 ATS and other routes data (ATS Route) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Route segment (cont.)	PBN requirements (cont.)	1								
		Navigation specification [†]	Text	Designation of the navigation specification(s) applicable to a specified segment(s) - There are two kinds of navigation specifications: Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. Area navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.						
		Navigation performance requirements	Text	The navigation accuracy requirement for each PBN (RNAV or RNP) route segment						
		requirements	Text	sensor requirements including any navigation specification limitations						
Route segment (cont.)	Controlling unit									
. /		Name	Text	Name of the unit providing the service						
		Channel	Text	Operating channel / frequency of controlling unit						
		Logon address	Text	A specified code used for data link logon to the controlling ATS unit	if applicable					

† Applicable as of 4 November 2021
Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
AMA										
	Lateral Limits		Distance	Lateral limits of the sectors						
	Vertical Limit		Altitude	Area Minimum Altitude (AMA) - The minimum altitude to be used under instrument meteorological conditions (IMC), that provides a minimum obstacle clearance within a specified area, normally formed by parallels and meridians.						
MVA										
	Lateral Limits		Distance	Lateral limits of the sectors						
	Vertical Limit		Altitude	Minimum Vector Altitude						

Table A1-3 ATS and other routes data (ATS Route) (cont.)

Note 1)	U) Upper	Note 2)	Airway segments length	1/10 km	routine	calculated	1/10 km or 1/10 NM	1 km or 1 NM
	K) Helicopter		Terminal arrival/dep arture route segments length	1/100 km	essential	calculated	1/100 km or 1/100 NM	1 km or 1 NM
	S) Supersonic							
	T) Tacan							
	Other							

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Waypoint										
	Identification		Text	Names, coded designators or name-codes assigned to the significant point.						
	Position		Point	Geographical location of the waypoint		100 m	essential	surveyed calculated	1 sec	1 sec
	Formation									
		Navaid	Text	The station identification of the reference VOR/DME						
	Bearing Bearing			The bearing from the reference VOR/DME, if the waypoint is not collocated with it.		See Note 1.				
		Distance	Distance	The distance from the reference VOR/DME, if the waypoint is not collocated with it.		See Note 2.				

Table A1-3 ATS and other routes data (Waypoint)

Note 1)	Bearing used for the formation of an en- route fix	1/10 degree	routine	calculated	1/10 degree	1/10 degree
Note 2)	Distance used for the formation of an en-route fix	1/10 km	routine	calculated	1/10 km or 1/10 NM	2/10 km (1/10 NM)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
En-route				A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further						
поіції і у	Identification		Text	Identification of the holding procedure						
	Fix		Text	Identification of the holding procedure fix						
	Waypoint		Point	Geographical location of the holding waypoint		100m	essential	surveyed calculated	1 sec	1 sec
	Inbound track		Bearing	The inbound track of the holding procedure						
	Turn Direction		Text	Direction of the procedure turn						
	Speed		Value	Maximum indicated airspeed						
	Level									
		Minimum holding level	Altitude	Minimum holding level of the holding procedure						
		Maximum holding level	Altitude	Maximum holding level of the holding procedure						
	Time/dist ance outbound		Value	Time/distance value of the holding procedure						
	Controllin q unit									
	gunt	Name	Text	Indication of the controlling unit						
		Frequency	Value	The operating frequency/channel of the controlling unit						
	Special holding entry procedure		Text	Textual description of the Special VOR/DME entry procedure	In case an entry radial to a secondar y fix at the end of the outbound leg has been establishe d for a VOR/DM E holding pattern					

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure	<u>.</u>	<u> </u>	<u>.</u>							
	Identification									
		FAS Guidance	Code list	The name describing the type of radio navigation aid providing the final approach lateral guidance. This could be: ILS, VOR, RNAV, etc	АРСН				-	•
		Runway	Text	The runway designator of the landing and take-off direction. Examples: 27, 35L, 01R.						
		Circling	Code list	Indication if a procedure is/ is not a circling approach	APCH					
		Multiple Code	Text	A single letter suffix, starting with the letter z following the radio navigation aid type shall be used if two or more procedures to the same runway cannot be distinguished by the radio navigation aid type only. For example: VOR y Rwy 20 VOR z Rwy 20	APCH					
		NS Limiter	Text	Sensor specific information in case of a limitation of use	PBN only					
		Name	Text	Name of the instrument flight procedure						
	Plain Language Designation									
		Basic Indicator	Text	The basic indicator shall be the name or name-code of the significant point where the standard departure route terminates.	SID, STAR					
		Validity Indicator	Text	The validity indicator shall be a number from 1 to 9.	SID, STAR					
		Route Indicator	Text	The route indicator shall be one letter of the alphabet. The letters "I" and "O" shall not be used.	SID, STAR					
		Visual Indication	Text	Indication if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR)	VFR only					

Table A1-4 Instrument flight procedure data (Procedure)

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont)	Coded Designation									
(control)	Designation	Significan t Point	Text	The coded designator or name- code of the significant point	SID, STAR					
		Validity Indicator	Text	The Validity Indicator of the procedure	SID, STAR					
		Route Indicator	Text	The Route Indicator of the procedure	SID, STAR					
	Procedure Type		Code list	Indication of the type of procedure (departure, arrival, approach, other)						
	PBN or Conventional		Code list	Indication if the procedure is PBN or Conventional	IFR only					
	Precision Type		Text	The instrument procedure type. Instrument approach procedures are classified as follows: Non-precision approach (NPA) procedure An instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance but does not utilize vertical guidance. Approach procedure with vertical guidance (APV) An instrument procedure which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations. Precision approach (PA) procedure An instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of	APCH					
	Aircraft Category		Code list	Indication of which aircraft categories the procedure is intended for						

Table A1-4 Instrument flight procedure data (Procedure)(cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont.)	Magnetic variation		Angle	The magnetic variation considered for the procedure design						
	OCA/H			Obstacle clearance Altitude (Height)	APCH	-				
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in Cat I, Cat II, LLZ, Circling) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	АРСН					
		Altitude	Altitude	The lowest altitude used in establishing compliance with appropriate obstacle clearance criteria.	APCH	as specified in Doc 8168	essential			as specified in Doc 8168
		Height	Height	The lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.	APCH	as specified in Doc 8168	essential			as specified in Doc 8168
	DA/H			Decision Allitude (Height)	APCH					
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in, Circling) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established	APCH					

Table A1-4	Instrument flight procedure	data (Procedure) (cont.)
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Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont.)		Height	Height	A specified height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established	APCH					
	MDA/H			Minimum Descent Altitude (Height)	АРСН					
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in, Circling) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.	APCH					
		Height	Height	A specified height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.	APCH					
	MSA	Sector	Angle	Minimum sector altitude - The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.	IFR only					
		start angle Sector	Angle	Sector						
		end angle Based on	Text	sector Center of the MSA						
		Fix	TOAL							

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.					
Procedure (cont.)	MSA (cont.)	Altitude	Altitude	The minimum altitude for each sector											
		Restrictions	Text	Minimum sector altitude - The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.											
		Radius	Value	The radius of each sector											
	ΤΑΑ			Terminal arrival altitude - The lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centered on the initial approach fix (IAF), or where there is no IAF on the intermediate approach fix (IF), delimited by straight lines joining the extremity of the arc to the IF. The combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF.	APCH, PBN only										
		Reference point	Text	TAA reference point (IAF or IF)											
		İAF	Text	TAA Initial Approach Fix reference point											
		IF	Text	TAA Intermediate Fix reference point											
		Dist To IAF	Distance	The distance of the TAA area boundary from the IAF											
		Altitude	Altitude	The terminal arrival altitude value											
	-						Sector start angle	Angle	Start angle of a sector (bearing to TAA reference point						
		Sector end angle	Angle	End angle of a sector (bearing to TAA reference point)											
		Stepdown arc	Distance	Radius of inner area with lower altitude.											

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont.)	Nav Spec Name		Text	A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications: Required navigation performance (RNP) specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. Area navigation (RNAV) specification based on area navigation (RNAV) specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.	PBN only					

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont.)	Operating minima		Text	Aerodrome Operating Minima - The limits of usability of an aerodrome for: a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions; b) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation; c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and d) landing in non- precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions	APCH, DEP					

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure (cont.)	Temperature									
		Minimum temperature	Value	Minimum temperature reference	APCH, PBN only					
		Minimum temperature	Value	Maximum temperature reference	APCH, PBN only					
	Remote Altimeter Source		Text	Cautionary note indicating the altimetry source	APCH					
	Proc Ref Datum		Text	Airport or landing threshold	APCH					
	PBN Requirements			Specific requirements related to a PBN procedure	PBN					
			Code list	Identification of the navigation specification (RNAV 5, PBN 0.3)						
		Navigation specification	Text	Any navigation sensor limitations (GNSS required)						
		Functional requirements	Text	Any required functionalities that are described as options in the navigation specification, that is, not included in the core navigation specification (RF						

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure Segment					SID, STAR, APCH					
	Start		Text	Identification of the start point of the segment						
	End		Text	Identification of the end point or a description of the end of the segment						
	End fix functionality		Code list	Indication if the end fix is a fly-by point (A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure) or fly-over point (A waypoint at which a turn is initiated in order to join the next segment of a route or procedure)	PBN					
	End fix role		Code list	Indication of the role of the end fix (MAPt, IF, IAF, FAF, MAHF)						
	Procedure altitude/ height		Altitude/ Height	A specified altitude/height flown operationally a tor above the minimum altitude/height and established to accommodate a stabilized descent ata prescribed descent gradient/ angle in the intermediate/final approach segment.	SID, STAR, APCH certain segments only	as specified in Doc 8168	essential			as specified in Doc 8168
	MOCA		Altitude	The minimum altitude for a defined segment that provides the required obstacle clearance.	SID, STAR, APCH					
	Distance		Distance	Geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point;		1/100 km	essential	calculated	1/100 km or 1/100 NM	1 km or 1 NM
	True bearing		Bearing	True track to the nearest tenth of a degree to the nearest degree between each successive significant point;	SID, STAR, APCH	1/10 degree	routine	calculated	1/10 degree	1 degree
	Magnetic bearing		Bearing	Magnetic track to the nearest tenth of a degree to the nearest degree between each successive significant point;	SID, STAR, APCH	1/10 degree	routine	calculated	1 degree	1 degree

Integrity Orig Type **Subject** Propoerty Sub-Type Description Note Accuracy Pub. Res. Chart Res. Property Procedure Gradient Value APCH, DEP Segment (cont.) Speed Value Speed limit at a significant point, expressed in units of 10 knots applicable Controlling APCH. DEP obstacle Indication if the Туре Text obstacle is lit/unlit, type of obstacle (church/windturbine, ..) Coordinates of the Position Point see controlling obstacle obstacles Elevation: Elevation Elevation of the top see of the controlling obstacles obstacle That segment of an SBAS Final APCH Approach instrument approach Segment procedure in which GBAS alignment and APCH descent for landing are accomplished. A number that Operation Text indicates the type of type the final approach segment (e.g "0" is coded for a straightin approach procedure including offset procedures.) Approach Text A number that performance identifies the type of an approach. ("0" is designator used to identify an LPV approach procedure and a "1" indicates a Category I approach procedure) SBAS Text Identifier of a SBAS particular satelliteprovider only based approach system service provider RPDS Reference path data GBAS Text selector (RPDS) - A only numerical identifier that is unique on a frequency in the broadcast region and used to select the FAS data block RPI Text Reference Path Identifier - A fourcharacter identifier that is used to confirm selection of the correct approach procedure

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Table A1-4 Instrument flight procedure data (Procedure) (cont.)

Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Final Approach Segment (cont.)	LTP/FTP			Landing threshold point (LTP) or fictitious threshold point (FTP)						
		Position	Point	Latidude and Longitude of the LTP/FTP		0.3 m (1 ft)	critical		0.0005" (0.01")	
		Ellipsoid height	Elevation	The height of the LTP/FTP above the WGS-84 ellipsoid		0.25 m	critical		0.1 m	
		Orthometric height	Elevation	The height of the LTP/FTP as related to the geoid and presented as an MSL elevation						
	FPAP	1	1	Flight path alignment point (FPAP)						
		Position	Point	Latidude and Longitude of the FPAP		0.3 m (1 ft)	critical		0.0005" (0.01")	
		Orthometric height	Elevation	The height of the FPAP as related to the geoid and presented as an MSL elevation						
	ТСН		Height	Approach Threshold Crossing Height (TCH) - The designated crossing height of the flight path angle above the LTP (or FTP).		0.5 m	critical	calculated	0.05 m	
	GPA		Value	Glide Path Angle (GPA) - The angle of the approach path (glide path) with respect to the horizontal plane defined according to WGS-84 at the LTP/FTP.		0.01°	N/A		0.01°	
	Course Width at threshold		Value	The semi-width of the lateral course width at the LTP/FTP, defining the lateral offset at which the receiver will achieve full- scale deflection.		N/A	critical		0.25 m	

Table A1-4	Instrument flight procedure	data (Procedure) (cont.)
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Subject	Propoerty	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Approach Segment (cont.)	Delta Length Offset		Distance	The distance from the stop end of the runway to the FPAP.It defines the location where lateral sensitivity changes to the missed approach sensitivity.		N/A	N/A		8 m	
	HAL		Value	Horizontal Alert Limit	SBAS only					
	VAL		Value	Vertical Alert Limit	SBAS only					
	FAS Data Block		Text	Binary string describing the Final Approach Segment (FAS) data block generated with an appropriate software tool. The FAS data block is set of parameters to identify a single precision approach or APV and define its associated approach						
	CRC Remainder		Text	An 8-character hexadecimal representation of the calculated remainder bits used to determine the integrity of the FAS data block data during transmission and storage.						

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure Fix	-	•								
	Identification		Text	Names, coded designators or name-codes assigned to the significant point.					-	-
	ATC Reporting requirements		Text	Indication of ATS / MET reporting requirement "compulsory", "on- request" or "nil"						
	VFR Reporting point		Text	Bridge, Church Name	VFR					
	Position		Point	Geographical location of the fix				See Note	1.	
	Туре		Text	Indication of the type of fix, such as: Navaid, Int, WPT						
	Formations	_								
		Navaid	Text	The station identification of the reference VOR/DME						
		Bearing	Bearing	The bearing from the reference VOR/DME, if the waypoint is not collocated with it.				See Note 2	2.	
		Distance	Distance	The distance from the reference VOR/DME, if the waypoint is not collocated with it.		1/100 km	essential	calculated	1/100 km or 1/100 NM	2/10 km (1/10 NM)

Table A1-4	Instrument	flight	procedure	data	(Fix)
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See Note 3.

Note 1)	En-route navaids and fixes,holding, STAR/SID points	100 m	essential	surveyed/ calculated	1 sec	1 sec
	Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	3 m	essential	surveyed/ calculated	1/10 sec	1 sec
Note 2)	Bearing used for the formation of a terminal fix	1/10 degree	routine	calculated	1/10 degree	1/10 degree
	Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	1/100 degree	essential	calculated	1/100 degree	1/10 degree
Note 3)	Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km	essential	calculated	1/100 km or 1/100 NM	2/10 km (1/10 NM)

Subject	Propoerty	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Req.	Chart Res.
	•			A predetermined						
Drocodur				keeps an aircraft						
e Holding				within a specified						
				awaiting						
	Identification		Tout	further clearance.						
	Identification		lext	holding procedure						
	Fix		Point	Geographical		same as				
				as a reference for		procitix				
				a holding						
	Inbound		Angle	Inbound true					1/10	
	course		Angle	course					degree	
	course		Angle	Course					degree	
	Leg		Distance	Outbound distance					1/10 km	
	uistance			or the leg					NM	
	Leg time		Value	Outbound time of the leg						
	Limiting		Angle	Limiting radial from						
	radial			the VOR/DME on which the holding						
				is based						
	l urn direction		Value	Direction of the procedure turn						
				procedure tarri						
	Minimum		Altitude	Minimum holding		50 m	routine	calculated	50 m or	
	altitude			level to the nearest higher 50 m or 100					100 ft/flight	
				ft/flight level					level	
	Maximum		Altitude	Maximum holding					50 m or 100	
	annuuo			higher 50 m or 100					ft/flight	
	Speed		Value	ft/flight level Maximum indicated					level 10 kts	
	opeed		Value	air speed					TORIS	
	Magnetic									
	Variation	Angle	Angle	The magnetic						
		5	9	variation of the						
				aid of the						
		Data	Data	procedure						
		Date	Date	the magnetic						
				variation had the						
				value.						
	Nav Spec		Text	Name of the	RNAV/RNP					
	Name			Specification - set						
				of aircraft and						
				requirements						
				needed to support						
				a navigation application within a						
				defined airspace						
				concept						

Table A1-4 Instrument flight procedure data (Procedure Holding)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Publ. Res.	Chart Res
Helicopter Procedure Specifics										
	Helicopter Procedure Title (RNAV 263)		Text	Identification of the helicopter procedure						
	НСН		Height	Heliport crossing height		0.5 m	essential	calculated	1 m or 1 ft	1 m or 1 ft
	IDF		Point	Initial departure fix	DEP					
	MAPt		Point	Missed Approach Point	APCH					
	Direct Visual Segment			For PinS APP: the portion of flight that connects directly the PinS to the landing location. For PinS DEP: the portion of flight that connects directly the landing location to the IDF						
		Track	Line							
		Distance	Distance							
		Bearing	Angle							
		Crossing height	Height							
	ring VS			Manoeuvring Visual Segment - PinS visual segment protected for the following manoeuvres: For PinS APCH: Visual manoeuvre from the MAPt around the heliport or landing location to land from a direction other than directly from the MAPt. For PinS DEP: Take-off in a direction other than directly to the IDF followed by visual manoeuvre to join the instrument segment at the IDF.	DEP					
		Center line	Angle	Center line of take- off climb surface	DEP					
		Manoeuvring Area	Polygon	Area where the pilot is expected to manoeuvre visually	APCH DEP					
		No Manoeuvring Area	Polygon	Area where manoeuvring is prohibited	APCH DEP					

Table A1-4 Instrument flight procedure data (Helicopter Procedure)

2nd Edition

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Publ. Res.	Chart Res
Helicopter Procedure Specifics (cont.)	Manoeuv ring VS <i>(cont.)</i>	Ingress Tracks	Line	Maneuvering Visual Segment - PinS visual segment protected for the following manoeuvres: For PinS APCH: Visual manoeuvre from the MAPt around the heliport or landing location to land from a direction other than directly from the MAPt. For PinS DEP: Take-off in a direction other than directly to the IDF followed by visual manoeuvre to join the instrument segment at the IDF.	APCH DEP					
	HAS			Height above surface diagram	APCH					
		Radius	Distance							
		Height above Surface	Height							
	Proceed Visually Text		Text	Text indicating that the procedure has Proceeed Visually instruction						
	Proceed VFR Text		Text	Text indicating that the procedure has Proceeed VFR instruction						
	VSDA		Value	Visual segment descent angle						
	Ingress Tracks									
		Length	Distance							
		Width	Distance							
		Bearing	Angle							

Table A1-4 Instrument flight procedure data (Helicopter Procedure) (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type
AITF	•	1		Notes on charts (Aeronautical Information in Textual Format)				
	Non-align between Instrument and Visual Slope Indications		Text					
	Missed Approach Description		Text	Missed approach description for the procedure				
	SID/STAR Route Description		Text	Textual description of the SID or STAR procedure				
	Missed Apch Climb Gradient		Value	The value of the missed apprach climb gradient for the approach procedure				
	CAT H Note		Text					
	CAT D Large		Text					
	Authorization Required		Text	Indication that RNP AR				
	Units of Measure		Text					
	GNSS In-Lieu-Of		Text					
	Comm Failure		Text	Communication failure description				
	Surveillance/Radar Required		Text					
	SID Close-in Obstacle Note		Text	Indication wherever close-in obstacles exist which were not considered in the determination of the published procedure design gradient				
	Off-Set Alignment		Text					
	PDG greater then 3%		Text					

Table A1-4 Instrument flight procedure data (AITF Notes)

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Radio navigation aid	ł		•							
	Туре		Text	Type of radio navigation aid						
	Identification		Text	The code assigned to uniquely identify the navaid						
	Name		Text	The textual name assigned to the navaid						
	ILS facility classification*		Code list	A classification based on the functional and performance capabilities of an ILS	ILS					
	GBAS facility classification*		Code list	A classification based on the functional and performance capabilities of the GBAS ground subsystem	GBAS					
	GBAS approach facility designation*		Code list	A classification based on the GBAS service volume and performance requirements for each supported approach	GBAS					
	Purpose		Code list	Indication whether navigation aid serves en-route (E), aerodrome (A) or dual (AE) purposes.						
	Aerodrome/h eliport served		Text	The ICAO location indicator or name of the aerodrome/heliport served						
	Runway served		Text	Designator of the runway served						
	Operating authority		Text	Name of the operating authority of the facility						
	Type of supported ops		Code list	Indication of the type of supported operation for ILS/MLS and GBAS						
	Co-location		Text	Information that a navaid is co-located with another navaid						
	Hours of operation		Schedule	The hours of operation of the radio navigation aid						

Table A1-5 Radio navigation aids/systems data (Radio Navigation Aid)

* Applicable as of 4 November 2021

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Radio navigation aid (cont.)	Magnetic variation			The angular difference between True North and Magnetic North						
		Angle	Angle	The magnetic variation at the radio navigation aid	ILS/NDB			See Note 1)		
		Date	Date	The date on which the magnetic variation had the corresponding value.						
	Station declination		Angle	An alignment variation of the navaid between the zero degree radial and true north, determined at the time the station is calibrated.	VOR/ILS/ MLS					
-	Zero bearing direction		Text	Direction of the 'zero bearing' provided by the station. For example: magnetic north, true north	VOR					
	Frequency		Value	Frequency or tuning frequency of the radio navigation aid						
	Channel		Text	The channel number of the radio navigation aid	DME					
	Position		Point	Geographical location of the radio navigation aid		See Note 2)				
	Elevation		Elevation	The elevation of the transmitting antenna of DME The elevation of GBAS reference point	DME GBAS	See Note 3)				
	Ellipsoidal height		Height	The ellipsoid height of the GBAS reference point,	GBAS					
	Localizer									
		Bearing	Bearing	The localizer course	ILS Localizer	1/100 deg	essential	surveyed	1/100 degree (if true)	1 degree
		Туре	Text	Type of localizer alligment, true or magnetic	ILS Localizer					-
	Zero azimuth alignment		Bearing	MLS zero azimuth alignment	MLS	1/100 deg	essential	surveyed	1/100 degree (if true)	1 degree
_	Angle		Angle	The angle of the glide path of an ILS or the normal glide path angle for the MLS installation	ILS GP /MLS					
	RDH		Value	The value of the ILS Reference Datum Height (ILS RDH).	ILS GP	0.5m	critical	calculated	0.1m or 0.1ft	0.5m or 1ft
	Localizer antenna rwy end distance		Distance	ILS localizer runway/FATO end distance	ILS Localizer	3 m	routine	calculated	1 m or 1 ft	as plotted

Table A1-5 Radio navigation aids/systems data (Radio Navigation Aid) (cont.)

2nd Edition

Subject	Property	Sub- Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Radio navigation aid (cont.)	ILS glideslope antenna TRSH distance		Distance	ILS glideslope antenna - threshold distance along centerline	ILS GP	3 m	routine	calculated	1 m or 1 ft	as plotted
	ILS marker TRSH distance		Distance	ILS marker - threshold distance	ILS	3 m	essentail	calculated	1 m or 1 ft	2/10 km (1/10 NM)
	ILS DME antenna TRSH distance		Distance	ILS DME antenna - threshold distance along centerline	ILS	3 m	essential	calculated	1 m or 1 ft	as plotted
	MLS azimuth antenna rwy end distance		Distance	MLS azimuth antenna - runway/FATO end distance	MLS	3 m	routine	calculated	1 m or 1 ft	as plotted
	MLS elevation antenna TRHS distance		Distance	MLS elevation antenna - threshold distance along center line	MLS	3 m	routine	calculated	1 m or 1 ft	as plotted
	MLS DME antenna TRHS distance		Distance	MLS DME/P antenna - threshold distance along center line	MLS	3 m	essential	calculated	1 m or 1 ft	as plotted
	Signal polarization		Code list	GBAS signal polarization (GBAS/H or GBAS/E)	GBAS					
	DOC		Text	Designated operational coverage (DOC or stadard service volume SSV) as range or service volume radius from the navaid / GBAS reference point, height and sectors if required						

Table A1-5	Radio navigation aids/	systems data	(Radio Navi	gation Aid)	(cont.)
	0		1	U /	

Note 1)	ILS Localizer	1 degree	essential	surveyed	1 degree	
	NDB	1 degree	routine	surveyed	1 degree	

Note 2)	Aerodrome Navaid	3 m	essential	surveyed	1/10 sec	as plotted
	GBAS Ref Point	1 m				
	Enroute	100 m	essential	surveyed	1 sec	

Note 3)	DME	30m (100ft)	essential	surveyed	30 m (100 ft)	30 m (100 ft)
	DME/P	3 m	essential	surveyed	3 m (10 ft)	
	GBAS Ref Point	0.25 m	essential		1 m or 1 ft	

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
GNSS				A worldwide position and time determination system that includes one or more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation.						
	Name		Text	The name of the GNSS element (GPS, GBAS, GLONASS, EGNOS, MSAS, WAAS, etc.)						
	Frequency		Value	Frequency of the GNSS	as appropriat e					
	Service area		Polygon	Geographical location of the GNSS service area						
	Coverage area		Polygon	Geographical location of the GNSS coverage area						
	Operating authority		Text	Name of the operating authority of the facility						

Table A1-5 Radio navigation aids/systems data (GNSS)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aeronauti cal ground lights	auti 1			Ground lights and other light beacons designating geographical positions which are selected by the State as being significant						
	Туре		Text	Type of beacon						
	Designator		Text	The code assigned to uniquely identify to the beacon						
	Name		Text	The name of the city or town or other identification of the beacon						
	Intensity		Value	Intensity of the light of the beacon					1000 candela	
	Character istics		Text	Information about the characteristics of beacon						
	Hours of operation s		Schedule	The hours of operation of the beacon						
	Position		Point	Geographical location of the beacon						
Marine lights										
	Position		Point	Geographical location of the beacon						
	Visibility range		Distance	The visibility range of the beacon						
	Character istics		Text	Information about the characteristics of the beacon						

Table A1-5 Radio navigation aids/systems data (Aeronautical Ground Lights)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Special navigation system	•		•	Stations associated with special navigation systems (DECCA, LORAN, etc.).						
	Туре		Text	Type of service available (master signal, slave signal, colour).						
	Designator		Text	The code assigned to uniquely identify to the special navigation system						
	Name		Text	The textual name assigned to the special navigation system						
	Frequency		Value	Frequency (channel number, basic pulse rate, recurrence rate, as applicable) of the special navigation system						
	Hours of operations		Schedule	The hours of operation of the special navigation system						
	Position		Point	Geographical location of the special navigation system		100m	essential	surveyed / calculated		
	Operating authority		Text	Name of the operating authority of the facility						
	Facility coverage		Text	Description of special navigation system faciity coverage						

Table A1-5 Radio navigation aids/systems data (Special Navigation Systems)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Obstacle				All fixed (whether temporary or permanent) and mobile obstacles or parts thereof.						
	Obstacle identifier		Text	Unique identifier of obstacle						
	Operator / Owner		Text	Name and Contact information of obstacle operator or owner						
	Geometry type		Code list	An indication whether the obstacle is a point, line or polygon.						
	Horizontal position		Point Line Polygon	Horizontal position of obstacle				See Note 1)		
	Horizontal extent		Distance	Hoizontal extent of the obstacle						
	Elevation		Elevation	Elevation of the highest point of the obstacle.				See Note 2)		
	Height		Height	Height of the obstacle above ground						
	Туре		Text	Type of obstacle						
	Date and time stamp		Date	Date and time the obstacle was created						
	Operations		Text	Feature operations of mobile obstacles						
	Effectivity		Text	Effectivity of temporary types of obstacles						

Table A1-6 Obstacle data

Table A1-6 Obstacle data (cont.)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Obstacle (cont.)	Lighting									
		Туре	Text	Type of lighting						
		Colour	Text	Colour of the obstacle lighting						
	Marking		Text	Type of marking of obstacle						
	Material		Text	Predominant surface material of the obstacle						

Note 1)	Obstacles in Area 1	50 m	routine	surveyed	1 sec	as plotted
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 3	0.5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 4	2.5 m	essential	surveyed		
Note 2)	Obstacles in Area 1	30 m	routine	surveyed	1 m or 1 ft	3 m (10 ft)
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	3 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	Obstacles in Area 3	0.5 m	essential	surveyed	0.1 m or 0.1 ft	1m or 1 ft
	Obstacles in Area 4	1 m	essential	surveyed	0.1 m	

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Buildings				Buildings (of operational significance) and other salient/prominent (aerodrome) features						
	Name		Text	Name of the building						
	Geometry		Polygon	Geographical location of the building						
Built up areas				Areas covered by cities, towns and villages						
	Name		Text	Name of the build-up area						
	Geometry		Point/ Polygon	Geographical location of the build-up area						
Railroads	1			All railroads having landmark value						
	Name		Text	Name of the railroad						
	Geometry		Line	Geographical location of the railroads						
Highways and Roads	1			All highways and roads having landmark value						
	Name		Text	Name of highways and roads						
	Geometry		Line	Geographical location of highways and roads						
Landmark S				Natural and cultural landmarks, such as bridges, prominent transmission lines, permanent cable car installations, wind turbines, mine structures, forts, ruins, levees, pipelines, rocks, bluffs, cliffs, sand dunes, isolated lighthouses and lightships, when considered to be of importance for visual air navigation.						

Table A1-7 Geographic data (Culture-Topography)

Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Characteris tics		Text	Description of the landmark						
	Geometry		Point	Geographical location of the landmark						
Political boundarie s				International political boundaries						
	Geometry		Line	Geographical location of international political boundaries						
Hydrogra phy				All water features comprising shore lines, lakes, rivers and streams (including those non-perennial in nature), salt lakes, glaciers and ice caps						
	Name		Text	Name of the water feature						
	Geometry		Line/ Polygon	Geographical location of water feature						
Wooded areas				Wooded areas						
	Geometry		Polygon	Geographical location of wooded area						

Table A1-7 Obstacle data (Culture-Topography) (cont.)

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Service			.) P =	Part of aerodrome		1.000.005		09		
roads				surface used by						
		T		service vehicles						
	Geometry		Polygon	Geographical location						
	foatbaco		Tovt	of the service roads						
	Tealbase		TEXL	feature type affected						
	Idbase		Text	Name of the						
				underlying taxiway,						
				parking stand area or						
O a materia att				apron				-		
Constructi				Part of aerodrome						
Unalea				construction						
	Geometry		Polygon	Geographical location						
			,,,	of the construction						
				area						
Aircraft				Areas unsuitable for						
unsuitable				all'u all'inovernent						
area										
	Geometry		Polygon	Depicted movement						
				area permanently						
				unsuitable for aircraft,						
				such						
Survey			l	A monumented survey						
control				control point						
point				•						
	idnumber		Text	Special unique						
				identifier permanently						
				instance by the data						
				provider						
	Location		Point	Geographical location						
				of the survey control						
	E L			point						
	Elevation		Elevation	Elevation of survey						
ASRN			l.	A vertex in a graph						
node				defining the						
				Aerodrome Surface						
				Routing Network						
	idnetwrk		Text	Logical name						
				delimited list of names						
				for one or more						
				features associated						
				with this ASRN						
	idthr		Tovt	Name of feature						
	IUUIII		TEXI	instance						
	idnumber		Text	Special unique						
				identifier permanently						
				assigned to a feature						
				Instance by a data						
	termref		Text	Terminal building						
				associated with the						
			_	feature instance						
	nodetype		Text	Type of node						
	catstop		Text	Low visibility operation						
				category of holding						
	Docition		Doint	pusition Coographical location						
			i uitt	of the ASRN node						
	1	1			1	1		1	1	1

Table A1-7 Geographic data (AMDB Geo)

Table A1-7	Geographic data (AMDB Geo)	(cont.)
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Subject	Property	Sub-Property	Туре	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ASRN edge				A connection between teo nodes in a graph defining the Aerodrome Surface Routing Network						
	idnetwrk		Text	Logical name comprised of a delimited list of names for one or more features associated with this ASRN feature						
	direc		Text	Directionality of corresponding feature instance, which can be one-way or two- way						
	node1ref		Text	The idnumber of the ASRN Node corresponding to the start point of the edge geometry						
	node2ref		Text	The idnumber of the ASRN Node corresponding to the end point of the edge geometry						
	edgetype		Text	Type of edge						
	edgederv		Text	Derivation method of edge geometry						
	Geometry		Line	Geographical location of the ASRN edge						

	Area 1	Area 2	Area 3	Area 4
Post spacing	3 arc seconds	1 arc second	0.6 arc seconds	0.3 arc seconds
	(approx. 90 m)	(approx. 30 m)	(approx. 20 m)	(approx. 9 m)
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level	90%	90%	90%	90%
Integrity classification	routine	essential	essential	essential
Maintenance period	as required	as required	as required	as required

Table A1-8. Terrain data

Table A1-9. Data types

Туре (1)	Description (2)	Data elements (3)
Point	A pair of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of the point on the surface of the Earth.	Latitude Longitude Horizontal reference system Units of measurement Horizontal accuracy achieved
Line Sequence of Points defining a linear object		Sequence of Points
Polygon	Sequence of Points forming the boundary of the polygon. The first and last Point are identical.	Closed sequence of Points
Height	The vertical distance of a level, point or an object considered as a point, measured from a specific datum.	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Altitude	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved

Table A1-9.	Data types	(cont.)
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Type (1)	Description (2)	Data elements (3)
Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy
Distance	A linear value	Numerical value Units of measurement Accuracy achieved
Angle / Bearing	An angular value	Numerical value Units of measurement Accuracy achieved
Value	Any measured, declared or derived value not listed above.	Numerical Value Units of Measurement Accuracy achieved
Date	A calendar date referencing a particular day or month	Text
Schedule	A repetitive time period, composed of one or more intervals or special dates (e.g. holidays) occurring cyclically	Text
Code list	A set of predefined Text strings or values	Text
Text	Free text	String of characters without constraints

Table A1-10 Information about national and local regulation, services and procedures

1	National regulations and requirements	
1.1	Civil aviation regulation	
1.1.1.	Name, contact information and description of the civil aviation authorities concerned with the facilitation of international air navigation.	
1.1.2	National regulations and international agreements / conventions ratified by Philippines affecting air navigation	
1.1.3.	Differences between national regulations and practices of the State and related ICAO provisions, including:	
	a) Provision concerned (Annex number, title, edition number and paragraph)	
	b) The complete text of the difference.	
1.1.4	Regulations and other requirements concerning entry, transit and departure of aircraft on international flights including;	
	a) Regulations applicable to all types of operations	
	b) Scheduled flight	
	c) Non-scheduled flights	
	d) Private flights	
1.1.5	Aircraft instruments, equipment and flight documents, including:	
	a) Instruments, equipment (including aircraft communication and navigation equipment) and flight documents to be carried on aircraft.	
	b) Emergency locator transmitter (ELT), signalling devices and lifesaving equipment	
1.1.6	Information on rules as applied within Philippines:	
	a) General rules	
	b) Visual flight rules	
	c) Instrument flight rules	
1.1.7	General conditions under which low visibility procedures applicable to Cat II/III operations at aerodromes are applied.	
1.1.8	The details of aerodrome operating minima applied by CAAP.	
1.1.9	ATS airspace classification and description	

1.1.10	Conditions under which coordination between the aerodrome operator and air traffic services is effected
1.1.11	Criteria used to determine minimum flight altitudes.
1.1.12	Name, contact information and description of the authorities concerned with aircraft accident investigation.
1.1.13	Interception procedures and visual signals to be used with a clear indication of whether ICAO provisions are applied and, if not, that differences exist.
1.1.14	Procedures to be applied in case of unlawful interference.
1.1.15	Information on the traffic incidents reporting system.
1.2	Aerodrome regulation and requirements
1.2.1	Name, contact information and description of the Philippines' designated authority responsible for aerodromes and heliports.
1.2.2	ICAO documents on which the operation of aerodromes is based.
1.2.3	General conditions under which aerodromes/heliports and associated facilities are available for use.
1.2.4	Criteria applied by CAAP in grouping aerodromes/heliports shall be provided for the production/distribution/provision of information purposes (e.g. international/national; primary/secondary; major/other; civil/military; etc.).
1.2.5	Regulations concerning civil use of military air bases.
1.2.6	Rules governing the establishment of rescue and firefighting services at aerodromes and heliports together with an indication of rescue and firefighting categories established by CAAP.
1.2.7	Information on general snow plan considerations for aerodromes/heliports available for public use at which snow conditions are normally liable to occur
1.3.	Customs regulation and requirements
1.3.1.	Name, contact information and description of the customs authorities.
1.3.2	Customs regulations and requirements concerning entry, transit and departure passengers and crew.
1.3.3	Customs regulations and requirements concerning entry, transit and departure of cargo and other articles.
1.4.	Immigration regulation and requirements
1.4.1.	Name, contact information and description of the immigration authorities.
1.4.2	Immigration regulations and requirements concerning entry, transit and departure passengers and crew.

Table A1-10 Information about national and local regulation, services and procedures (cont.)
1.5.	Health regulation and requirements
1.5.1.	Name, contact information and description of the health authorities.
1.5.2	Regulations and requirements concerning public health measures applied to aircraft on entry, transit and departure on international flights.
1.5.3	Public health regulations and requirements concerning entry, transit and departure passengers and crew.
1.6.	Agricultural quarantine regulation and requirements
1.6.1.	Name, contact information and description of the authorities concerned with agricultural quarantine.
1.6.2	Agricultural quarantine regulations and requirements concerning entry, transit and departure of cargo.
2	Information on services and procedures
2.1	Aeronautical information services
2.1.1	Name, contact information and description of aeronautical information service and charting service provided
2.1.2	Indication if service is not H24
2.1.3	ICAO documents on which the service is based.
2.1.4	Area of responsibility
2.1.5	Information on the elements of the aeronautical information products managed by the aeronautical information services including how they may be obtained.
2.1.6	Information on the AIRAC system provided including present and near future AIRAC dates.
	Information on the pre-flight information service available at aerodromes/heliports
047	a) Elements of the Aeronautical Information Products held;
2.1.7	b) Maps and charts held; and
	c) General area of coverage of such data.

	Information on aeronautical charts and chart series availability including:			
	a) Title of series;			
2.4.9	b) Scale of series;			
2.1.0	c) Name and/or number of each chart or each sheet in a series;			
	d) Information on maintenance (chart revision and amendment);			
	e) Information on how charts may be obtained;			
2.1.9	Information on availability of topographical charts			
2.2	Air traffic services and procedures			
2.2.1.	Name, contact information and description of air traffic service provider and ATS units			
2.2.2	ICAO documents on which the service is based			
2.2.3	Indication if service is not H24			
2.2.4	Area of responsibility			
2.2.5	Types of air traffic services provided			
	Holding, approach and departure procedures:			
	a) Criteria on which holding, approach and departing procedures are established,			
226	b) Procedures (conventional or area navigation or both) for arriving flights which are common to flights into or within the same type of airspace			
2.2.0	c) Information if different procedures apply within a terminal airspace			
	 Procedures (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport. 			
	e) Other relevant information and procedures e.g. entry procedures, final approach alignment, holding procedures and patterns.			

Table A1-10 Information about national and local regulation, services and procedures (cont.)

	ATS surveillance services and procedures for:	
	a) Primary radar	
2.2.7	b) Secondary surveillance radar (SSR)	
	c) Automatic dependent surveillance – broadcast (ADS-B)	
	 Other relevant information and procedures, e.g. radar failure procedures and transponder failure procedures 	
2.2.8	Altimeter setting procedures	
2.2.9	Regional supplementary procedures (SUPPs) affecting the entire area of responsibility.	
2.2.10	Information on air traffic flow management (ATFM) system and airspace management	
	Flight planning	
2.2.11	a) Restriction, limitation or advisory information related to the flight planning stage which may assist the user in the presentation of the intended flight operation	
	b) Information on addressing of flight plans	
2.2.12	Information on the type of air navigation service charges including methods of payment and exemptions/reductions where applicable.	
2.3	Communication services	
2.3.1.	Name, contact information and description of service provider of telecommunication and navigation facilities	
2.3.2	ICAO documents on which the service is based	
2.3.3	Indication if service is not H24.	
2.3.4	Area of responsibility	
2.3.5	Information on types of services and facilities provided and an indication where detailed information can be obtained.	
2.3.6	Information on requirements and conditions under which the communication service is available.	
2.4	Meteorological services	
2.4.1	Name, contact information and description of the authorities concerned with meteorology and of the meteorological service.	
2.4.2.	ICAO documents on which the service is based.	

Table A1-10 Information about national and local regulation, services and procedures (con	1t.)
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2.4.3	Indication if service is not H24			
2.4.4	Area of responsibility			
	Information on meteorological observations and reports provided for international air navigation			
	a) Name of the station and the ICAO location indicator;"			
	b) Type and frequency of observation including an indication of automatic observing equipment;			
2.4.5	c) Types of meteorological reports (e.g. METAR) and availability of a trend forecast;			
	 specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear (e.g. anemometer at intersection of runways, transmissometer next to touchdown zone, etc.); 			
	e) Hours of operation; and			
	f) Indication of aeronautical climatological information available.			
2.4.6	Information on the main type of service provided			
2.4.7	Minimum amount of advance notice required by the meteorological authority from operators in respect of briefing, consultation and flight documentation and other meteorological information they require or change.			
2.4.8	Requirements of the meteorological authority for the making and transmission of aircraft reports			
	Information on VOLMET and/or D-VOLMET service, including:			
	a) Name of transmitting station;"			
	b) call sign or identification and abbreviation for the radio communication emission;			
249	c) Frequency or frequencies used for broadcast;			
2.4.3	d) Broadcasting period;			
	e) Hours of service;			
	f) list of aerodromes/heliports for which reports and/or forecasts are included; and			
	g) Reports, forecasts and SIGMET information included.			

Table A1-10	Information	n about nationa	al and local	regulation,	services	and procedure	s (cont.)
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Table A1-10	Information about	national and local	rogulation	sarvicas and	nrocoduras	(cont)
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	SIGMET and AIRMET service: Information on Meteorological watch provided within flight information regions or control areas for which air traffic services are provided, including a list of the meteorological watch offices with:			
	a) Name of the meteorological watch office, ICAO location indicator;"			
	b) Hours of service;			
2.4.10	c) Flight information region(s) or control area(s) served;			
	d) SIGMET validity periods;			
	 Specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones); 			
	f) Procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);			
	g) The air traffic services unit(s) provided with SIGMET and AIRMET			
2.4.11	Information on other available automated services for the provision of meteorological information.			
2.5	Services, procedures and local regulations on aerodromes and heliports			
	Information on aerodrome / heliport operator including:			
2.5.1	a) Name and contact information			
	b) Operational hours			
2.5.2	Information on local regulations applicable to the traffic at use of the aerodrome including the acceptability of training flights, non-radio and micro light aircraft and similar, and to ground manoeuvring and parking.			
2.5.3	Information on the type of aerodrome/heliport charges including methods of payment and exemptions/reductions where applicable.			
2.5.4	Information on noise abatement procedures established at the aerodrome.			
2.5.5	Information on the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome.			
	Information on low visibility procedures			
050	a) Runway(s) and associated equipment authorized for use under low visibility procedures;			
2.5.6	b) Information on meteorological conditions under which initiation, use and termination of low visibility procedures would be made.			
	c) Description of ground marking/lighting for use under low visibility procedures			

2.5.7	Information on bird concentrations at the aerodrome, together with an indication of significant daily movement between resting and feeding areas.
2.5.8	Information on runway friction measuring devices and runway friction level minima.
2.5.9	Information on the equipment and operational priorities established for the clearance of aerodrome movement areas including type(s) of clearing equipment and clearance priorities
	Information on the rescue and firefighting services and equipment available at the aerodrome, including:
2 5 40	a) aerodrome category for firefighting;
2.5.10	b) rescue equipment;
	c) capability for removal of disabled aircraft
	Information on passenger facilities available at the aerodrome/heliport at or in the vicinity of aerodrome or a reference to other information sources such as a website:
	a) hotels
	b) restaurants
2.5.11	c) transportation
	d) medical facilities
	e) bank and post office
	f) tourist office
	Information on handling services and facilities available at the aerodrome/heliport including:
	a) cargo-handling facilities
	b) fuel and oil types
2.5.12	c) fuelling facilities and capacity and hours of service;
	d) de-icing facilities and hours of service
	e) hangar space for visiting aircraft
	f) repair facilities for visiting aircraft

Table A1-10 Information about national and local regulation, services and procedures (cont.)

2.5.13	Information on the existence of an obstacle free zone / sector		
	Meteorological information provided at the aerodrome and an indication of which meteorological office is responsible for the service enumerated, including:		
	a) name of the associated meteorological office and information on hours of service		
	b) office responsible for preparation of TAFs and periods of validity, interval of issuance of the forecasts, availability of the trend forecasts for the aerodrome, and interval of issuance		
	c) information on how briefing and/or consultation is provided		
2.5.14	d) types of flight documentation supplied and language(s) used in flight documentation;		
	e) charts and other information displayed or available for briefing or consultation;		
	 supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images; 		
	g) the air traffic services unit(s) provided with meteorological information; and		
	h) additional information (e.g. concerning any limitation of service, etc.).		
2.5.15	Information on hours of operation of AIS briefing office		
2.5.16	Information on hours of operation of ATS reporting office (ARO)		
2.5.17	Information on hours of operation of MET briefing office		
2.5.18	Information on hours of operation of air traffic service		
2.5.19	Information on hours of operation of customs and immigration		
2.5.20	Information on hours of operation of health and sanitation		
2.5.21	Information on hours of operation of security		
2.6	Search and Rescue services and procedures		
2.6.1	Name, contact information and description of the authorities responsible for search and rescue.		
2.6.2	ICAO documents on which the service is based.		
2.6.3	Area of responsibility		

Table A1-10 Information about national and local regulation, services and procedures (cont.)

2.6.4	Types of services
2.6.5	Information on SAR agreements
2.6.6	Brief description on provisions for SAR including general conditions under which the service and facilities are available for international use, including an indication of whether a facility available for search and rescue is specialized in SAR techniques and functions, or is specially used for other purposes but adapted for SAR purposes by training and equipment, or is only occasionally available and has no particular training or preparation for SAR work.
2.6.7	Procedures and signals employed by rescue aircraft and also the signals to be used by survivors.

Table A1-10 Information about national and local regulation, services and procedures (cont.)

APPENDIX 2 CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)

Note 1.— The information elements prefixed with "#AIP-DS#" may be omitted when available through the AIP data set (as specified in Chapter 5, 5.2.1.1.3).

Note 2.— The information elements prefixed with "#OBS-DS#" may be omitted when available through the obstacle data set (as specified in Chapter 5, 5.3.3.2.2).

PART 1 GENERAL (GEN)

When the AIP is produced as one volume, the preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments appear only in Part 1 — GEN, and the annotation "not applicable" shall be entered against each of these subsections in Parts 2 and 3.

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments shall be included in each volume.

GEN 0.1 Preface

Brief description of the AIP, including:

- 1) name of the publishing authority;
- 2) applicable ICAO documents;
- 3) publication media (i.e. printed, online or other electronic media);
- 4) AIP structure and established regular amendment interval;
- 5) copyright policy, if applicable; and
- 6) service to contact in case of detected AIP errors or omissions.

GEN 0.2 Record of AIP Amendments

A record of AIP Amendments and AIRAC AIP Amendments (published in accordance with the AIRAC system) containing:

- 1) amendment number;
- 2) publication date;
- 3) date inserted (for the AIRAC AIP Amendments, effective date); and
- 4) initials of officer who inserted the amendment.

GEN 0.3 Record of AIP Supplements

A record of issued AIP Supplements containing:

1) Supplement number;

2nd Edition

- 2) Supplement subject;
- 3) AIP section(s) affected;
- 4) period of validity; and
- 5) cancellation record

GEN 0.4 Checklist of AIP pages

A checklist of AIP pages containing:

- 1) page number/chart title; and
- 2) publication or effective date (day, month by name and year) of the aeronautical information.

GEN 0.5 List of hand amendments to the AIP

A list of current hand amendments to the AIP containing:

- 1) AIP page(s) affected;
- 2) amendment text; and
- 3) AIP Amendment number by which a hand amendment was introduced.

GEN 0.6 Table of contents to Part 1

A list of sections and subsections contained in Part 1 — General (GEN).

Note.— Subsections may be listed alphabetically.

GEN 1 NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 Designated authorities

The addresses of designated authorities concerned with the facilitation of international air navigation (civil aviation, meteorology, customs, immigration, health, en-route and aerodrome/heliport charges, agricultural quarantine and aircraft accident investigation) containing, for each authority:

- 1) designated authority;
- 2) name of the authority;
- 3) postal address;
- 4) telephone number;
- 5) telefax number;
- 6) e-mail address;
- 7) aeronautical fixed service (AFS) address; and
- 8) website address, if available.

GEN 1.2 Entry, transit and departure of aircraft

Regulations and requirements for advance notification and applications for

2nd Edition

August 2020

permission concerning entry, transit and departure of aircraft on international flights.

GEN 1.3 Entry, transit and departure of passengers and crew

Regulations (including customs, immigration and quarantine, and requirements for advance notification and applications for permission) concerning entry, transit and departure of non-immigrant passengers and crew.

GEN 1.4 Entry, transit and departure of cargo

Regulations (including customs, and requirements for advance notification and applications for permission) concerning entry, transit and departure of cargo.

Note.— Provisions for facilitating entry and departure for search, rescue, salvage, investigation, repair or salvage in connection with lost or damaged aircraft are detailed in section GEN 3.6, Search and rescue.

GEN 1.5 Aircraft instruments, equipment and flight documents

Brief description of aircraft instruments, equipment and flight documents, including:

- instruments, equipment (including aircraft communication, navigation and surveillance equipment) and flight documents to be carried on aircraft, including any special requirement in addition to the provisions specified in PCAR Parts 7 & 8; and
- emergency locator transmitter (ELT), signalling devices and lifesaving equipment as presented in PCAR Part 7, 7.8, where so determined by regional air navigation agreement, for flights over designated land areas.

GEN 1.6 Summary of national regulations and international agreements/ conventions

A list of titles and references and, where applicable, summaries of national regulations affecting air navigation, together with a list of international agreements/conventions ratified by Philippines.

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

A list of significant differences between national regulations and practices of Philippines and related ICAO provisions, including:

- 1) provision affected (Annex and edition number, paragraph); and
- 2) difference in full text.

All significant differences shall be listed under this subsection. All Annexes shall be listed in numerical order even if there is no difference to an Annex, in which case a NIL notification shall be

provided. National differences or the degree of non-application of the regional supplementary procedures (SUPPs) shall be notified immediately following the Annex to which the supplementary procedure relates.

GEN 2 TABLES AND CODES

GEN 2.1 Measuring system, aircraft markings, holidays

GEN 2.1.1 Units of measurement

Description of units of measurement used including table of units of measurement.

- GEN 2.1.2 Temporal reference system
- GEN 2.1.3 Horizontal reference system

Brief description of the horizontal (geodetic) reference system used, including:

- 1) name/designation of the reference system;
- 2) identification and parameters of the projection;
- 3) identification of the ellipsoid used;
- 4) identification of the datum used;
- 5) area(s) of application; and
- 6) an explanation, if applicable, of the asterisk used to identify those coordinates that do not meet the accuracy requirements.
- GEN 2.1.4 Vertical reference system

Brief description of the vertical reference system used, including:

- 1) name/designation of the reference system;
- description of the geoid model used including the parameters required for height transformation between the model used and EGM-96; and
- an explanation, if applicable, of the asterisk used to identify those elevations/geoid undulations that do not meet the accuracy requirements.
- GEN 2.1.5 Aircraft nationality and registration marks

Indication of aircraft nationality and registration marks adopted by Philippines.

GEN 2.1.6 Public holidays

A list of public holidays with indication of services being affected.

GEN 2.2 Abbreviations used in aeronautical information products

A list of alphabetically arranged abbreviations and their respective significations used by Philippines in its AIP and in the distribution of aeronautical data and aeronautical information with appropriate annotation for those national abbreviations that are different from those contained in the *Procedures for Air Navigation Services* — *ICAO Abbreviations and Codes* (PANS-ABC, Doc 8400).

Note.— A list of alphabetically arranged definitions/glossary of terms may also be added.

GEN 2.3 Chart symbols

A list of chart symbols arranged according to the chart series where symbols are applied.

GEN 2.4 Location indicators

A list of alphabetically arranged location indicators assigned to the locations of aeronautical fixed stations to be used for encoding and decoding purposes. An annotation to locations not connected to the aeronautical fixed service (AFS) shall be provided.

GEN 2.5 List of radio navigation aids

#AIP-DS# A list of radio navigation aids arranged alphabetically, containing:

- 1) identifier;
- 2) name of the station;
- 3) type of facility/aid; and
- indication whether aid serves en-route (E), aerodrome (A) or dual (AE) purposes.

GEN 2.6 Conversion of units of measurement

Tables for conversion or, alternatively, conversion formulae between:

- 1) nautical miles and kilometers and vice versa;
- 2) feet and meters and vice versa;
- 3) decimal minutes of arc and seconds of arc and vice versa; and
- 4) other conversions as appropriate

GEN 2.7 Sunrise/sunset

Information on the time of sunrise and sunset including a brief description of criteria used for determination of the times given and either a simple formulae or table from which times may be calculated for any location within its territory/area of responsibility, or an alphabetical list of locations for which the times are given in a table with a reference to the related page in the table and the sunrise/sunset tables for the selected stations/locations, including:

- 1) station name;
- 2) ICAO location indicator;
- 3) geographical coordinates in degrees and minutes;
- 4) date(s) for which times are given;
- 5) time for the beginning of morning civil twilight;
- 6) time for sunrise;
- 7) time for sunset; and
- 8) time for the end of evening civil twilight.

GEN 3 SERVICES

GEN 3.1 Aeronautical information services

GEN 3.1.1 Responsible service

Description of the aeronautical information service (AIS) provided and its major components, including:

- 1) service/unit name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- AFS address;
- 7) website address, if available;
- a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and
- 9) an indication if service is not H24.
- GEN 3.1.2 Area of responsibility

The area of responsibility for the AIS.

GEN 3.1.3 Aeronautical publications

Description of the elements of the aeronautical information products, including:

- 1) AIP and related amendment service;
- 2) AIP Supplements;
- 3) AIC;
- 4) NOTAM and pre-flight information bulletins (PIB);
- 5) checklists and lists of valid NOTAM; and
- 6) how they may be obtained.

2nd Edition

August 2020

When an AIC is used to promulgate publication prices, that shall be indicated in this section of the AIP.

GEN 3.1.4 AIRAC system

Brief description of the AIRAC system provided including a table of present and near future AIRAC dates.

GEN 3.1.5 Pre-flight information service at aerodromes/heliports

A list of aerodromes/heliports at which pre-flight information is routinely available, including an indication of relevant:

- 1) elements of the aeronautical information products held;
- 2) maps and charts held; and
- 3) general area of coverage of such information.
- GEN 3.1.6 Digital data sets

Description of the available data sets, including:

- 1) data set title;
- 2) short description
- 3) data subjects included;
- 4) geographical scope; and
- 5) if applicable, limitations related to its usage.
- 6) Contact details of how data sets may be obtained, containing:
 - a) name of the individual, service or organization responsible;
 - b) street address and e-mail address of the individual, service or organization responsible;
 - c) telefax number of the individual, service or organization responsible;
 - d) contact telephone number of the individual, service or organization responsible;
 - e) hours of service (time period including time zone when contact can be made);
 - f) online information that can be used to contact the individual, service or organization; and
 - g) supplemental information, if necessary, on how and when to contact the individual, service or organization.

GEN 3.2 Aeronautical charts

GEN 3.2.1 Responsible service(s)

Description of service(s) responsible for the production of aeronautical charts, including:

- 1) service name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address;
- 7) website address, if available;
- a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and
- 9) an indication if service is not H24.
- GEN 3.2.2 Maintenance of charts

Brief description of how aeronautical charts are revised and amended.

GEN 3.2.3 Purchase arrangements

Details of how charts may be obtained, containing:

- 1) service/sales agency(ies);
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address; and
- 7) website address, if available.
- GEN 3.2.4 Aeronautical chart series available

A list of aeronautical chart series available followed by a general description of each series and an indication of the intended use.

GEN 3.2.5 List of aeronautical charts available

A list of aeronautical charts available, including:

- 1) title of series;
- 2) scale of series;
- 3) name and/or number of each chart or each sheet in a series;
- 4) price per sheet; and
- 5) date of latest revision.
- GEN 3.2.6 Index to the World Aeronautical Chart (WAC) ICAO 1:1 000 000

An index chart showing coverage and sheet layout for the WAC 1:1 000 000 produced by CAAP. If Aeronautical Chart — ICAO 1:500 000 is produced

instead of WAC 1:1 000 000, index charts shall be used to indicate coverage and sheet layout for the Aeronautical Chart — ICAO 1:500 000.

GEN 3.2.7 Topographical charts

Details of how topographical charts may be obtained, containing:

- 1) name of service/agency(ies);
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address; and
- 7) website address, if available.
- GEN 3.2.8 Corrections to charts not contained in the AIP

A list of corrections to aeronautical charts not contained in the AIP, or an indication where such information can be obtained.

GEN 3.3 Air traffic services

GEN 3.1.1 Responsible service

Description of the air traffic service (ATS) and its major components, including:

- 1) service name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address;
- 7) website address, if available;
- a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and
- 9) an indication if service is not H24.
- GEN 3.3.2 Area of responsibility

Brief description of area of responsibility for which ATS is provided.

GEN 3.3.3 Types of services

Brief description of main types of ATS provided.

GEN 3.3.4 Coordination between the operator and ATS

General conditions under which coordination between the operator and air traffic services is effected.

GEN 3.3.5 Minimum flight altitude

The criteria used to determine minimum flight altitudes.

GEN 3.3.6 ATS units address list

A list of ATS units and their addresses arranged alphabetically, containing:

- 1) unit name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address; and
- 7) website address, if available.

GEN 3.4 Communication and navigation services

GEN 3.4.1 Responsible service

Description of the service responsible for the provision of telecommunication and navigation facilities, including:

- 1) service name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address;
- 7) website address, if available;
- a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and
- 9) an indication if service is not H24.
- GEN 3.4.2 Area of responsibility

Brief description of area of responsibility for which telecommunication service is provided.

GEN 3.4.3 Types of service

Brief description of the main types of service and facilities provided, including:

- 1) radio navigation services;
- 2) voice and/or data link services;
- 3) broadcasting service;
- 4) language(s) used; and
- 5) an indication of where detailed information can be obtained.
- GEN 3.4.4 Requirements and conditions

Brief description concerning the requirements and conditions under which the communication service is available.

GEN 3.4.5 Miscellaneous

Any additional information (e.g. selected radio broadcasting stations, telecommunications diagram).

GEN 3.5 Meteorological services

GEN 3.5.1 Responsible service

Brief description of the meteorological service responsible for the provision of meteorological information, including:

- 1) service name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address;
- 7) website address, if available;
- a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and
- 9) an indication if service is not H24.
- GEN 3.5.2 Area of responsibility

Brief description of area and/or air routes for which meteorological service is provided.

GEN 3.5.3 Meteorological observations and reports

Detailed description of the meteorological observations and reports provided for international air navigation, including:

- 1) name of the station and the ICAO location indicator;
- type and frequency of observation including an indication of automatic observing equipment;

- types of meteorological reports (e.g. METAR) and availability of a trend forecast;
- specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear (e.g. anemometer at intersection of runways, transmissometer next to touchdown zone, etc.);
- 5) hours of operation; and
- 6) indication of aeronautical climatological information available.

GEN 3.5.4 Types of services

Brief description of the main types of service provided, including details of briefing, consultation, display of meteorological information, flight documentation available for operators and flight crew members, and of the methods and means used for supplying the meteorological information.

GEN 3.5.5 Notification required from operators

Minimum amount of advance notice required by the meteorological authority from operators in respect of briefing, consultation and flight documentation and other meteorological information they require or change.

GEN 3.5.6 Aircraft reports

As necessary, requirements of the meteorological authority for the making and transmission of aircraft reports.

GEN 3.5.7 VOLMET service

Description of VOLMET and/or D-VOLMET service, including:

- 1) name of transmitting station;
- call sign or identification and abbreviation for the radio communication emission;
- 3) frequency or frequencies used for broadcast;
- 4) broadcasting period;
- 5) hours of service;
- 6) list of aerodromes/heliports for which reports and/or forecasts are included; and
- 7) reports, forecasts and SIGMET information included and remarks.
- GEN 3.5.8 SIGMET and AIRMET service

Description of the meteorological watch provided within flight information regions or control areas for which air traffic services are provided, including a list of the meteorological watch offices with:

1) name of the meteorological watch office and the ICAO location indicator;

- 2) hours of service;
- 3) flight information region(s) or control area(s) served;
- 4) SIGMET validity periods;
- 5) specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones);
- 6) procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);
- 7) ATS unit(s) provided with SIGMET and AIRMET information; and
- 8) additional information (e.g. concerning any limitation of service, etc.).
- GEN 3.5.9 Other automated meteorological services

Description of available automated services for the provision of meteorological information (e.g. automated pre-flight information service accessible by telephone and/or computer modem), including:

- 1) service name;
- 2) information available;
- 3) areas, routes and aerodromes covered; and
- 4) telephone and telefax number(s), e-mail address, and, if available, website address.

GEN 3.6 Search and rescue

GEN 3.6.1 Responsible service(s)

Brief description of service(s) responsible for the provision of search and rescue (SAR), including:

- 1) service/unit name;
- 2) postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address;
- 6) AFS address;
- 7) website address, if available; and
- 8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed.
- GEN 3.6.2 Area of responsibility

Brief description of area of responsibility within which SAR services are provided.

Note.— A chart may be included to supplement the description of the area.

GEN 3.6.3 Types of service

Brief description and geographical portrayal, where appropriate, of the type of service and facilities provided including indications where SAR aerial coverage is dependent upon significant deployment of aircraft.

GEN 3.6.4 SAR agreements

Brief description of SAR agreements in force, including provisions for facilitating entry and departure of other States' aircraft for search, rescue, salvage, repair or salvage in connection with lost or damaged aircraft, either with airborne notification only or after flight plan notification.

GEN 3.6.5 Conditions of availability

Brief description of provisions for SAR, including the general conditions under which the service and facilities are available for international use, including an indication of whether a facility available for SAR is specialized in SAR techniques and functions, or is specially used for other purposes but adapted for SAR purposes by training and equipment, or is only occasionally available and has no particular training or preparation for SAR work.

GEN 3.6.6 Procedures and signals used

Brief description of the procedures and signals employed by rescue aircraft and a table showing the signals to be used by survivors.

GEN 4 CHARGES FOR AERODROMES/HELIPORTS AND AIR NAVIGATION SERVICES

Note.— Reference may be made to where details of actual charges may be found, if not itemized in this chapter.

GEN 4.1 Aerodrome/heliport charges

Brief description of type of charges which may be applicable at aerodromes/heliports available for international use, including:

- 1) landing of aircraft;
- 2) parking, hangarage and long-term storage of aircraft;
- 3) passenger service;
- 4) security;
- 5) noise-related items;
- 6) other (customs, health, immigration, etc.);
- 7) exemptions/reductions; and
- 8) methods of payment

GEN 4.2 Air navigation services charges

Brief description of charges which may be applicable to air navigation services provided for international use, including:

- 1) approach control;
- 2) route air navigation services;
- 3) cost basis for air navigation services and exemptions/reductions; and
- 4) methods of payment.

PART 2 EN-ROUTE (ENR)

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments shall be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" shall be entered against each of the above subsections.

ENR 0.1 Table of contents to Part 2

A list of sections and subsections contained in Part 2 — En-route.

Note.— Subsections may be listed alphabetically.

ENR 1 GENERAL RULES AND PROCEDURES

ENR 1.1 General rules

The requirement is for publication of the general rules as applied within Philippines.

ENR 1.2 Visual flight rules

The requirement is for publication of the visual flight rules as applied within Philippines.

ENR 1.3 Instrument flight rules

The requirement is for publication of the instrument flight rules as applied within Philippines.

ENR 1.4 ATS airspace classification and description

ENR 1.4.1 ATS airspace classification

Description of ATS airspace classes in the form of the ATS airspace classification table in CAR-ANS Part 11, Appendix 11.4, appropriately annotated to indicate those airspace classes not used by Philippines.

ENR 1.4.2 ATS airspace description

Other ATS airspace descriptions as applicable, including general textual descriptions.

ENR 1.5 Holding, approach and departure procedures

ENR 1.5.1 General

The requirement is for a statement concerning the criteria on which holding, approach and departure procedures are established. If different from ICAO provisions, the requirement is for presentation of criteria used in a tabular form.

ENR 1.5.2 Arriving flights

The requirement is to present procedures (conventional or area navigation or both) for arriving flights which are common to flights into or within the same type of airspace. If different procedures apply within a terminal airspace, a note to this effect shall be given together with a reference to where the specific procedures can be found.

ENR 1.5.3 Departing flights

The requirement is to present procedures (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport.

ENR 1.5.4 Other relevant information and procedures

Brief description of additional information, e.g. entry procedures, final approach alignment, holding procedures and patterns.

ENR 1.6 ATS surveillance services and procedures

ENR 1.6.1 Primary radar

Description of primary radar services and procedures, including:

- 1) supplementary services;
- 2) the application of radar control service;
- 3) radar and air-ground communication failure procedures;
- 4) voice and CPDLC position reporting requirements; and
- 5) graphic portrayal of area of radar coverage.
- ENR 1.6.2 Secondary surveillance radar (SSR)

Description of secondary surveillance radar (SSR) operating procedures, including:

- 1) emergency procedures;
- air-ground communication failure and unlawful interference procedures;
- 3) the system of SSR code assignment;
- 4) voice and CPDLC position reporting requirements; and
- 5) graphic portrayal of area of SSR coverage.

2nd Edition

A2-16

August 2020

Note.— The SSR description is of particular importance in areas or routes where the possibility of interceptionexists.

ENR 1.6.3 Automatic dependent surveillance — broadcast (ADS-B)

Description of automatic dependent surveillance — broadcast (ADS-B) operating procedures, including:

- 1) emergency procedures;
- 2) air-ground communication failure and unlawful interference procedures;
- 3) aircraft identification requirements;
- 4) voice and CPDLC position reporting requirements; and
- 5) graphic portrayal of area of ADS-B coverage.

Note.— The ADS-B description is of particular importance in areas or routes where the possibility of interception exists.

ENR 1.6.4 Other relevant information and procedures

Brief description of additional information and procedures, e.g. radar failure procedures and transponder failure procedures.

ENR 1.7 Altimeter setting procedures

The requirement is for a statement of altimeter setting procedures in use, containing:

- brief introduction with a statement concerning the ICAO documents on which the procedures are based together with differences to ICAO provisions, if any;
- 2) basic altimeter setting procedures;
- 3) description of altimeter setting region(s);
- 4) procedures applicable to operators (including pilots); and
- 5) table of cruising levels.

ENR 1.8 Regional supplementary procedures

The requirement is for presentation of regional supplementary procedures (SUPPs) affecting the entire area of responsibility.

ENR 1.9 Air traffic flow management and airspace management

Brief description of air traffic flow management (ATFM) system and airspace management, including:

- 1) ATFM structure, service area, service provided, location of unit(s) and hours of operation;
- 2) types of flow messages and descriptions of the formats; and
- 3) procedures applicable for departing flights, containing:

- a) service responsible for provision of information on applied ATFM measures;
- b) flight plan requirements; and
- c) slot allocations.
- 4) information on overall responsibility regarding airspace management within FIR(s), details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation) and general operating procedures.

ENR 1.10 Flight planning

The requirement is to indicate any restriction, limitation or advisory information related to the flight planning stage which may assist the user in the presentation of the intended flight operation, including:

- 1) procedures for the submission of a flight plan;
- 2) repetitive flight plan system; and
- 3) changes to the submitted flight plan.

ENR 1.11 Addressing of flight plan messages

The requirement is for an indication, in tabular form, of the addresses allocated to flight plans, showing:

- 1) category of flight (IFR, VFR or both);
- 2) route (into or via FIR and/or TMA); and
- 3) message address.

ENR 1.12 Interception of civil aircraft

The requirement is for a complete statement of interception procedures and visual signals to be used with a clear indication of whether ICAO provisions are applied and, if not, that differences exist.

Note.— A list of significant differences between national regulations and practices of Philippines and related ICAO provisions is found in Gen 1.7.

ENR 1.13 Unlawful interference

The requirement is for presentation of appropriate procedures to be applied in case of unlawful interference.

ENR 1.14 Air traffic incidents

Description of air traffic incidents reporting system, including:

- 1) definition of air traffic incidents;
- 2) use of the "Air Traffic Incident Reporting Form";
- 3) reporting procedures (including in-flight procedures); and
- 4) purpose of reporting and handling of the form.

Note.— A copy of the Air Traffic Incident Report Form (MOS-ATS, Appendix 4) may be included for reference.

ENR 2 ATS AIRSPACE

ENR 2.1 FIR, UIR, TMA and CTA

#AIP-DS# Detailed description of flight information regions (FIR), upper flight information regions (UIR), and control areas (CTA) (including specific CTA such as TMA), including:

- name, geographical coordinates in degrees and minutes of the FIR/UIR lateral limits and in degrees, minutes and seconds of the CTA lateral limits, vertical limits and class of airspace;
- 2) identification of unit providing the service;
- call sign of aeronautical station serving the unit and language(s) used, specifying the area and conditions, when and where to be used, if applicable;
- 4) frequencies, and if applicable SATVOICE number, supplemented by indications for specific purposes; and
- 5) remarks.

#AIP-DS# Control zones around military air bases not otherwise described in the AIP shall be included in this subsection. Where the requirements of CAR-ANS Part 14 concerning flight plans, two-way communications and position reporting apply to all flights in order to eliminate or reduce the need for interceptions and/or where the possibility of interception exists and the maintenance of guard on the VHF emergency channel 121.5 MHz is required, a statement to this effect shall be included for the relevant area(s) or portion(s) thereof.

A description of designated areas over which the carriage of an emergency locator transmitter (ELT) is required and where aircraft shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

Note.— Other types of airspace around civil aerodromes/heliports such as control zones and aerodrome traffic zones are described in the relevant aerodrome or heliport section.

ENR 2.2 Other regulated airspace

Where established, a detailed description of other types of regulated airspace and airspace classification.

ENR 3 ATS ROUTES

Note 1.— Bearings, tracks and radials are normally magnetic. In areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, may be used.

Note 2.— Changeover points established at the midpoint between two radio navigation aids, or at the intersection of the two radials in the case of a route which changes direction between the navigation aids, need not be shown for each route segment if a general statement regarding their existence is made.

Note 3.— Guidance material on the organization of ATS route publication is contained in Advisory Circular (AC) ANS15.1.

ENR 3.1 Lower ATS routes (Applicable until 3 November 2021)

#AIP-DS# Detailed description of lower ATS routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;
- 3) upper and lower limits or minimum en-route altitudes, to the nearest higher 50 m or 100 ft, and airspace classification;
- 4) lateral limits and minimum obstacle clearance altitudes;
- 5) direction of cruising levels;
- 6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to CAR-ANS Part 11, Appendix 11.1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.2 Upper ATS routes (Applicable until 3 November 2021)

#AIP-DS# Detailed description of upper ATS routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;

- 3) upper and lower limits and airspace classification;
- 4) lateral limits;
- 5) direction of cruising levels;
- 6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to CAR-ANS Part 11, Appendix 11.1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.3 Area navigation routes (Applicable until 3 November 2021)

#AIP-DS# Detailed description of PBN (RNAV and RNP) routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- 2) in respect of waypoints defining an area navigation route, additionally as applicable:
 - a) station identification of the reference VOR/DME;
 - b) bearing to the nearest degree and the distance to the nearest tenth of a kilometer or tenth of a nautical mile from the reference VOR/DME, if the waypoint is not collocated with it; and
 - elevation of the transmitting antenna of DME to the nearest 30 m (100 ft);
- magnetic bearing to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between defined end-points and distance between each successive designated significant point;
- 4) upper and lower limits and airspace classification;
- 5) direction of cruising levels;
- 6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to CAR-ANS Part 11, Appendix 11.1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.4 Helicopter routes (Applicable until 3 November 2021)

#AIP-DS# Detailed description of helicopter routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;
- 3) upper and lower limits and airspace classification;
- 4) minimum flight altitudes to the nearest higher 50 m or 100 ft;
- 5) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 6) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation CAR-ANS Part 11, Appendix 11.1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator

ENR 3.5 Other routes (Applicable until 3 November 2021)

#AIP-DS# The requirement is to describe other specifically designated routes which are compulsory within specified area(s).

Note.— Arrival, transit and departure routes which are specified in connection with procedures for traffic to and from aerodromes/heliports need not be described since they are described in the relevant section of Part 3 — Aerodromes.

ENR 3.6 En-route holding (Applicable until 3 November 2021)

#*AIP-DS*# The requirement is for a detailed description of en-route holding procedures, containing:

- holding identification (if any) and holding fix (navigation aid) or waypoint with geographical coordinates in degrees, minutes and seconds;
- 2) inbound track;
- 3) direction of the procedure turn;
- 4) maximum indicated airspeed;
- 5) minimum and maximum holding level;
- 6) time/distance outbound; and

7) indication of the controlling unit and its operating frequency.

Note.— Obstacle clearance criteria related to holding procedures are contained in Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volumes I and II.

ENR 3.1 Conventional navigation routes (Applicable as of 4 November 2021)

#AIP-DS# Detailed description of conventional navigation routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;
- 3) upper and lower limits or minimum en-route altitudes, to the nearest higher 50 m or 100 ft, and airspace classification;
- 4) lateral limits and minimum obstacle clearance altitudes;
- 5) direction of cruising levels; and
- 6) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

ENR 3.2 Area navigation routes (Applicable as of 4 November 2021)

#AIP-DS# Detailed description of PBN (RNAV and RNP) routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "onrequest" reporting points;
- 2) in respect of waypoints defining an area navigation route, additionally as applicable:
 - a) station identification of the reference VOR/DME;
 - b) bearing to the nearest degree and the distance to the nearest tenth of a kilometer or tenth of a nautical mile from the reference VOR/DME, if the waypoint is not collocated with it; and
 - elevation of the transmitting antenna of DME to the nearest 30 m (100 ft);
- magnetic reference bearing to the nearest degree, geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between defined end-points and distance between each successive designated significant point;

- 4) upper and lower limits and airspace classification;
- 5) direction of cruising levels;
- 6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to CAR-ANS Part 11, Appendix 11.1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.3 Other routes (Applicable as of 4 November 2021)

#AIP-DS# The requirement is to describe other specifically designated routes which are compulsory within specified area(s).

Note.— Arrival, transit and departure routes which are specified in connection with procedures for traffic to and from aerodromes/heliports need not be described since they are described in the relevant section of Part 3 — Aerodromes.

ENR 3.4 En-route holding (Applicable as of 4 November 2021)

#*AIP-DS*# The requirement is for a detailed description of en-route holding procedures, containing:

- holding identification (if any) and holding fix (navigation aid) or waypoint with geographical coordinates in degrees, minutes and seconds;
- 2) inbound track;
- 3) direction of the procedure turn;
- 4) maximum indicated airspeed;
- 5) minimum and maximum holding level;
- 6) time/distance outbound; and
- 7) indication of the controlling unit and its operating frequency.

Note.— Obstacle clearance criteria related to holding procedures are contained in Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volumes I and II.

ENR 4 RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 Radio navigation aids — en-route

#AIP-DS# A list of stations providing radio navigation services established for en-route purposes and arranged alphabetically by name of the station, including:

 name of the station and magnetic variation to the nearest degree and for VOR, station declination to the nearest degree used for technical line-up of the aid;

- 2) identification;
- 3) frequency/channel for each element;
- 4) hours of operation;
- 5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting antenna;
- elevation of the transmitting antenna of DME to the nearest 30 m (100 ft); and
- 7) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

ENR 4.2 Special navigation systems

#AIP-DS# Description of stations associated with special navigation systems (DECCA, LORAN, etc.), including:

- 1) name of station or chain;
- 2) type of service available (master signal, slave signal, color);
- frequency (channel number, basic pulse rate, recurrence rate, as applicable);
- 4) hours of operation;
- 5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting station; and
- 6) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

ENR 4.3 Global navigation satellite system (GNSS)

A list and description of elements of the global navigation satellite system (GNSS) providing the navigation service established for en-route purposes and arranged alphabetically by name of the element, including:

- 1) the name of the GNSS element, (GPS, GLONASS, EGNOS, MSAS, WAAS, etc.);
- 2) frequency(ies), as appropriate;
- 3) geographical coordinates in degrees, minutes and seconds of the nominal service area and coverage area; and
- 4) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column.

ENR 4.4 Name-code designators for significant points

#AIP-DS# A list of alphabetically arranged name-code designators (fiveletter pronounceable "name-code") established for significant points at positions not marked by the site of radio navigation aids, including:

- 1) name-code designator;
- 2) geographical coordinates in degrees, minutes and seconds of the position;
- 3) reference to ATS or other routes where the point is located; and
- 4) remarks, including supplementary definition of positions where required.

ENR 4.5 Aeronautical ground lights — en-route

#AIP-DS# A list of aeronautical ground lights and other light beacons designating geographical positions which are selected by CAAP as being significant, including:

- 1) name of the city or town or other identification of the beacon;
- 2) type of beacon and intensity of the light in thousands of candelas;
- 3) characteristics of the signal;
- 4) operational hours; and
- 5) remarks.

ENR 5 NAVIGATION WARNINGS

ENR 5.1 Prohibited, restricted and danger areas

#AIP-DS# Description, supplemented by graphic portrayal where appropriate, of prohibited, restricted and danger areas together with information regarding their establishment and activation, including:

- identification, name and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;
- 2) upper and lower limits; and
- 3) remarks, including time of activity

Type of restriction or nature of hazard and risk of interception in the event of penetration shall be indicated in the remarks column.

ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ)

#AIP-DS# Description, supplemented by graphic portrayal where appropriate, of established military training areas and military exercises taking place at regular intervals, and established air defence identification zone (ADIZ), including:

1) geographical coordinates of the lateral limits in degrees, minutes and

seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

- 2) upper and lower limits and system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures; and
- 3) remarks, including time of activity and risk of interception in the event of penetration of ADIZ.

ENR 5.3 Other activities of a dangerous nature and other potential hazards

ENR 5.3.1 Other activities of a dangerous nature

#AIP-DS# Description, supplemented by charts where appropriate, of activities that constitute a specific or obvious danger to aircraft operation and could affect flights, including:

- 1) geographical coordinates in degrees and minutes of center of area and range of influence;
- 2) vertical limits;
- 3) advisory measures;
- 4) authority responsible for the provision of information; and
- 5) remarks, including time of activity.
- ENR 5.3.2 Other potential hazards

#AIP-DS# Description, supplemented by charts where appropriate, of other potential hazards that could affect flights (active volcanoes, nuclear power stations, etc.), including:

- 1) geographical coordinates in degrees and minutes of location of potential hazard;
- 2) vertical limits;
- 3) advisory measures;
- 4) authority responsible for the provision of information; and
- 5) remarks, including time of activity.

ENR 5.4 Air navigation obstacles

#OBS-DS# A list of obstacles affecting air navigation in Area 1 (the entire Philippine territory), including:

- 1) obstacle identification or designation;
- 2) type of obstacle;
- obstacle position, represented by geographical coordinates in degrees, minutes and seconds;
- 4) obstacle elevation and height to the nearest meter or foot; and
- 5) type and color of obstacle lighting (if any).

Note 1.— An obstacle whose height above the ground is 100 m and higher is considered an obstacle for Area 1.

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations/heights for obstacles in Area 1 are given in Appendix 1.

ENR 5.5 Aerial sporting and recreational activities

#*AIP-DS*# Brief description, supplemented by graphic portrayal where appropriate, of intensive aerial sporting and recreational activities together with conditions under which they are carried out, including:

- designation and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;
- 2) vertical limits;
- 3) operator/user telephone number; and
- 4) remarks, including time of activity.

Note.— This subsection may be subdivided into different sections for each different category of activity, giving the indicated details in each case.

ENR 5.6 Bird migration and areas with sensitive fauna

Description, supplemented by charts where practicable, of movements of birds associated with migration, including migration routes and permanent resting areas and areas with sensitive fauna.

ENR 6 EN-ROUTE CHARTS

The requirement is for the En-route Chart — ICAO and index charts to be included in this section.

PART 3 AERODROMES (AD)

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments shall be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" shall be entered against each of the above subsections.

AD 0.1 Table of contents to Part 3

A list of sections and subsections contained in Part 3 — Aerodromes (AD).

Note.— Subsections may be listed alphabetically.
AD 1 AERODROMES/HELIPORTS — INTRODUCTION

AD 1.1 Aerodrome/heliport availability and conditions of use

AD 1.1.1 General conditions

Brief description of Philippines' designated authority responsible for aerodromes and heliports, including:

- 1) the general conditions under which aerodromes/heliports and associated facilities are available for use; and
- a statement concerning the ICAO documents on which the services are based and a reference to the AIP location where differences, if any, are listed.
- AD 1.1.2 Use of military air bases

Regulations and procedures, if any, concerning civil use of military air bases.

AD 1.1.3 Low visibility procedures

The general conditions under which the low visibility procedures applicable to Cat II/III operations at aerodromes, if any, are applied.

AD 1.1.4 Aerodrome operating minima

Details of aerodrome operating minima applied by CAAP.

AD 1.1.5 Other information

If applicable, other information of a similar nature.

AD 1.2 Rescue and firefighting services

Brief description of rules governing the establishment of rescue and firefighting services at aerodromes and heliports available for public use together with an indication of rescue and firefighting categories established by CAAP.

AD 1.3 Index to aerodromes and heliports

A list, supplemented by graphic portrayal, of aerodromes and heliports within Philippines, including:

- 1) aerodrome/heliport name and ICAO location indicator;
- type of traffic permitted to use the aerodrome/heliport (international/national, IFR/VFR, scheduled/non-scheduled, general aviation, military and other); and
- 3) reference to AIP, Part 3 subsection in which aerodrome/heliport details are presented.

AD 1.4 Grouping of aerodromes/heliports

Brief description of the criteria applied by CAAP in grouping aerodromes/heliports for production/distribution/provision of information purposes (international/national; primary/secondary; major/other; civil/military; etc.).

AD 1.5 Status of certification of aerodromes

A list of aerodromes in Philippines, indicating the status of certification, including:

- 1) aerodrome name and ICAO location indicator;
- 2) date and, if applicable, validity of certification; and
- 3) remarks, if any.

AD 2 AERODROMES

Note.— **** is to be replaced by the relevant ICAO location indicator.

**** AD 2.1 Aerodrome location indicator and name

The requirement is for the ICAO location indicator allocated to the aerodrome and the name of aerodrome. An ICAO location indicator shall be an integral part of the referencing system applicable to all subsections in section AD 2.

**** AD 2.2 Aerodrome geographical and administrative data

The requirement is for aerodrome geographical and administrative data, including:

- 1) aerodrome reference point (geographical coordinates in degrees, minutes and seconds) and its site;
- 2) direction and distance of aerodrome reference point from center of the city or town which the aerodrome serves;
- 3) aerodrome elevation to the nearest meter or foot, reference temperature and mean low temperature;
- 4) where appropriate, geoid undulation at the aerodrome elevation position to the nearest meter or foot;
- 5) magnetic variation to the nearest degree, date of information and annual change;
- 6) name of aerodrome operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available,

website address;

- 7) types of traffic permitted to use the aerodrome (IFR/VFR); and
- 8) remarks.

**** AD 2.3 Operational hours

Detailed description of the hours of operation of services at the aerodrome, including:

- 1) aerodrome operator;
- 2) customs and immigration;
- 3) health and sanitation;
- 4) AIS briefing office;
- 5) ATS reporting office (ARO);
- 6) MET briefing office;
- 7) air traffic service;
- 8) fuelling;
- 9) handling;
- 10) security; and
- 11) remarks

**** AD 2.4 Handling services and facilities

Detailed description of the handling services and facilities available at the aerodrome, including:

- 1) cargo-handling facilities;
- 2) fuel and oil types;
- 3) fuelling facilities and capacity;
- 4) hangar space for visiting aircraft;
- 5) repair facilities for visiting aircraft; and
- 6) remarks.

**** AD 2.5 Passenger facilities

Passenger facilities available at the aerodrome, provided as a brief description or a reference to other information sources such as a website, including:

- 1) hotel(s) at or in the vicinity of aerodrome;
- 2) restaurant(s) at or in the vicinity of aerodrome;
- 3) transportation possibilities;
- 4) medical facilities;
- 5) bank and post office at or in the vicinity of aerodrome;
- 6) tourist office; and
- 7) remarks.

**** AD 2.6 Rescue and firefighting services

Detailed description of the rescue and firefighting services and equipment available at the aerodrome, including:

- 1) aerodrome category for firefighting;
- 2) rescue equipment;
- 3) capability for removal of disabled aircraft; and
- 4) remarks.

**** AD 2.7 Seasonal availability — clearing

Detailed description of the equipment and operational priorities established for the clearance of aerodrome movement areas, including:

- 1) type(s) of clearing equipment;
- 2) clearance priorities; and
- 3) remarks.

**** AD 2.8 Aprons, taxiways and check locations/positions data

Details related to the physical characteristics of aprons, taxiways and locations/positions of designated checkpoints, including:

- 1) until 27 November 2024, designation, surface and strength of aprons;
- 1) as of 28 November 2024, designation, surface and strength (PCR) of aprons;
- until 27 November 2024, designation, width, surface and strength of taxiways;
- as of 28 November 2024, designation, width, surface and strength (PCR) of taxiways;
- location and elevation to the nearest meter or foot of altimeter checkpoints;
- 4) location of VOR checkpoints;
- 5) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and
- 6) remarks.

If check locations/positions are presented on an aerodrome chart, a note to that effect shall be provided under this subsection.

**** AD 2.9 Surface movement guidance and control system and markings

Brief description of the surface movement guidance and control system and runway and taxiway markings, including:

1) use of aircraft stand identification signs, taxiway guide lines and visual docking/parking guidance system at aircraft stands;

- 2) runway and taxiway markings and lights;
- 3) stop bars and runway guard lights (if any);
- 4) other runway protection measures; and
- 5) remarks.

**** AD 2.10 Aerodrome obstacles

#OBS-DS# Detailed description of obstacles, including:

- 1) obstacles in Area 2:
 - a) obstacle identification or designation;
 - b) type of obstacle;
 - c) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
 - d) obstacle elevation and height to the nearest meter or foot;
 - e) obstacle marking, and type and color of obstacle lighting (if any); and
 - f) NIL indication, if appropriate.

Note 1.— CAR-ANS Part 15, 15.5 provides a description of Area 2 while Appendix 8, Figure A8-2 of this manual contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 2 are given in Appendix 1.

- 2) the absence of an Area 2 data set for the aerodrome is to be clearly stated and obstacle data are to be provided for:
 - a) obstacles that penetrate the obstacle limitation surfaces;
 - b) obstacles that penetrate the take-off flight path area obstacle identification surface; and
 - c) other obstacles assessed as being hazardous to air navigation.
- indication that information on obstacles in Area 3 is not provided, or if provided:
 - a) obstacle identification or designation;
 - b) type of obstacle;
 - c) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
 - d) obstacle elevation and height to the nearest tenth of a meter or tenth of a foot;
 - e) obstacle marking, and type and color of obstacle lighting (if any);

- f) if appropriate, an indication that the list of obstacles is available as a digital data set, and a reference to GEN 3.1.6; and
- g) NIL indication, if appropriate.

Note 1.— CAR-ANS Part 15, 15.5, provides a description of Area 3 while Appendix 8, Figure A8-3 of this manual contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 3 are given in Appendix 1.

**** AD 2.11 Meteorological information provided

Detailed description of meteorological information provided at the aerodrome and an indication of which meteorological office is responsible for the service enumerated, including:

- 1) name of the associated meteorological office;
- 2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;
- office responsible for preparation of TAFs and periods of validity and interval of issuance of the forecasts;
- availability of the trend forecasts for the aerodrome, and interval of issuance;
- 5) information on how briefing and/or consultation is provided;
- 6) types of flight documentation supplied and language(s) used in flight documentation;
- charts and other information displayed or available for briefing or consultation;
- supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;
- 9) the air traffic services unit(s) provided with meteorological information; and
- 10) additional information (e.g. concerning any limitation of service).

**** AD 2.12 Runway physical characteristics

Detailed description of runway physical characteristics, for each runway, including:

- 1) designations;
- 2) true bearings to one-hundredth of a degree;
- 3) dimensions of runways to the nearest meter or foot;
- 4) until 27 November 2024, strength of pavement (PCN and associated data) and surface of each runway and associated stopways;

- 4) as of 28 November 2024, strength of pavement (PCR and associated data) and surface of each runway and associated stopways;
- 5) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for each threshold and runway end and, where appropriate, geoid undulation of:
 - thresholds of a non-precision approach runway to the nearest meter or foot; and
 - thresholds of a precision approach runway to the nearest tenth of a meter or tenth of a foot;
- 6) elevations of:
 - thresholds of a non-precision approach runway to the nearest meter or foot; and
 - thresholds and the highest elevation of the touchdown zone of a precision approach runway to the nearest tenth of a meter or tenth of a foot;
- 7) slope of each runway and associated stopways;
- 8) dimensions of stopway (if any) to the nearest meter or foot;
- 9) dimensions of clearway (if any) to the nearest meter or foot;
- 10) dimensions of strips;
- 11) dimensions of runway end safety areas;
- location (which runway end) and description of arresting system (if any);
- 13) the existence of an obstacle-free zone; and
- 14) remarks.

**** AD 2.13 Declared distances

Detailed description of declared distances to the nearest meter or foot for each direction of each runway, including:

- 1) runway designator;
- 2) take-off run available;
- take-off distance available, and if applicable, alternative reduced declared distances;
- 4) accelerate-stop distance available;
- 5) landing distance available; and
- 6) remarks, including runway entry or start point where alternative reduced declared distances have been declared.

If a runway direction cannot be used for take-off or landing, or both, because it is operationally forbidden, then this shall be declared and the words "not usable" or the abbreviation "NU" entered.

**** AD 2.14 Approach and runway lighting

Detailed description of approach and runway lighting, including:

- 1) runway designator;
- 2) type, length and intensity of approach lighting system;
- 3) runway threshold lights, color and wing bars;
- 4) type of visual approach slope indicator system;
- 5) length of runway touchdown zone lights;
- 6) length, spacing, color and intensity of runway center line lights;
- 7) length, spacing, color and intensity of runway edge lights;
- 8) color of runway end lights and wing bars;
- 9) length and color of stopway lights; and
- 10) remarks.

**** AD 2.15 Other lighting and secondary power supply

Description of other lighting and secondary power supply, including:

- 1) location, characteristics and hours of operation of aerodrome beacon/identification beacon (if any);
- location and lighting (if any) of anemometer/landing direction indicator;
- 3) taxiway edge and taxiway center line lights;
- 4) secondary power supply including switch-over time; and
- 5) remarks.

**** AD 2.16 Helicopter landing area

Detailed description of helicopter landing area provided at the aerodrome, including:

- geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric center of touchdown and lift-off (TLOF) or of each threshold of final approach and take-off (FATO) area:
 - for non-precision approaches, to the nearest meter or foot; and
 - for precision approaches, to the nearest tenth of a meter or tenth of a foot;
- 2) TLOF and/or FATO area elevation
 - for non-precision approaches, to the nearest meter or foot; and
 - for precision approaches, to the nearest tenth of a meter or tenth of a foot;
- 3) TLOF and FATO area dimensions to the nearest meter or foot, surface type, bearing strength and marking;
- 4) true bearings to one-hundredth of a degree of FATO;

- 5) declared distances available, to the nearest meter or foot;
- 6) approach and FATO lighting; and
- 7) remarks.

**** AD 2.17 Air traffic services airspace

#AIP-DS# Detailed description of air traffic services (ATS) airspace organized at the aerodrome, including:

- 1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;
- 2) vertical limits;
- 3) airspace classification;
- 4) call sign and language(s) of the ATS unit providing service;
- 5) transition altitude;
- 6) hours of applicability; and
- 7) remarks.

**** AD 2.18 Air traffic services communication facilities

Detailed description of ATS communication facilities established at the aerodrome, including:

- 1) service designation;
- 2) call sign;
- 3) channel(s);
- 4) SATVOICE number(s), if available;
- 5) logon address, as appropriate;
- 6) hours of operation; and
- 7) remarks

**** AD 2.19 Radio navigation and landing aids

#AIP-DS# Detailed description of radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the aerodrome, including:

- until 3 November 2021, type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS, and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;
- 1) as of 4 November 2021,
 - a) type of aids;
 - b) magnetic variation to the nearest degree, as appropriate;
 - c) type of supported operation for ILS/MLS/GLS, basic GNSS and SBAS;
 - d) classification for ILS;

- e) facility classification and approach facility designation(s) for GBAS; and
- f) for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;
- 2) identification, if required;
- frequency(ies), channel number(s), service provider and reference path identifier(s) (RPI), as appropriate;
- 4) hours of operation, as appropriate;
- 5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;
- 6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft); elevation of GBAS reference point to the nearest meter or foot, and the ellipsoid height of the point to the nearest meter or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest meter or foot;
- 7) service volume radius from the GBAS reference point to the nearest kilometer or nautical mile; and
- 8) remarks.

When the same aid is used for both en-route and aerodrome purposes, a description shall also be given in section ENR 4. If the GBAS serves more than one aerodrome, description of the aid shall be provided under each aerodrome. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

**** AD 2.20 Local aerodrome regulations

Detailed description of regulations applicable to the use of the aerodrome, including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

**** AD 2.21 Noise abatement procedures

Detailed description of noise abatement procedures established at the aerodrome.

**** AD 2.22 Flight procedures

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome. When established, detailed description of the low visibility procedures at the aerodrome, including:

- runway(s) and associated equipment authorized for use under low visibility procedures;
- 2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;

- 3) description of ground marking/lighting for use under low visibility procedures; and
- 4) remarks.

**** AD 2.23 Additional information

Additional information at the aerodrome, such as an indication of bird concentrations at the aerodrome, together with an indication of significant daily movement between resting and feeding areas, to the extent practicable.

**** AD 2.24 Charts related to an aerodrome

The requirement is for charts related to an aerodrome to be included in the following order:

- 1) Aerodrome/Heliport Chart ICAO;
- 2) Aircraft Parking/Docking Chart ICAO;
- 3) Aerodrome Ground Movement Chart ICAO;
- 4) Aerodrome Obstacle Chart ICAO Type A (for each runway);
- 5) Aerodrome Obstacle Chart ICAO Type B (when available);
- 6) Aerodrome Terrain and Obstacle Chart ICAO (Electronic);
- Precision Approach Terrain Chart ICAO (precision approach Cat II and III runways);
- 8) Area Chart ICAO (departure and transit routes);
- 9) Standard Departure Chart Instrument ICAO;
- 10) Area Chart ICAO (arrival and transit routes);
- 11) Standard Arrival Chart Instrument ICAO;
- 12) ATC Surveillance Minimum Altitude Chart ICAO;
- nstrument Approach Chart ICAO (for each runway and procedure type);
- 14) Visual Approach Chart ICAO; and
- 15) bird concentrations in the vicinity of the aerodrome.

If some of the charts are not produced, a statement to this effect shall be given in section GEN 3.2.

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

**** AD 2.25 Visual segment surface (VSS) penetration (Applicable as of 4 November 2021)

Visual segment surface (VSS) penetration, including procedure and procedure minima affected.

Note. — Criteria related to the VSS are contained in PANS-OPS Volume II, paragraph 5.4.6, Part I — Section 4, Chapter 5.

AD 3. HELIPORTS

When a helicopter landing area is provided at the aerodrome, associated data shall be listed only under **** AD 2.16.

Note.— **** is to be replaced by the relevant ICAO location indicator.

**** AD 3.1 Heliport location indicator and name

The requirement is for the ICAO location indicator assigned to the heliport and the name of heliport. An ICAO location indicator shall be an integral part of the referencing system applicable to all subsections in section AD 3.

**** AD 3.2 Heliport geographical and administrative data

The requirement is for heliport geographical and administrative data, including:

- 1) heliport reference point (geographical coordinates in degrees, minutes and seconds) and its site;
- 2) direction and distance of heliport reference point from center of the city or town which the heliport serves;
- heliport elevation to the nearest meter or foot, reference temperature and mean low temperature;
- 4) where appropriate, geoid undulation at the heliport elevation position to the nearest meter or foot;
- 5) magnetic variation to the nearest degree, date of information and annual change;
- 6) name of heliport operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address;
- 7) types of traffic permitted to use the heliport (IFR/VFR); and
- 8) remarks.

**** AD 3.3 Operational hours

Detailed description of the hours of operation of services at the heliport, including:

- 1) heliport operator;
- 2) customs and immigration;
- 3) health and sanitation;
- 4) AIS briefing office;
- 5) ATS reporting office (ARO);
- 6) MET briefing office;
- 7) air traffic service;
- 8) fuelling;

- 9) handling;
- 10) security; and
- 11) remarks.

**** AD 3.4 Handling services and facilities

Detailed description of the handling services and facilities available at the heliport, including:

- 1) cargo-handling facilities;
- 2) fuel and oil types;
- 3) fuelling facilities and capacity;
- 4) hangar space for visiting helicopters;
- 5) repair facilities for visiting helicopters; and
- 6) remarks.

**** AD 3.5 Passenger facilities

Passenger facilities available at the heliport, provided as a brief description or as a reference to other information sources such as a website, including:

- 1) hotel(s) at or in the vicinity of the heliport;
- 2) restaurant(s) at or in the vicinity of the heliport;
- 3) transportation possibilities;
- 4) medical facilities;
- 5) bank and post office at or in the vicinity of the heliport;
- 6) tourist office; and
- 7) remarks.

**** AD 3.6 Rescue and firefighting services

Detailed description of the rescue and firefighting services and equipment available at the heliport, including:

- 1) heliport category for firefighting;
- 2) rescue equipment;
- 3) capability for removal of disabled helicopters; and
- 4) remarks.

**** AD 3.7 Seasonal availability — clearing

Detailed description of the equipment and operational priorities established for the clearance of heliport movement areas, including:

- 1) type(s) of clearing equipment;
- 2) clearance priorities; and
- 3) remarks.

**** AD 3.8 Aprons, taxiways and check locations/positions data

Details related to the physical characteristics of aprons, taxiways and locations/positions of designated checkpoints, including:

- 1) designation, surface and strength of aprons, helicopter stands;
- 2) designation, width and surface type of helicopter ground taxiways;
- 3) width and designation of helicopter air taxiway and air transit route;
- 4) location and elevation to the nearest meter or foot of altimeter checkpoints;
- 5) location of VOR checkpoints;
- 6) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and
- 7) remarks.

If check locations/positions are presented on a heliport chart, a note to that effect shall be provided under this subsection.

**** AD 3.9 Markings and markers

Brief description of final approach and take-off area and taxiway markings and markers, including:

- 1) final approach and take-off markings;
- 2) taxiway markings, air taxiway markers and air transit route markers; and
- 3) remarks.

**** AD 3.10 Heliport obstacles

#OBS-DS# Detailed description of obstacles, including:

- 1) obstacle identification or designation;
- 2) type of obstacle;
- obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
- 4) obstacle elevation and height to the nearest meter or foot;
- obstacle marking, and type and colour of obstacle lighting (if any); and
- 6) NIL indication, if appropriate.

**** AD 3.11 Meteorological information provided

Detailed description of meteorological information provided at the heliport and an indication of which meteorological office is responsible for the service enumerated, including:

1) name of the associated meteorological office;

- 2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;
- office responsible for preparation of TAFs, and periods of validity of the forecasts;
- 4) availability of the trend forecasts for the heliport, and interval of issuance;
- 5) information on how briefing and/or consultation is provided;
- 6) type of flight documentation supplied and language(s) used in flight documentation;
- charts and other information displayed or available for briefing or consultation;
- supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;
- 9) the ATS unit(s) provided with meteorological information; and
- 10) additional information (e.g. concerning any limitation of service).

**** AD 3.12 Heliport data

Detailed description of heliport dimensions and related information, including:

- 1) heliport type (surface-level, elevated or helideck);
- touchdown and lift-off (TLOF) area dimensions to the nearest meter or foot;
- true bearings to one-hundredth of a degree of final approach and take-off (FATO) area;
- 4) dimensions to the nearest meter or foot of FATO, and surface type;
- surface and bearing strength in tonnes (1 000 kg) of TLOF;
- 6) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric center of TLOF or of each threshold of FATO:
 - for non-precision approaches, to the nearest meter or foot; and
 - for precision approaches, to the nearest tenth of a meter or tenth of a foot;
- 7) TLOF and/or FATO slope and elevation:
 - for non-precision approaches, to the nearest meter or foot; and
 - for precision approaches, to the nearest tenth of a meter or tenth of a foot;
- 8) dimensions of safety area;
- 9) dimensions, to the nearest meter or foot, of helicopter clearway;
- 10) the existence of an obstacle-free sector; and
- 11) remarks.

**** AD 3.13 Declared distances

Detailed description of declared distances to the nearest meter or foot, where relevant for a heliport, including:

- 1) take-off distance available, and if applicable, alternative reduced declared distances;
- 2) rejected take-off distance available;
- 3) landing distance available; and
- 4) remarks, including entry or start point where alternative reduced declared distances have been declared.

**** AD 3.14 Approach and FATO lighting

Detailed description of approach and FATO lighting, including:

- 1) type, length and intensity of approach lighting system;
- 2) type of visual approach slope indicator system;
- 3) characteristics and location of FATO area lights;
- 4) characteristics and location of aiming point lights;
- 5) characteristics and location of TLOF lighting system; and
- 6) remarks.

**** AD 3.15 Other lighting and secondary power supply

Description of other lighting and secondary power supply, including:

- 1) location, characteristics and hours of operation of heliport beacon;
- 2) location and lighting of wind direction indicator (WDI);
- 3) taxiway edge and taxiway center line lights;
- 4) secondary power supply including switch-over time; and
- 5) remarks.

**** AD 3.16 Air traffic services airspace

#AIP-DS# Detailed description of air traffic services (ATS) airspace organized at the heliport, including:

- 1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;
- 2) vertical limits;
- 3) airspace classification;
- 4) call sign and language(s) of ATS unit providing service;
- 5) transition altitude;
- 6) hours of applicability; and
- 7) remarks.

**** AD 3.17 Air traffic services communication facilities

Detailed description of ATS communication facilities established at the heliport, including:

- 1) service designation;
- 2) call sign;
- 3) channel(s);
- 4) SATVOICE number(s), if available;
- 5) logon address, as appropriate;
- 6) hours of operation; and
- 7) remarks.

**** AD 3.18 Radio navigation and landing aids

#AIP-DS# Detailed description of radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the heliport, including:

- type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;
- 2) identification, if required;
- frequency(ies), channel number(s), service provider and reference path identifier(s) (RPI), as appropriate;
- 4) hours of operation, as appropriate;
- 5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;
- 6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft), elevation of GBAS reference point to the nearest meter or foot, and the ellipsoid height of the point to the nearest meter or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest meter or foot;
- 7) service volume radius from the GBAS reference point to the nearest kilometer or nautical mile; and
- 8) remarks.

When the same aid is used for both en-route and heliport purposes, a description shall also be given in section ENR 4. If the GBAS serves more than one heliport, description of the aid shall be provided under each heliport. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

**** AD 3.19 Local heliport regulations

Detailed description of regulations applicable to the use of the heliport, including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

**** AD 3.20 Noise abatement procedures

Detailed description of noise abatement procedures established at the heliport.

**** AD 3.21 Flight procedures

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization established at the heliport. When established, detailed description of the low visibility procedures at the heliport, including:

- 1) touchdown and lift-off (TLOF) area(s) and associated equipment authorized for use under low visibility procedures;
- 2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;
- 3) description of ground marking/lighting for use under low visibility procedures; and
- 4) remarks.

**** AD 3.22 Additional information

Additional information about the heliport, such as an indication of bird concentrations at the heliport, together with an indication of significant daily movement between resting and feeding areas, to the extent practicable.

**** AD 3.23 Charts related to a heliport

The requirement is for charts related to a heliport to be included in the following order:

- 1) Aerodrome/Heliport Chart ICAO;
- 2) Area Chart ICAO (departure and transit routes);
- 3) Standard Departure Chart Instrument ICAO;
- 4) Area Chart ICAO (arrival and transit routes);
- 5) Standard Arrival Chart Instrument ICAO;
- 6) ATC Surveillance Minimum Altitude Chart ICAO;
- 7) Instrument Approach Chart ICAO (for each procedure type);
- 8) Visual Approach Chart ICAO; and
- 9) bird concentrations in the vicinity of heliport.

If some of the charts are not produced, a statement to this effect shall be given in section GEN 3.2.

APPENDIX 3 NOTAM FORMAT

(see Chapter 5, 5.2.5)

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INSTRUCTIONS FOR THE COMPLETION OF THE NOTAM FORMAT

1 General

The qualifier line (Item Q)) and all identifiers (Items A) to G) inclusive) each followed by a closing parenthesis, as shown in the format, shall be transmitted unless there is no entry to be made against a particular identifier.

2 NOTAM numbering

Each NOTAM shall be allocated a series identified by a letter and a fourdigit number followed by a stroke and a twodigit number for the year (e.g. A0023/03). Each series shall start on 1 January with number 0001.

3 Qualifiers (Item Q)

Item Q) is divided into eight fields, each separated by a stroke. An entry shall be made in each field. Examples of how fields are to be filled are shown in Advisory Circular (AC) ANS15.1. The definition of the fields is as follows:

- 1) FIR
 - a) If the subject of the information is located geographically within one FIR, the ICAO location indicator shall be that of the FIR concerned. When an aerodrome is situated within the overlying FIR of another State, the first field of Item Q) shall contain the code for that overlying FIR (e.g. Q) LFRR/...A) EGJJ);

or,

if the subject of the information is located geographically within more than one FIR, the FIR field shall be composed of the ICAO nationality letters of the State originating the NOTAM followed by "XX". (The location indicator of the overlying UIR shall not be used). The ICAO location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or nongovernmental agency which is responsible for provision of a navigation service in more than one State.

- b) If one State issues a NOTAM affecting FIRs in a group of States, the first two letters of the ICAO location indicator of the issuing State plus "XX" shall be included. The location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or non-governmental agency which is responsible for provision of a navigation service in more than one State.
- 2) NOTAM CODE

All NOTAM Code groups contain a total of five letters and the first letter is always the letter Q. The second and third letters identify the subject, and the fourth and fifth letters denote the status or condition of the subject reported upon. The two-letter codes for subjects and

conditions are those contained in the PANS-ABC (Doc 8400). For combinations of second and third, and fourth and fifth letters, refer to the NOTAM Selection Criteria (Doc. 8126 or OPADD) or insert one of the following combinations, as appropriate:

- a) If the subject is not listed in the NOTAM Code (PANS-ABC, Doc 8400) or in the NOTAM Selection Criteria (Doc. 8126), insert "XX" as the second and third letters; If subject is "XX", use "XX" also for condition (e.g. QXXXX).
- b) If the condition of the subject is not listed in the NOTAM Code (Doc 8400) or in the NOTAM Selection Criteria (Doc. 8126), insert "XX" as the fourth and fifth letters (e.g. QFAXX);
- c) When a NOTAM containing operationally significant information is issued in accordance with CAR-ANS Part 15, 15.6.2.1, and when it is used to announce the existence of AIRAC AIP Amendments or Supplements, insert "TT" as the fourth and fifth letters of the NOTAM Code;
- When a NOTAM is issued containing a checklist of valid NOTAM, insert "KKKK" as the second, third, fourth and fifth letters; and
- e) The following fourth and fifth letters of the NOTAM Code shall be used in NOTAM cancellations:
 - AK _ RESUMED NORMAL OPERATION
 - AL OPERATIVE (OR RE-OPERATIVE) SUBJECT TO = PREVIOUSLY PUBLISHED LIMITATIONS/
 - CONDITIONS
 - AO _ OPERATIONAL
 - CC _ COMPLETED
 - CN _ CANCELLED
 - HV _ WORK COMPLETED
 - XX = PLAIN LANGUAGE

Note 1.— As Q - AO = Operational is used for NOTAM cancellation, NOTAM promulgating new equipment or services use the following fourth and fifth letters Q - CS = Installed.

Note 2.— Q - - CN = CANCELLED shall be used to cancel planned activities, e.g. navigation warnings; Q - - HV = WORK COMPLETED is used to cancel work in progress.

- 3) TRAFFIC
 - I = IFR
 - V = VFR
 - K = NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field TRAFFIC may contain combined qualifiers. Guidance concerning the

combination of TRAFFIC qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria (Doc. 8126).

- 4) PURPOSE
 - N = NOTAM selected for the immediate attention of flight crew members
 - B = NOTAM of operational significance selected for PIB entry
 - O = NOTAM concerning flight operations
 - M = Miscellaneous NOTAM; not subject for a briefing, but available on request
 - K = NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field PURPOSE may contain the combined qualifiers BO or NBO. Guidance concerning the combination of PURPOSE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria (Doc. 8126).

- 5) SCOPE
 - A = Aerodrome
 - E = En-route
 - W = Nav Warning
 - K = NOTAM is a checklist

If the subject is qualified AE, the aerodrome location indicator shall be reported in Item A).

Note.— Depending on the NOTAM subject and content, the qualifier field SCOPE may contain combined qualifiers. Guidance concerning the combination of SCOPE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria (Doc. 8126).

6) and 7) LOWER/UPPER LIMITS

Lower and upper limits shall only be expressed in flight levels (FL) and shall express the actual vertical limits of the area of influence without the addition of buffers. In the case of navigation warnings and airspace restrictions, values entered shall be consistent with those provided under Items F) and G).

If the subject does not contain specific height information, insert "000" for LOWER and "999" for UPPER as default values.

8) COORDINATES, RADIUS

The latitude and longitude accurate to one minute, as well as a three-digit distance figure giving the radius of influence in NM (e.g. 4700N01140E043). Coordinates present approximate center of circle whose radius encompasses the whole area of influence, and if the NOTAM affects the entire FIR/UIR or more than one FIR/UIR, enter the default value "999" for radius.

4 Item A)

Insert the ICAO location indicator as contained in Doc 7910 of the aerodrome or FIR in which the facility, airspace, or condition being reported on is located. More than one FIR/UIR may be indicated when appropriate. If there is no available ICAO location indicator, use the ICAO nationality letter as given in ICAO Doc 7910, Part 2, plus "XX" and followed up in Item E) by the name, in plain language.

If information concerns GNSS, insert the appropriate ICAO location indicator allocated for a GNSS element or the common location indicator allocated for all elements of GNSS (except GBAS).

Note.— In the case of GNSS, the location indicator may be used when identifying a GNSS element outage (e.g. KNMH for a GPS satellite outage).

5 Item B)

For date-time group use a ten-figure group, giving year, month, day, hours and minutes in UTC. This entry is the datetime at which the NOTAMN comes into force. In the cases of NOTAMR and NOTAMC, the date-time group is the actual date and time of the NOTAM origination. The start of a day shall be indicated by "0000".

6 Item C)

With the exception of NOTAMC, a date-time group (a ten-figure group giving year, month, day, hours and minutes in UTC) indicating duration of information shall be used unless the information is of a permanent nature in which case the abbreviation "PERM" is inserted instead. The end of a day shall be indicated by "2359" (i.e. do not use "2400"). If the information on timing is uncertain, the approximate duration shall be indicated using a date-time group followed by the abbreviation "EST". Any NOTAM which includes an "EST" shall be cancelled or replaced before the date-time specified in Item C).

7 Item D)

If the hazard, status of operation or condition of facilities being reported on will be active in accordance with a specific time and date schedule between the dates-times indicated in Items B) and C), insert such information under Item D). If Item D) exceeds 200 characters, consideration shall be given to providing such information in a separate, consecutive NOTAM.

8 Item E)

Use decoded NOTAM Code, complemented where necessary by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language. When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language. This entry shall be clear and concise in order to provide a suitable PIB entry. In the case of NOTAMC, a subject reference and status message shall be included to enable accurate plausibility checks.

9 Item F) and G)

These items are normally applicable to navigation warnings or airspace restrictions and are usually part of the PIB entry. Insert both lower and upper height limits of activities or restrictions, clearly indicating only one reference datum and unit of measurement. The abbreviations GND or SFC shall be used in Item F) to designate ground and surface respectively. The abbreviation UNL shall be used in Item G) to designate unlimited.

APPENDIX 4 SNOWTAM FORMAT

(Applicable as of 04 November 2021; see Chapter 5, 5.2.5.1.4)

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(DATE/TIME OF ASSESSMENT (Time of completion of assessment in UTC))											B)											
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(TAXIWAY CONDITIONS)										0	P)			_								
(APRON CONDITIONS) O R)																						
(MEASURE	(MEASURED FRICTION COEFFICIENT) O S)																					
(PLAIN-LAN	(PLAIN-LANGUAGE REMARKS) O T))											
NOTES: 1. *Enter	ICAO nati	ionality letters	as gi	ven in I	CAO Doc	7910,	Part 2 or	otherv	vise ap	oplicat	le aer	odron	ne ide	entifier								

3. 4.

Information on other runways, repeat from B to H. Information in the situational awareness section repeated for each runway, taxiway and apron. Repeat as applicable when reported.

Words in brackets () not to be transmitted. 5.

For letters A) to T) refer to the Instructions for the completion of the SNOWTAM Format, paragraph 1, item b).

SIGNATURE OF ORIGINATOR (not for transmission)

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

Note.— Origin of data, assessment process and the procedures linked to the surface conditions reporting system are prescribed in the Procedures for Air Navigation Services — Aerodromes (PANS-Aerodromes, Doc 9981).

1 General

- a) When reporting on more than one runway, repeat Items B to H (aeroplane performance calculation section).
- b) The letters used to indicate items are only used for reference purpose and should not be included in the messages. The letters, M (mandatory), C (conditional) and O (optional) mark the usage and information and shall be included as explained below.
- c) Metric units shall be used and the unit of measurement not reported.
- d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received.
- e) A SNOWTAM cancels the previous SNOWTAM.
- f) The abbreviated heading "TTAAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:
 - TT _ data designator for SNOWTAM = SW;
 - AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
 - iiii _ SNOWTAM serial number in a four-digit group;
 - CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));
 - MMYYGGgg _ date/time of observation/measurement, whereby:
 - MM month, e.g. January = 01,
 - December = 12
 - YY = day of the month
 - GGgg = time in hours (GG) and minutes (gg) UTC;
 - (BBB) = optional group for correction, in the case of an error, to a SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/assessment are indicated by repeated Item *B*, the latest date/time of observation/assessment is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

- g) The text "SNOWTAM" in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.
- h) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, and after the aeroplane performance calculation section.
- i) When reporting on more than one runway, repeat the information in the aeroplane performance calculation section from the date and time of assessment for each runway before the information in the situational awareness section.
- j) Mandatory information is:
 - 1) AERODROME LOCATION INDICATOR;
 - 2) DATE AND TIME OF ASSESSMENT;
 - 3) LOWER RUNWAY DESIGNATOR NUMBER;
 - 4) RUNWAY CONDITION CODE FOR EACH RUNWAY THIRD; and
 - 5) CONDITION DESCRIPTION FOR EACH RUNWAY THIRD (when runway condition code (RWYCC) is reported 1–5)

2. Aeroplane performance calculation section

- *Item A* Aerodrome location indicator (four-letter location indicator).
- *Item B* Date and time of assessment (eight-figure date/time group giving time of observation as month, day, hour and minute in UTC).
- *Item C* Lower runway designator number (nn[L] or nn[C] or nn[R]).

Note.— Only one runway designator is inserted for each runway and always the lower number.

- *Item D* Runway condition code for each runway third. Only one digit (0, 1, 2, 3, 4, 5 or 6) is inserted for each runway third, separated by an oblique stroke (n/n/n).
- *Item E* Per cent coverage for each runway third. When provided, insert 25, 50, 75 or 100 for each runway third, separated by an oblique stroke ([n]nn/[n]nn/[n]nn).

Note 1.— This information is provided only when the runway condition for each runway third (Item D) has been reported as other than 6 and there is a condition description for each runway third (Item G) that has been reported other than DRY.

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item F — Depth of loose contaminant for each runway third. When provided, insert in millimeters for each runway third, separated by an oblique stroke (nn/nn/nn or nnn/nnn/nnn).

Note 1.— This information is only provided for the following contamination types:

standing water, values to be reported 04, then assessed
value. Significant changes 3 mm up to and including 15 mm;

- ______ slush, values to be reported 03, then assessed value. Significant changes 3 mm up to and including 15 mm;
- ____ wet snow, values to be reported 03, then assessed value. Significant changes 5 mm; and
- ____ dry snow, values to be reported 03, then assessed value. Significant changes 20 mm.

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item G — Condition description for each runway third. Insert any of the following condition descriptions for each runway third, separated by an oblique stroke.

COMPACTED SNOW DRY SNOW DRY SNOW ON TOP OF COMPACTED SNOW DRY SNOW ON TOP OF ICE FROST ICE SLUSH STANDING WATER WATER ON TOP OF COMPACTED SNOW

WET WET ICE WET SNOW WET SNOW ON TOP OF COMPACTED SNOW WET SNOW ON TOP OF ICE

DRY (only reported when there is no contaminant)

Note.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item H— Width of runway to which the runway condition codes apply. Insert the width in meters if less than the published runway width.

3. Situational awareness section

Note 1.— Elements in the situational awareness section end with a full stop.

Note 2.— Elements in the situational awareness section for which no information exists, or where the conditional circumstances for publication are not fulfilled, are left out completely.

Item I — Reduced runway length. Insert the applicable runway designator and available length in meters (example: RWY nn [L] or nn [C] or nn [R] REDUCED TO [n]nnn).

Note.— This information is conditional when a NOTAM has been published with a new set of declared distances.

- *Item J* Drifting snow on the runway. When reported, insert "DRIFTING SNOW".
- Item K Loose sand on the runway. When loose sand is reported on the runway, insert the lower runway designator and with a space "LOOSE SAND" (RWY nn or RWY nn[L] or nn[C] or nn[R] LOOSE SAND).
- *Item L* Chemical treatment on the runway. When chemical treatment has been reported applied, insert the lower runway designator and with a space "CHEMICALLY TREATED" (RWY nn or RWY nn[L] or nn[C] or nn[R] CHEMICALLY TREATED).
- Item M Snow banks on the runway. When snow banks are reported present on the runway, insert the lower runway designator and with a space "SNOW BANK" and with a space left "L" or right "R" or both sides "LR", followed by the distance in meters from center line separated by a space FM CL (RWY nn or RWY nn[L] or nn[C] or nn[R] SNOW BANK Lnn or Rnn or LRnn FM CL).

- *Item N* Snow banks on a taxiway. When snow banks are present on a taxiway, insert the taxiway designator and with a space "SNOW BANK" (TWY [nn]n SNOW BANK).
- Item O Snow banks adjacent to the runway. When snow banks are reported present penetrating the height profile in the aerodrome snow plan, insert the lower runway designator and "ADJ SNOW BANKS" (RWY nn or RWY nn[L] or nn[C] or nn[R] ADJ SNOW BANKS).
- *Item P* Taxiway conditions. When taxiway conditions are reported as poor, insert the taxiway designator followed by a space "POOR" (TWY [n or nn] POOR or ALL TWYS POOR).
- *Item R* Apron conditions. When apron conditions are reported as poor, insert the apron designator followed by a space "POOR" (APRON [nnnn] POOR or ALL APRONS POOR).
- *Item S* Measured friction coefficient. Where reported, insert the measured friction coefficient and friction measuring device.

Note.— This will only be reported for States that have an established programme of runway friction measurement using a State-approved friction measuring device.

Item T — Plain language remarks.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

Example SNOWTAM 1

GG EADBZQZX EADNZQZX EADSZQZX 170100 EADDYNYX SWEA0149 EADD 02170055 (SNOWTAM 0149 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW)

Example SNOWTAM 2

GG EADBZQZX EADNZQZX EADSZQZX 170140 EADDYNYX SWEA0150 EADD 02170135 (SNOWTAM 0150 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW 02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH)

Example SNOWTAM 3

GG EADBZQZX EADNZQZX EADSZQZX 170229 EADDYNYX SWEA0151 EADD 02170225 (SNOWTAM 0151 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW 02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW 02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW

RWY 09L SNOW BANK R20 FM CL. RWY 09R ADJ SNOW BANKS. TWY B POOR. APRON NORTH POOR)

Example SNOWTAM 4

GG EADBZQZX EADNZQZX EADSZQZX 170350 EADDYNYX SWEA0152 EADD 02170345 (SNOWTAM 0152 EADD 02170345 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/SLUSH 02170134 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH 02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW 35

DRIFTING SNOW. RWY 09L LOOSE SAND. RWY 09R CHEMICALLY TREATED. RWY 09C CHEMICALLY TREATED.)

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APPENDIX 5 ASHTAM FORMAT

(see Chapter 5, 5.2.5.1.5)

(COM	(PRIORITY INDICATOR) (ADDRES						SSE	EINI	DICA	TOR	(S)) ¹												
heading)	(DATE AND TIME OF FILING)							(ORIGINATOR'S INDICATOR)															
(Abbreviated Heading)	(VA* ² SERIAL NUMBER)							l) 11		ATIO ATOF	N R)		рат	E/TI	IME	ISS	UA	NCE	E	(OP GF	tioi Rou	NAL P)	
r localing)	V	А	*2	*2																			

ASHTAM	(SERIAL NUMBER)						
(FLIGHT INFORMATION REGION AFFI	A)						
(DATE/TIME (UTC) OF ERUPTION)	B)						
(VOLCANO NAME AND NUMBER)		C)					
(VOLCANO LATITUDE/LONGITUDE OI FROM NAVAID	D)						
(VOLCANO LEVEL OF ALERT COLOU LEVEL OF ALERT COLOUR CODE) 3	२	E)					
(EXISTENCE AND HORIZONTAL/VER	SH CLOUD) ⁴	F)					
(DIRECTION OF MOVEMENT OF ASH		G)					
(AIR ROUTES OR PORTIONS OF AIR	AFFECTED)	H)					
(CLOSURE OF AIRSPACE AND/OR AI AND ALTERNATE AIR ROUTES AVAIL	IR ROUTES,	I)					
(SOURCE OF INFORMATION)		J)					
(PLAIN-LANGUAGE REMARKS) K)							
NOTES							

See also Appendix 7 regarding addressee indicators used in predetermined distribution systems.
*Enter ICAO nationality letter as given in ICAO Doc 7910, Part 2.

3. See paragraph 3.5 below.

4. Advice on the existence, extent and movement of volcanic ash cloud G) and H) may be obtained from the Volcanic Ash Advisory center(s) responsible for the FIR concerned.

5. Item titles in brackets () not to be transmitted.

SIGNATURE OF ORIGINATOR (not for transmission)

INSTRUCTIONS FOR THE COMPLETION OF THE ASHTAM FORMAT

1 General

- 1.1 The ASHTAM provides information on the status of activity of a volcano when a change in its activity is, or is expected to be, of operational significance. This information is provided using the volcano level of alert colour code given in 3.5 below.
- 1.2 In the event of a volcanic eruption producing ash cloud of operational significance, the ASHTAM also provides information on the location, extent and movement of the ash cloud and the air routes and flight levels affected.
- 1.3 Issuance of an ASHTAM giving information on a volcanic eruption, in accordance with paragraph 3 below, should **not** be delayed until complete information A) to K) is available but should be issued immediately following receipt of notification that an eruption has occurred or is expected to occur, or a change in the status of activity of a volcano of operational significance has occurred or is expected to occur, or an ash cloud is reported. In the case of an expected eruption, and hence no ash cloud evident at that time, items A) to E) should be completed and items F) to I) indicated as "not applicable". Similarly, if a volcanic ash cloud is reported, e.g. by special airreport, but the source volcano is not known at that time, the ASHTAM should be issued initially with items A) to E) indicated as "unknown", and items F) to K) completed, as necessary, based on the special air-report, pending receipt of further information. In other circumstances, if information for a specific field A) to K) is not available, indicate "NIL".
- 1.4 The maximum period of validity of ASHTAM is 24 hours. New ASHTAM shall be issued whenever there is a change in the level of alert.

2 Abbreviated heading

- 2.1 Following the usual aeronautical fixed telecommunication network (AFTN) communications header, the abbreviated heading "TT AAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of ASHTAM messages in computer data banks. The explanation of these symbols is:
 - TT = data designator for ASHTAM = VA;
 - AA = geographical designator for Philippines = RP (see Location Indicators (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
 - iiii _ ASHTAM serial number in a four-figure group;
 - CCCC = four-letter location indicator of the flight information region concerned (see *Location Indicators* (Doc 7910), Part 5, addresses of centers in charge of FIR/UIR);

MMYYGGgg _ date/time of report, whereby:

 $\begin{array}{rcl} \mathsf{MM} & = & \text{month, e.g. January} = 01, \\ \mathsf{December} = 12 \\ \mathsf{YY} & = & \mathsf{day of the month} \end{array}$

GGgg = time in hours (GG) and minutes (gg) UTC;

(BBB) = Optional group for correction to an ASHTAM message previously disseminated with the same serial number = COR.

Note.— Brackets in (BBB) are used to indicate that this group is optional.

Example: Abbreviated heading of ASHTAM for Manila FIR, report on 7 November at 0620 UTC:

VARP0001 RPLP 11070620

3 Content of ASHTAM

- 3.1 *Item A* Flight information region affected, plain-language equivalent of the location indicator given in the abbreviated heading, in this example "Manila FIR".
- 3.2 *Item B* Date and time (UTC) of first eruption.
- 3.3 Item C Name of volcano, and number of volcano as listed in the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691), Appendix E, and on the World Map of Volcanoes and Principal Aeronautical Features.
- 3.4 *Item D* Latitude/Longitude of the volcano in whole degrees or radial and distance of volcano from NAVAID as listed in Doc 9691, Appendix E, and on the World Map of Volcanoes and Principal Aeronautical Features).
- 3.5 *Item E* Colour code for level of alert indicating volcanic activity, including any previous level of alert colour code as follows:

Level of alert colour code	Status of activity of volcano							
GREEN ALERT	Volcano is in normal, non-eruptive state.							
	or, after a change from a higher alert level:							
	Volcanic activity considered to have ceased, and volcano reverted to its normal, non-eruptive state.							
YELLOW ALERT	Volcano is experiencing signs of elevated unrest above known background levels.							
	or, after a change from a higher alert level:							
	Volcanic activity has decreased significantly but continues to be closely monitored for possible renewed increase.							

(cont.)

Level of alert colour code	Status of activity of volcano
ORANGE ALERT	Volcano is exhibiting heightened unrest with increased likelihood of eruption.
	Or,
	Volcanic eruption is underway with no or minor ash emission [specify ash-plume height if possible].
RED ALERT	Eruption is forecast to be imminent with significant emission of ash into the atmosphere likely.
	Or,
	Eruption is underway with significant emission of ash into the atmosphere [specify ash-plume height if possible].
Note.— The colou	Ir code for the level of alert indicating the status of activity of the

Note.— The colour code for the level of alert indicating the status of activity of the volcano and any change from a previous status of activity should be provided to the area control center by the responsible vulcanological agency in Philippines, e.g. "RED ALERT FOLLOWING YELLOW" OR "GREEN ALERT FOLLOWING ORANGE".

- 3.6 *Item F* If volcanic ash cloud of operational significance is reported, indicate the horizontal extent and base/top of the ash cloud using latitude/longitude (in whole degrees) and altitudes in thousands of meters (feet) and/or radial and distance from source volcano. Information initially may be based only on special air-report, but subsequent information may be more detailed based on advice from the responsible meteorological watch office and/or volcanic ash advisory center.
- 3.7 *Item G* Indicate forecast direction of movement of the ash cloud at selected levels based on advice from the responsible meteorological watch office and/or volcanic ash advisory center.
- 3.8 *Item H* Indicate air routes and portions of air routes and flight levels affected, or expected to become affected.
- 3.9 *Item I* Indicate closure of airspace, air routes or portions of air routes, and availability of alternative routes.
- 3.10 *Item J* The source of the information (e.g. "special air-report" or "vulcanological agency.)should always be indicated, whether an eruption has actually occurred or ash cloud reported, or not.
- 3.11 *Item K* Include in plain language any operationally significant information additional to the foregoing.
MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 6 - TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

APPENDIX 6 TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

Obstacle attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Acquisition method	Mandatory
Post spacing	Mandatory
Horizontal reference system	Mandatory
Horizontal resolution	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Elevation	Mandatory
Elevation reference	Mandatory
Vertical reference system	Mandatory
Vertical resolution	Mandatory
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Surface type	Optional
Recorded surface	Mandatory
Penetration level	Optional
Known variations	Optional
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory

TABLE A6-1 Terrain attributes

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 6 - TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

Obstacle attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Obstacle identifier	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Horizontal resolution	Mandatory
Horizontal extent	Mandatory
Horizontal reference system	Mandatory
Elevation	Mandatory
Height	Optional
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Vertical resolution	Mandatory
Vertical reference system	Mandatory
Obstacle type	Mandatory
Geometry type	Mandatory
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory
Operations	Optional
Effectivity	Optional
Lighting	Mandatory

TABLE A6-2 Obstacle attributes

APPENDIX 7 PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM

(See Chapter 5, 5.4.2.4, and CAR-ANS Part 2, 2.7.4.1.4)

- 1 The predetermined distribution system provides for incoming NOTAM (including ASHTAM) to be channelled through the aeronautical fixed service (AFS) direct to designated addressees predetermined by CAAP while concurrently being routed to the international NOTAM office for checking and control purposes.
- 2 The addressee indicators for those designated addressees are constituted as follows:
 - 1) First and second letters:

The first two letters of the location indicator for the AFS communication center associated with the relevant international NOTAM office of the receiving State.

2) Third and fourth letters:

The letters "ZZ" indicating a requirement for special distribution.

3) Fifth letter:

The fifth letter differentiating between NOTAM (letter "N"), and ASHTAM (letter "V").

4) Sixth and seventh letters:

The sixth and seventh letters, each taken from the series A to Z and denoting the national and/or international distribution list(s) to be used by the receiving AFS center.

Note.— The fifth, sixth and seventh letters replace the three-letter designator YNY which, in the normal distribution system, denotes an international NOTAM office.

5) Eighth letter:

The eighth position letter shall be the filler letter "X" to complete the eight-letter addressee indicator.

3 CAAP shall inform the States from which they receive NOTAM of the sixth and seventh letters to be used under different circumstances to ensure proper routing.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 7 – PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM

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MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 8 – TERRAIN AND OBSTACLE DATA REQUIREMENTS





Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

- 1 Within the area covered by a 10-km radius from the aerodrome reference point (ARP), terrain data shall comply with the Area 2 numerical requirements.
- 2 In the area between 10 km and the terminal control area (TMA) boundary or 45-km radius (whichever is smaller), data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 2 numerical requirements.
- 3 In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 1 numerical requirements.
- 4 In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data shall comply with the Area 1 numerical requirements.

Note.— Terrain data numerical requirements for Areas 1 and 2 are specified in Appendix 1.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 8 – TERRAIN AND OBSTACLE DATA REQUIREMENTS



Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

- 1 Obstacle data shall be collected and recorded in accordance with the Area 2 numerical requirements specified in Appendix 1.
- 2 In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, obstacle data shall be collected and recorded in accordance with the Area 1 requirements.
- 3 Data on every obstacle within Area 1 whose height above the ground is 100 m or higher shall be collected and recorded in the database in accordance with the Area 1 numerical requirements specified in Appendix 1.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 8 - TERRAIN AND OBSTACLE DATA REQUIREMENTS





Terrain and obstacle data in Area 3 shall comply with the numerical requirements specified in Appendix 1.

MANUAL OF STANDARDS FOR AERONAUTICAL INFORMATION SERVICES APPENDIX 8 – TERRAIN AND OBSTACLE DATA REQUIREMENTS





Terrain and obstacle data in Area 4 shall comply with the numerical requirements specified in Appendix 1.

----- END -----