ICAO

Doc 10066

PROCEDURES FOR AIR NAVIGATION SERVICES

Aeronautical Information Management

First Edition, 2018

This first edition of Doc 10066 was approved by the President of the Council on behalf of the Council on 28 August 2018 and becomes applicable on 8 November 2018.

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AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue;* the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

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FOREWORD

1. HISTORICAL BACKGROUND

1.1 The Air Navigation Commission, at the eleventh meeting of its 177th Session on 20 March 2008, agreed to the establishment of an aeronautical information services to aeronautical information management (AIS-AIM) study group in order to assist the Secretariat with the development of:

a) a global strategy/roadmap for the transition from aeronautical information services (AIS) to aeronautical information management (AIM);

b) Standards and Recommended Practices (SARPs) and guidance material related to the provision of a standard aeronautical information conceptual model and standard aeronautical information exchange model to enable the global exchange of data in digital format; and

c) other SARPs, guidance material and training material necessary to support AIM implementation.

1.2 Following an assessment of Annex 15 — *Aeronautical Information Services* and the *Aeronautical Information Services Manual* (Doc 8126), it was proposed by the study group and accepted by the Air Navigation Commission that specifications published as Procedures for Air Navigation Services (PANS) would provide a more appropriate means for increased standardization and harmonization within the domain of AIS/AIM as well as provide a vehicle for the emerging technical requirements of AIM. Consequently, the study group proceeded with development of the PANS-AIM using material currently contained in Annex 15 and Doc 8126.

1.3 The PANS-AIM contains provisions in support of the transition from product-based AIS to data-centric AIM. This edition includes detailed requirements for the collection, management and provision of aeronautical data and aeronautical information as well as aeronautical information products and services specifications.

2. SCOPE AND PURPOSE

2.1 The PANS-AIM is complementary to the SARPs contained in Annex 15 and in Annex 4 — *Aeronautical Charts*. It is supplemented when necessary by regional procedures contained in the *Regional Supplementary Procedures* (Doc 7030).

2.2 Although the PANS-AIM is mainly directed to States (including AIS), data originators, commercial data houses of aeronautical data and aeronautical information and other users should be familiar with the procedures contained in this document.

2.3 One of the objectives of AIM is to ensure 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 document 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.

2.4 The PANS-AIM specifies, in greater detail than the SARPs, the actual procedures to be applied by AIM units in providing the various aeronautical information services to other States and aviation stakeholders.

2.5 The PANS-AIM 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.

3. STATUS

3.1 The PANS do not have the same status as SARPs. While the latter are *adopted* by Council in pursuance of Article 37 of the Convention on International Civil Aviation, and are subject to the full procedure of Article 90, PANS are *approved* by the Council and recommended to Contracting States for worldwide application.

3.2 While PANS may contain material which may eventually become SARPs when it has reached the maturity and stability necessary for adoption as such, they may also comprise material prepared as an amplification of the basic principles in the corresponding SARPs and designed particularly to assist the user in the application of those SARPs.

4. IMPLEMENTATION

The implementation of procedures is the responsibility of Contracting States; they are applied in actual operations only after, and in so far as, States have enforced them. However, with a view to facilitating their processing towards implementation by States, they have been prepared in language that will permit direct use by the air navigation community.

5. PUBLICATION OF DIFFERENCES

5.1 The PANS do not carry the status afforded to Standards adopted by the Council as Annexes to the Convention and, therefore, do not come within the obligation imposed by Article 38 of the Convention to notify differences in the event of non-implementation.

5.2 However, attention of States is drawn to the provisions of Annex 15 related to the publication in their Aeronautical Information Publications of lists of significant differences between their procedures and the related ICAO procedures.

6. PROMULGATION OF INFORMATION

Information relating to the establishment and withdrawal of and changes to facilities, services and procedures affecting aircraft operations provided according to the procedures specified in this document should be notified and take effect in accordance with Annex 15.

7. CONTENTS OF THE DOCUMENT

7.1 Chapter 1 — Definitions

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

7.2 Chapter 2 — Aeronautical Information Management

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.

7.3 Chapter 3 — Quality Management

Chapter 3 focuses on the quality management aspect of AIM. It explains the general requirements of the quality management system related to AIM processes.

7.4 Chapter 4 — Aeronautical Data Requirements

7.4.1 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.

7.4.2 The chapter also deals with the minimum metadata requirements.

7.5 Chapter 5 — Aeronautical Information Products and Services

7.5.1 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).

7.5.2 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.

7.5.3 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.

7.6 Chapter 6 — Aeronautical Information Updates

Chapter 6 details how to update aeronautical information products and services.

7.7 Appendices

7.7.1 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 data description for data originators and the AIS. Data element properties, sub-properties and descriptions and quality requirements (accuracy, resolution, integrity) are contained in Appendix 1.

7.7.2 Contents of the Aeronautical Information Publication are contained in Appendix 2.

7.7.3 Format and instructions for completion of NOTAM, SNOWTAM and ASHTAM are found in Appendices 3, 4 and 5, respectively.

7.7.4 Terrain and obstacle attributes provision requirements are detailed in Appendix 6.

7.7.5 Predetermined distribution of NOTAM is detailed in Appendix 7.

Table A. Amendments to PANS-AIM

Amendment	*Source(s)*	*Subject(s)*	*Approved* *Applicable*
First edition	Twelfth meeting of the AIS-AIM Study Group (AIS-AIMSG/12)	Amendment concerning: harmonization of AIS/AIM procedures; and SNOWTAM format.	28 August 2018 8 November 2018 5 November 2020
1	The fourteenth meeting of the Instrument Flight Procedures Panel (IFPP/14) and the third meeting of the Aerodrome Design and Operations Panel (ADOP/3)	a) ATS route classification, GBAS Cat II and Cat III Criteria and visual segment surface (VSS) and folding wing tips; and b) pavement classification rating.	12 May 2020 4 November 2021 28 November 2024
2	Eighth meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of the amendment to the First Edition regarding SNOWTAM format.	19 June 2020 4 November 2021
3	Second meeting of the Information Management Panel (IMP/2) Fourth meeting of the Air Traffic Management Requirements and Performance Panel (ATMRPP/4) Fifteenth meeting of the Instrument Flight Procedures Panel (IFPP/15)	a) aircraft with folding wing tips, the competency-based training and assessment (CBTA) methodology, consistency of data appearing in multiple aeronautical information products, editorial changes, and system-wide information management (SWIM) and information security; b) initial implementation of the flight and flow – information for a collaborative environment (FF-ICE) services; and c) charting navigation specifications and accuracies, instrument flight procedures (IFP) for helicopter performance-based navigation (PBN) operations, altitudes on instrument procedures, quality assurance for flight procedure design and maintenance of criteria.	22 March 2024 28 November 2024
4	Fifth meeting of the Meteorology Panel (METP/5)	Consequential amendment for the improved definition of meteorological authority.	4 April 2025 27 November 2025

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, specifically 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.

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*).

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. 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.

* All ISO Standards are listed at the end of this chapter.

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

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*).

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. 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.

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*).

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*).

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*).

Data set series. Collection of data sets sharing the same product specification (ISO 19115*).

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*).

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.

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*).

Feature attribute. Characteristic of a feature (ISO 19101*).

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*).

Feature type. Class of real world phenomena with common properties (ISO 19110*).

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

Flight and flow – information for a collaborative environment (FF-ICE). Information necessary for planning, coordination and notification of flights, exchanged in a standardized format between members of the ATM community, including those involved in flight operations and aerodrome operations.

Flight and flow – information for a collaborative environment (FF-ICE) services. A set of services established for the purposes of facilitating the exchange of FF-ICE, accurate assessment of demands, appropriate resource planning and optimizing flight planning and execution.

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*).

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.

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*).

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

Meteorological authority. The entity arranging for the provision of meteorological service for international air navigation on behalf of a Contracting State, and providing regulation and oversight of the meteorological service.

Meteorological service provider. The relevant entity designated to provide meteorological service for international air navigation on behalf of a Contracting State.

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). 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 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*).

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*).

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*).

Quality control. Part of quality management focused on fulfilling quality requirements (ISO 9000*).

Quality management. Coordinated activities to direct and control an organization with regard to quality (ISO 9000*).

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*).

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. 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*).

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)*.

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

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

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.

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* ISO Standard
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 sub-properties, 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 data description 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 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 should 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 should be implemented to ensure compliance with product specifications contained in Chapter 5.

2.1.3.2 The service provider shall ensure the consistency of aeronautical data contained in different aeronautical information products.

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).

Note.— Guidance material in respect to the processing of aeronautical data and aeronautical information is contained in RTCA DO-200B/EUROCAE ED-76A — Standards for Processing Aeronautical Data.

2.2.2 The technique used for data error detection should be based on systematic cyclic codes.

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

Chapter 3

QUALITY AND TRAINING MANAGEMENT

3.1 QUALITY MANAGEMENT SYSTEM

Note 1.— This section provides general requirements on the quality management system (QMS) related to aeronautical information management (AIM) processes.

Note 2.— Detailed guidance can be found in the Manual on the Quality Management System for Aeronautical Information Management *(Doc 9839).*

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 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.

3.2 TRAINING MANAGEMENT

Note 1.— This section provides general competency-based training and assessment (CBTA) requirements related to AIM.

Note 2.— Detailed guidance concerning the CBTA methodology implementation is contained in the Manual on Aeronautical Information Services Training *(Doc 9991).*

3.2.1 The general requirements for the establishment of processes for CBTA within the context of the established QMS shall be to:

a) analyse training needs based on requirements (such as legislative, regulatory, operational, technical and organizational);

b) identify required competencies and associated knowledge, skills and attitudes;

c) design, develop and implement a CBTA programme and associated training material;

d) train and assess assigned personnel to demonstrate required competencies;

e) monitor competencies and associated knowledge, skills and attitudes;

f) evaluate and update training to be consistent with emerging requirements and feedback; and

g) maintain and retain training records.

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.

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.

5.1.3.1 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 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 3.5 Other routes;

f) ENR 3.6 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;

l) 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 When two or more States jointly provide an AIP, these States shall be clearly indicated.

5.2.1.2.3 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).

5.2.1.2.4 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 the State 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 Annex 4 may be used to fulfil this requirement.

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;

c) 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 Annex 5 — *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 Annex 4 — *Aeronautical Charts*, 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 When a State has established the regular interval or publication dates for its AIP Amendments, these intervals or publication 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 and based on the calendar year.

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.

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 Doc 8126.

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 AIP Supplement page shall show a publication date.

5.2.1.4.6 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;

l) 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;

o) 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) advance information on the snow plan (see 5.2.2.2);

u) other information of a similar nature.

5.2.2.2 The snow plan issued under AD 1.2.2 of the AIP shall be supplemented by seasonal information, to be issued well in advance of the beginning of each winter (not less than one month before the normal onset of winter conditions) and shall contain information such as that listed below:

a) a list of aerodromes/heliports where snow, slush, ice or frost clearance is expected to be performed during the coming winter:

*1) in accordance with the runway and taxiway systems; or

*2) planned snow clearing, deviating from the runway system (length, width and number of runways, affected taxiways and aprons or portions thereof);

*b) information concerning any centre designated to coordinate information on the current state of progress of clearance and on the current state of runways, taxiways and aprons;

c) a division of the aerodromes/heliports into SNOWTAM distribution lists in order to avoid excessive NOTAM distribution;

*d) an indication, as necessary, of minor changes to the standing snow plan;

*e) a descriptive list of clearance equipment;

*f) a list of what will be considered as the minimum critical snow bank to be reported at each aerodrome/heliport at which reporting will commence.

5.2.2.3 The originating State shall select the AIC that are to be given international distribution.

5.2.2.4 States shall give AIC selected for international distribution the same distribution as for the AIP.

5.2.2.5 Distribution of AIC on a national basis is left to the discretion of the originating State concerned.

5.2.2.6 Each AIC shall be allocated a serial number which shall be consecutive and based on the calendar year.

* This information, or any part of it, may be included in the AIP, if so desired.

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.

5.2.2.7 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).

5.2.2.8 A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.

5.2.2.9 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 loose-leaf 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 issuing State or the joint issuing States shall be clearly indicated on the cover and in the table of contents.

5.2.3.1.4 The normal method of amendment of the printed volume AIP shall be by means of replacement sheets.

5.2.3.1.5 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.

5.2.3.1.6 Each AIP Amendment page shall contain a publication date or, when applicable, an effective date. The cover sheet shall contain the publication date and, when applicable, an effective date.

5.2.3.1.7 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.

5.2.3.1.8 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.

5.2.3.1.9 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).

5.2.3.1.10 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.

5.2.3.1.11 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.

5.2.3.1.12 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, 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.

5.2.3.1.13 Maps and charts included in the AIP should be paginated in the same manner as other material.

5.2.3.1.14 AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow.

5.2.3.1.15 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.

5.2.3.1.16 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)

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

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

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 Doc 8126.

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 Procedures for Air Navigation Services — Aerodromes *(PANS-Aerodromes, Doc 9981).*

5.2.5.1.3 All NOTAM shall be issued in the English language.

Note.— If necessary for domestic users, NOTAM may additionally be issued in a national language.

5.2.5.1.4 Information concerning snow, slush, ice, frost, standing water, or water associated with snow, slush, ice or frost 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.

Note.— The origin and order of the information is a result of assessment processes and procedures prescribed in the PANS-Aerodromes (Doc 9981).

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 Doc 8126.

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 If NOTAM are issued in both English and a national language, the NOTAM series shall be organized such that the national language series is equivalent to the English language series in terms of content.

5.2.5.2.4.1 Whenever possible, the national language series should have the same numbering as the English language series to facilitate comparison.

5.2.5.2.5 The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, section GEN 3.

5.2.5.2.6 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.

Note.— Guidance material concerning the use of the ISO 19100 series of standards is contained in Doc 8126.

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 requirements 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);

h) 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 left-off (TLOF) (designator, centre 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.

Note.— In regions of higher latitudes, latitude grid spacing may be adjusted to maintain a constant linear density of measurement points.

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 permanent ice and snow, 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/heliports.

5.4.2.2 The international exchange of ASHTAM (see 5.2.5.1.6), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the centres 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 Annex 15, 6.3.2.3 shall be used whenever possible, subject to the requirements of 5.4.2.3.

5.4.2.5 The originating State 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 Annex 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 9.4.1 of Annex 3 — *Meteorological Service for International Air Navigation*, 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 2.1.1 c) of Annex 15 and the relevant meteorological service provider.

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 2.1.1 c) of Annex 15 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 9.4.3 of Annex 3.

Chapter 6

AERONAUTICAL INFORMATION UPDATES

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).

Note.— Guidance material on the establishment of intervals between publication dates of AIP Amendments is contained in the Aeronautical Information Services Manual *(Doc 8126).*

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 the Aeronautical Information Services Manual *(Doc 8126)*.

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 pre-flight 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 Doc 8126.

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.

6.1.5.2 Data sets that have been made available in advance (according to the AIRAC cycle) shall be updated with the non-AIRAC changes that occur between the publication and the effective date.

Appendix 1

AERONAUTICAL DATA CATALOGUE

Note 1.— The Aeronautical Data Catalogue is available electronically and provided as part of the PANS-AIM.

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 States 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 contains the aeronautical data subjects, properties and sub-properties organized in:

Table A1-1	*Aerodrome data;*
Table A1-2	*Airspace data;*
Table A1-3	*ATS and other routes data;*
Table A1-4	*Instrument flight procedure data;*
Table A1-5	*Radio navigation aids/systems data;*
Table A1-6	*Obstacle data;*
Table A1-7	*Geographic data;*
Table A1-8	*Terrain data;*
Table A1-9	*Data types; and*
Table A1-10	*Information about national and local regulation, services and procedures.*

Note 5.— The Aeronautical Data Catalogue provides detailed descriptions of all subjects, properties and sub-properties, the data quality requirements and the data types.

Note 6.— The data types describe the nature of the property and sub-property and specify the data elements to be collected.

Note 7.— 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

Note 8.— The Aeronautical Data Catalogue contains quality requirements for aeronautical data as originally provided in: Annex 4 — Aeronautical Charts*, Appendix 6; Annex 11 —* Air Traffic Services*, Appendix 5; Annex 14 —* Aerodromes*, Volume I —* Aerodromes Designs and Operations*, Appendix 4 and Volume II —* Heliports*, Appendix 1; Annex 15 —* Aeronautical Information Services*, Appendices 7 and 8, and the* Procedures for Air Navigation Services — Aircraft Operations *(PANS-OPS, Doc 8168), Volume II —* Construction of Visual and Instrument Flight Procedures*. The framework of the Aeronautical Data Catalogue is designed to adapt to future quality requirements for the remaining aeronautical data properties and sub-properties.*

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;

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.

Note.— In the context of meteorological service for international air navigation, both the meteorological authority and the meteorological service provider(s) are to be indicated in the AIP as designated entities, in accordance with Annex 3, Chapter 2, 2.1.4 and 2.1.5, respectively.

GEN 1.2 Entry, transit and departure of aircraft

Regulations and requirements for advance notification and applications for 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:

1) 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 Annex 6, Part I, Chapters 6 and 7; and

2) emergency locator transmitter (ELT), signalling devices and life-saving equipment as presented in Annex 6, Part I, 6.6 and Part II, 2.4.5, 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 the State.

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

A list of significant differences between national regulations and practices of the State 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

Description of the temporal reference system (calendar and time system) employed, together with an indication of whether or not daylight saving hours are employed and how the temporal reference system is presented throughout the AIP.

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;

2) description of the geoid model used including the parameters required for height transformation between the model used and EGM-96; and

3) 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 the State.

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 the State 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

4) 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 kilometres and vice versa;

2) feet and metres 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;

6) AFS address;

7) website address, if available;

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; 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.

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;

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; 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 a State. 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 3.3.1 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;

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; 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;

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; 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;

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; 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;

2) type and frequency of observation including an indication of automatic observing equipment;

3) types of meteorological reports (e.g. METAR) and availability of a trend forecast;

4) 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 service provider 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;

2) 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 3.7 Information services

GEN 3.7.1 System-wide information management (SWIM) registry(ies)/Information service overview(s)

When SWIM registries are used, the corresponding Uniform Resource Locator (URL) of each registry is provided. Otherwise, a list of the URLs where information service overviews can be found is provided.

Note.— SWIM registries provide a list of available information services with corresponding information service overviews.

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 the State.

ENR 1.2 Visual flight rules

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

ENR 1.3 Instrument flight rules

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

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 Annex 11, Appendix 4, appropriately annotated to indicate those airspace classes not used by the State.

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;

2) 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.

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

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:

1) 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;

3) changes to the submitted flight plan; and

4) if applicable, description of available flight and flow – information for a collaborative environment (FF-ICE) services and associated procedures.

Note.— Provisions concerning FF-ICE services are contained in the Procedures for Air Navigation Services — Air Traffic Management *(PANS-ATM, Doc 4444) and the guidance material is contained in the* Manual on Flight and Flow — Information for a Collaborative Environment (FF-ICE) *(Doc 9965).*

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);

3) message address; and

4) if applicable, addressing instructions for FF-ICE services.

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 the State 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 (PANS ATM, Doc 4444, 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:

1) 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;

3) 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 Annex 2 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 the Aeronautical Information Services Manual *(Doc 8126).*

ENR 3.1 Conventional navigation routes

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

1) 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 “on-request” reporting points;

2) tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre 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

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

1) 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 “on-request” 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 kilometre or tenth of a nautical mile from the reference VOR/DME, if the waypoint is not collocated with it; and

   c) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft);

3) magnetic reference bearing to the nearest degree, geodesic distance to the nearest tenth of a kilometre 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 Annex 11, Appendix 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

#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

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

1) 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:

1) 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;

6) 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, colour);

3) 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 (five-letter 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 the State 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:

1) 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 centre 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 or service provider responsible for the provision of information; and

5) remarks.

ENR 5.4 Air navigation obstacles

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

1) obstacle identification or designation;

2) type of obstacle;

3) obstacle position, represented by geographical coordinates in degrees, minutes and seconds;

4) obstacle elevation and height to the nearest metre or foot; and

5) type and colour 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:

1) 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 the State's designated authority responsible for aerodromes and heliports, including:

1) the general conditions under which aerodromes/heliports and associated facilities are available for use; and

2) 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 the State.

AD 1.1.5 Other information

If applicable, other information of a similar nature.

AD 1.2 Rescue and firefighting services and snow plan

AD 1.2.1 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 a State.

AD 1.2.2 Snow plan

Brief description of general snow plan considerations for aerodromes/heliports available for public use at which snow conditions are normally liable to occur, including:

1) organization of the winter service;

2) surveillance of movement areas;

3) measuring methods and measurements taken;

4) actions taken to maintain the usability of movement areas;

5) system and means of reporting;

6) the cases of runway closure; and

7) distribution of information about snow conditions.

Note.— Where different snow plan considerations apply at aerodromes/heliports, this subsection may be subdivided accordingly.

AD 1.3 Index to aerodromes and heliports

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

1) aerodrome/heliport name and ICAO location indicator;

2) 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 the State 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 the State, 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 centre of the city or town which the aerodrome serves;

3) aerodrome elevation to the nearest metre or foot, reference temperature and mean low temperature;

4) where appropriate, geoid undulation at the aerodrome elevation position to the nearest metre 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;

11) de-icing; and

12) 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) de-icing facilities;

5) hangar space for visiting aircraft;

6) repair facilities for visiting aircraft; and

7) 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) designation, surface and strength (PCR) of aprons;

2) designation, width, surface and strength (PCR) of taxiways;

3) location and elevation to the nearest metre 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 metre or foot;

   e) obstacle marking, and type and colour of obstacle lighting (if any); and

   f) NIL indication, if appropriate.

Note 1.— Annex 15, Chapter 5 provides a description of Area 2 while Appendix 8, Figure A8-2 of this document 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.

3) 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 metre or tenth of a foot;

e) obstacle marking, and type and colour 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.— Annex 15, Chapter 5, provides a description of Area 3 while Appendix 8, Figure A8-3 of this document 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;

3) office responsible for preparation of TAFs and periods of validity and interval of issuance of the forecasts;

4) 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;

7) charts and other information displayed or available for briefing or consultation;

8) 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 metre or foot;

4) 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 metre or foot; and

   — thresholds of a precision approach runway to the nearest tenth of a metre or tenth of a foot;

6) elevations of:

   — thresholds of a non-precision approach runway to the nearest metre or foot; and

   — thresholds and the highest elevation of the touchdown zone of a precision approach runway to the nearest tenth of a metre or tenth of a foot;

7) slope of each runway and associated stopways;

8) dimensions of stopway (if any) to the nearest metre or foot;

9) dimensions of clearway (if any) to the nearest metre or foot;

10) dimensions of strips;

11) dimensions of runway end safety areas;

12) 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 metre or foot for each direction of each runway, including:

1) runway designator;

2) take-off run available;

3) 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 (Annex 14, Volume I, Attachment A, Section 3).

**** 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, colour and wing bars;

4) type of visual approach slope indicator system;

5) length of runway touchdown zone lights;

6) length, spacing, colour and intensity of runway centre line lights;

7) length, spacing, colour and intensity of runway edge lights;

8) colour of runway end lights and wing bars;

9) length and colour 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);

2) location and lighting (if any) of anemometer/landing direction indicator;

3) taxiway edge and taxiway centre 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:

1) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric centre 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 metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

2) TLOF and/or FATO area elevation:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

3) TLOF and FATO area dimensions to the nearest metre 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 metre 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:

1) type of aids, magnetic variation to the nearest degree, as appropriate, type of supported operation for ILS/MLS/GLS, basic GNSS and SBAS, classification for ILS, facility classification and approach facility designation(s) for 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;

3) 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 metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot;

7) service volume radius from the GBAS reference point to the nearest kilometre 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:

1) 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);

7) 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;

13) Instrument 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**

Visual segment surface (VSS) penetration, including procedure and procedure minima affected.

Note.— Criteria related to the VSS are contained in PANS-OPS Volume II, Part I, Section 4, Chapter 5, paragraph 5.4.6.

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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 centre of the city or town which the heliport serves;

3) heliport elevation to the nearest metre or foot, reference temperature and mean low temperature;

4) where appropriate, geoid undulation at the heliport elevation position to the nearest metre 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;

11) de-icing; and

12) 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) de-icing facilities;

5) hangar space for visiting helicopters;

6) repair facilities for visiting helicopters; and

7) 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 metre 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;

3) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;

4) obstacle elevation and height to the nearest metre or foot;

5) 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;

3) 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;

7) charts and other information displayed or available for briefing or consultation;

8) 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);

2) touchdown and lift-off (TLOF) area dimensions to the nearest metre or foot;

3) true bearings to one-hundredth of a degree of final approach and take-off (FATO) area;

4) dimensions to the nearest metre or foot of FATO, and surface type;

5) 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 centre of TLOF or of each threshold of FATO:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

7) TLOF and/or FATO slope and elevation:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

8) dimensions of safety area;

9) dimensions, to the nearest metre 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 metre 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 centre 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:

1) 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;

3) 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 metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot;

7) service volume radius from the GBAS reference point to the nearest kilometre 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)

Priority indicator	→													
Address														
														⋘≡
Date and time of filing	→													
Originator's indicator														⋘≡(
Message series, number and identifier														
NOTAM containing new information	..... (series and number/year) NOTAMN													
NOTAM replacing a previous NOTAM	..... (series and number/year) NOTAMR ..... (series and number/year of NOTAM to be replaced)													
NOTAM cancelling a previous NOTAM	..... (series and number/year) NOTAMC ..... (series and number/year of NOTAM to be cancelled)													⋘≡
Qualifiers														
	FIR	NOTAM Code	Traffic	Purpose	Scope	Lower limit	Upper limit	Coordinates, Radius						
Q)	/	Q /	/	/	/	/	/							⋘≡
Identification of ICAO location indicator in which the facility, airspace or condition reported on is located	A) →													
Period of validity														
From *(date-time group)*	B)												→	
To *(PERM or date-time group)*	C)												**EST*** **PERM***	⋘≡
Time schedule *(if applicable)*	D) →													
	⋘≡													
Text of NOTAM; plain-language entry (using ICAO abbreviations)														
E) ⋘≡														
Lower limit	F) →													
Upper limit	G)) ⋘≡													
Signature														

***Delete as appropriate**

INSTRUCTIONS FOR THE COMPLETION OF THE NOTAM FORMAT

Note.— For NOTAM examples see the Aeronautical Information Services Manual *(Doc 8126) and the* Procedures for Air Navigation Services — ICAO Abbreviations and Codes *(PANS-ABC, Doc 8400).*

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 four-digit number followed by a stroke and a two-digit 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 the *Aeronautical Information Services Manual* (Doc 8126). 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 non-governmental 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 contained in Doc 8126 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 Annex 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;

d) 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 is contained in 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 is contained in 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 is contained in 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 centre 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 date-time 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.

Note.— Guidance concerning a harmonized definition of Item D) content is provided in Doc 8126.

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. Items 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

(See Chapter 5, 5.2.5.1.4)

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSES)	<≡
	(DATE AND TIME OF FILING)	(ORIGINATOR'S INDICATOR)	<≡
(Abbreviated heading)	(SWAA* SERIAL NUMBER) S W * *	(LOCATION INDICATOR)	DATE/TIME OF ASSESMENT (OPTIONAL GROUP) <≡(

SNOWTAM →	(Serial number) <≡	

Aeroplane performance calculation section			
(AERODROME LOCATION INDICATOR)	M	A)	<≡
(DATE/TIME OF ASSESSMENT *(Time of completion of assessment in UTC)*)	M	B)	→
(LOWER RUNWAY DESIGNATION NUMBER)	M	C)	→
(RUNWAY CONDITION CODE (RWYCC) ON EACH RUNWAY THIRD) *(From Runway Condition Assessment Matrix (RCAM) 0, 1, 2, 3, 4, 5 or 6)*	M	D)	/ / →
(PER CENT COVERAGE CONTAMINANT FOR EACH RUNWAY THIRD)	C	E)	/ / →
(DEPTH *(mm)* OF LOOSE CONTAMINANT FOR EACH RUNWAY THIRD)	C	F)	/ / →
(CONDITION DESCRIPTION OVER TOTAL RUNWAY LENGTH) *(Observed on each runway third, starting from threshold having the lower runway designation number)* COMPACTED SNOW DRY 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	M	G)	/ / →
(WIDTH OF RUNWAY TO WHICH THE RUNWAY CONDITION CODES APPLY, IF LESS THAN PUBLISHED WIDTH)	O	H)	<≡≡
Situational awareness section			
(REDUCED RUNWAY LENGTH, IF LESS THAN PUBLISHED LENGTH *(m)*)	O	I)	→
(DRIFTING SNOW ON THE RUNWAY)	O	J)	→
(LOOSE SAND ON THE RUNWAY)	O	K)	→
(CHEMICAL TREATMENT ON THE RUNWAY)	O	L)	→
(SNOWBANKS ON THE RUNWAY) *(If present, distance from runway centre line (m) followed by "L", "R" or "LR" as applicable)*	O	M)	→
(SNOWBANKS ON A TAXIWAY)	O	N)	→
(SNOWBANKS ADJACENT TO THE RUNWAY)	O	O)	→
(TAXIWAY CONDITIONS)	O	P)	→
(APRON CONDITIONS)	O	R)	→
(MEASURED FRICTION COEFFICIENT)	O	S)	→
(PLAIN-LANGUAGE REMARKS)	O	T)	)

NOTES:
1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2 or otherwise applicable aerodrome identifier.
2. Information on other runways, repeat from B to H.
3. Information in the situational awareness section repeated for each runway, taxiway and apron. Repeat as applicable when reported.
4. 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 MMDDGGgg (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));
MMDDGGgg = date/time of observation/measurement, whereby:
MM = month, e.g. January = 01, December = 12
DD = 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 millimetres 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 metres 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 metres from centre 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
02170135 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

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.)

Appendix 5

ASHTAM FORMAT

(See Chapter 5, 5.2.5.1.5)

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSEE INDICATOR(S))[1]			
	(DATE AND TIME (OF FILING)		(ORIGINATOR'S (INDICATOR)		
(Abbreviated heading)	(VA*[2] SERIAL NUMBER) V A *2 *2		(LOCATION INDICATOR)	DATE/TIME OF ISSUANCE	(OPTIONAL GROUP)

ASHTAM	(SERIAL NUMBER)	
(FLIGHT INFORMATION REGION AFFECTED)		A)
(DATE/TIME (UTC) OF ERUPTION)		B)
(VOLCANO NAME AND NUMBER)		C)
(VOLCANO LATITUDE/LONGITUDE OR VOLCANO RADIAL AND DISTANCE FROM NAVAID)		D)
(VOLCANO LEVEL OF ALERT COLOUR CODE, INCLUDING ANY PRIOR LEVEL OF ALERT COLOUR CODE)[3]		E)
(EXISTENCE AND HORIZONTAL/VERTICAL EXTENT OF VOLCANIC ASH CLOUD)[4]		F)
(DIRECTION OF MOVEMENT OF ASH CLOUD)[4]		G)
(AIR ROUTES OR PORTIONS OF AIR ROUTES AND FLIGHT LEVELS AFFECTED)		H)
(CLOSURE OF AIRSPACE AND/OR AIR ROUTES OR PORTIONS OF AIR ROUTES, AND ALTERNATIVE AIR ROUTES AVAILABLE)		I)
(SOURCE OF INFORMATION)		J)
(PLAIN-LANGUAGE REMARKS)		K)

NOTES:

1. See also Appendix 5 regarding addressee indicators used in predetermined distribution systems.
2. *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 centre(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 air-report, 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 States, e.g. NZ = New Zealand (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 centres in charge of FIR/UIR);
MMYYGGgg = date/time of report, 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 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 Auckland Oceanic FIR, report on 7 November at 0620 UTC:

VANZ0001 NZZO 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 “Auckland Oceanic 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.
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 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 centre by the responsible vulcanological agency in the State concerned, 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 metres (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 centre.

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 centre.

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.

Appendix 6

TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

Table A6-1. Terrain attributes

Terrain 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 A6-2. Obstacle attributes

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
Marking	Mandatory

Appendix 7

PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM

(See Chapter 5, 5.4.2.4, and Annex 10, Volume II, Chapter 4, 4.4.14)

1. The predetermined distribution system provides for incoming NOTAM (including SNOWTAM and ASHTAM) to be channelled through the aeronautical fixed service (AFS) direct to designated addressees predetermined by the receiving State concerned 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 centre 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"), SNOWTAM (letter "S"), 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 centre.

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. States are to inform the States from which they receive NOTAM of the sixth and seventh letters to be used under different circumstances to ensure proper routing.

Appendix 8

TERRAIN AND OBSTACLE DATA REQUIREMENTS

(See Annex 15, Chapter 5)

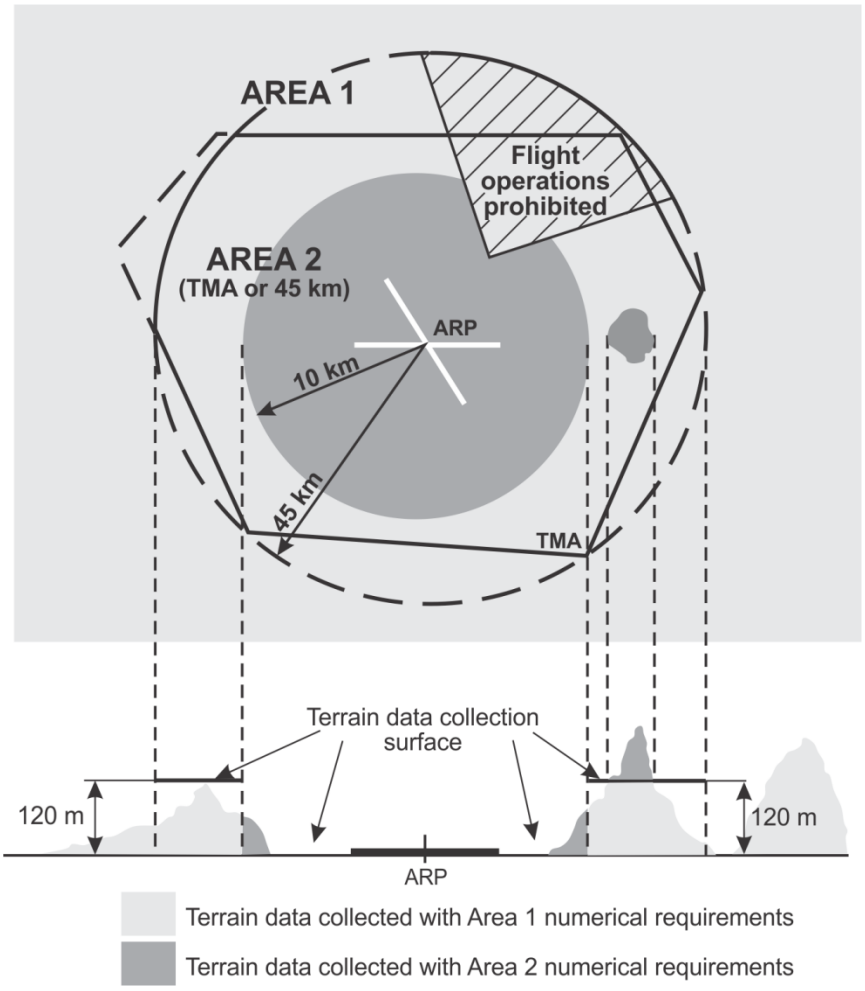

Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

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.

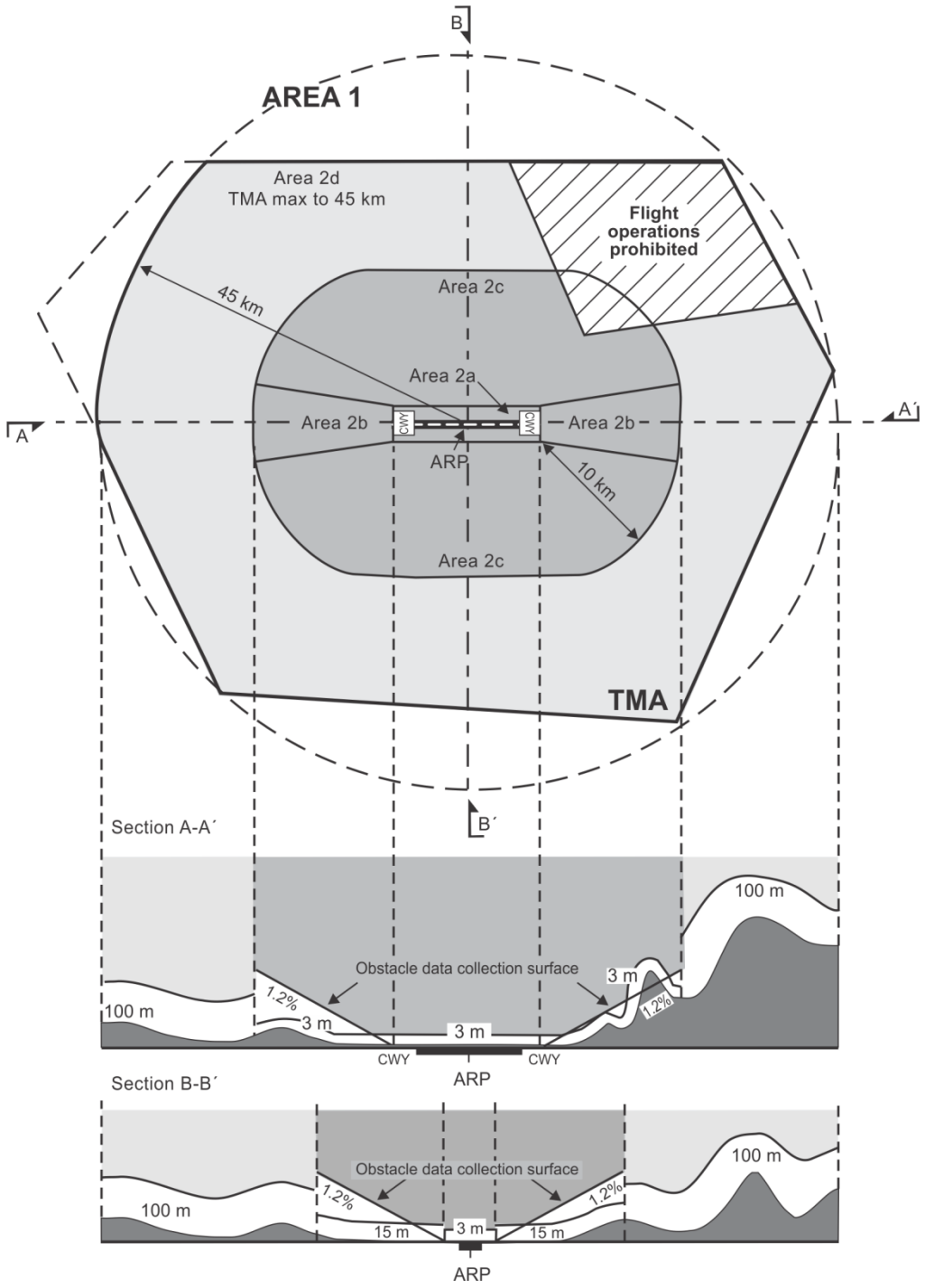

Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

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.

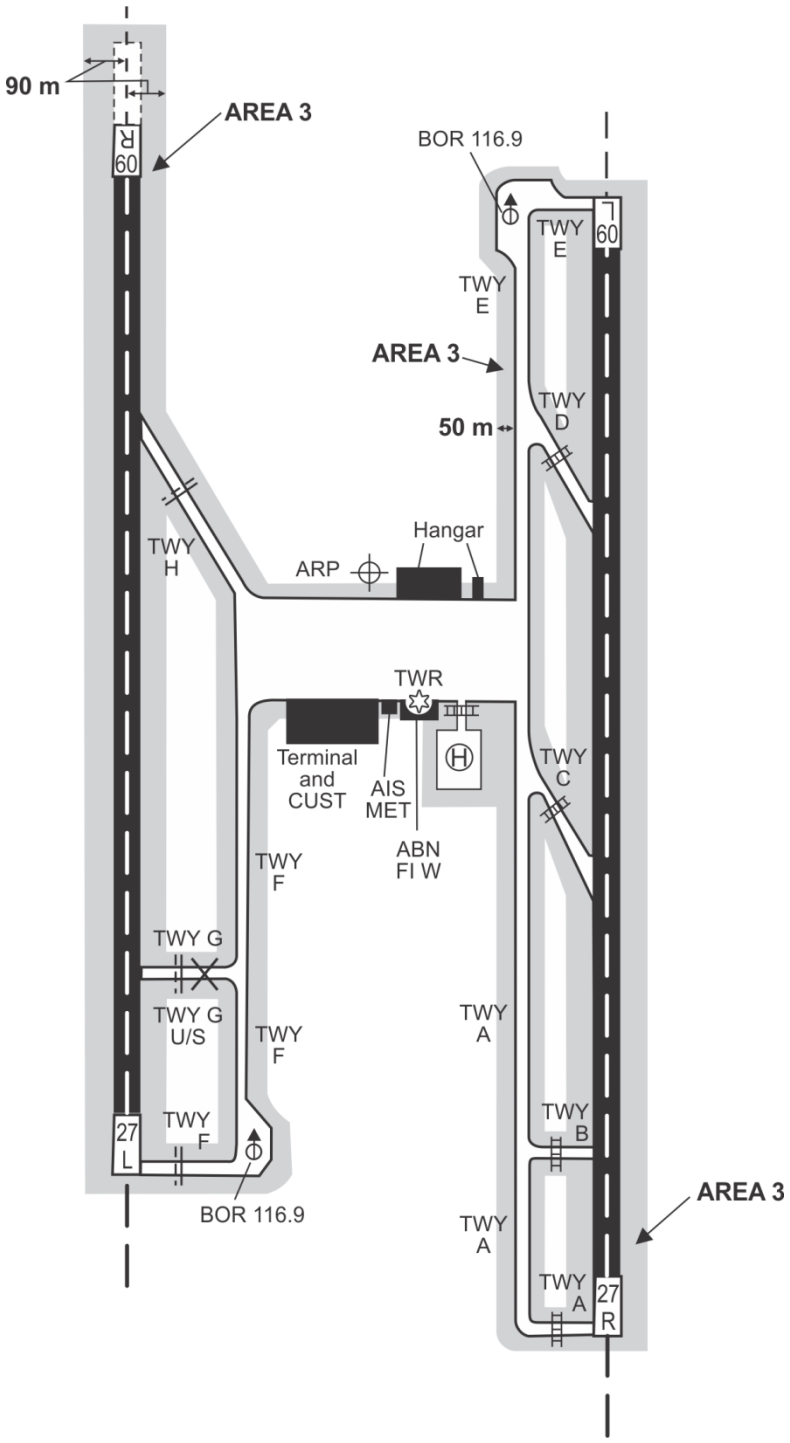

Figure A8-3. Terrain and obstacle data collection surface — Area 3

Terrain and obstacle data in Area 3 shall comply with the numerical requirements specified in Appendix 1.

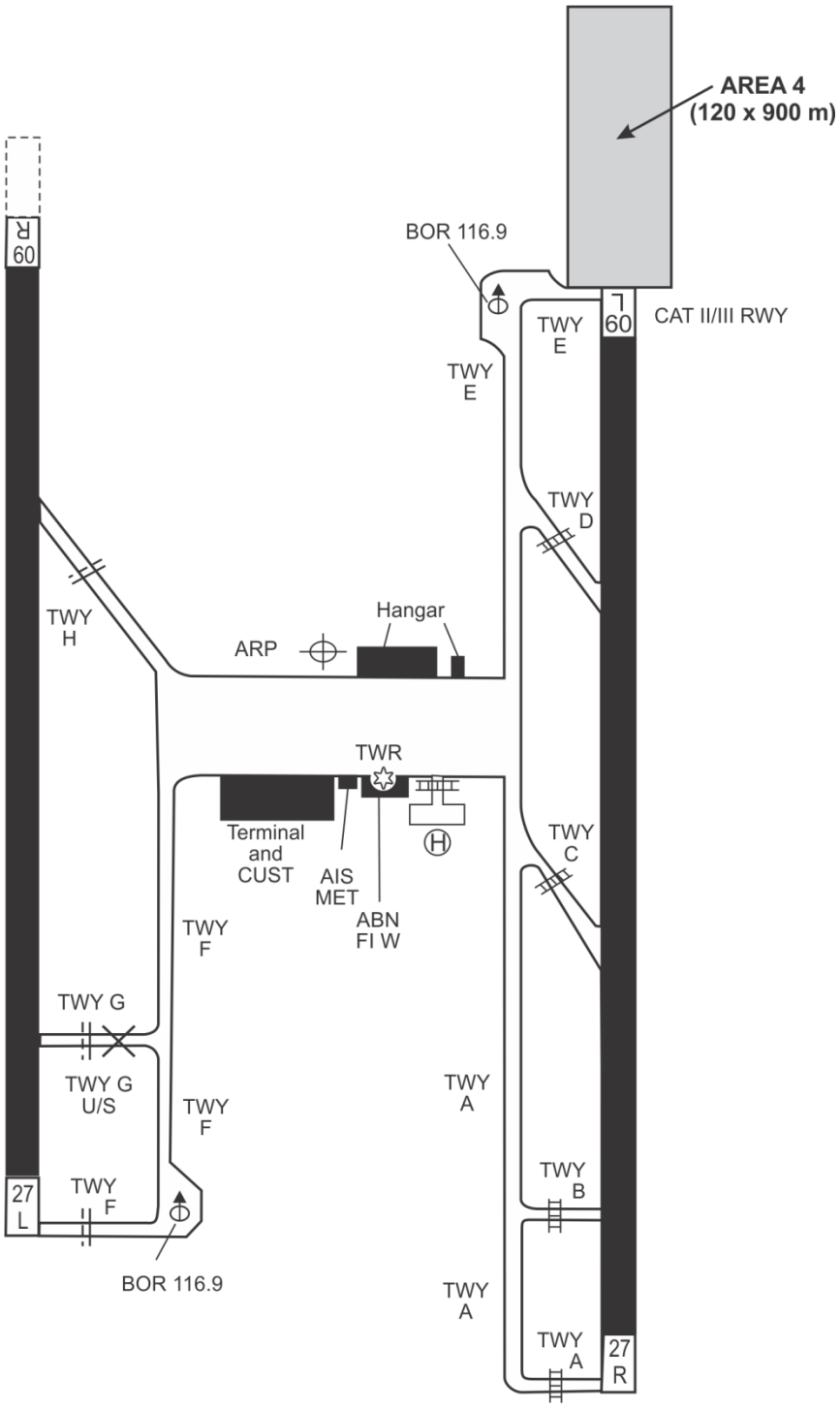

Figure A8-4. Terrain and obstacle data collection surface — Area 4

Terrain and obstacle data in Area 4 shall comply with the numerical requirements specified in Appendix 1.

— END —

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