STATE OF KUWAIT

DIRECTORATE GENERAL OF CIVIL AVIATION AVIATION SAFETY



دولت الكويت الإدارة العامت للطيران المدني سلامت الطيران

2025/09/28

2025/241/SUPDT-R/41

All KCASR Stakeholders and Users

Sub.: Regulatory Circular No. 2025-18.

Revision Number 4 to Kuwait Civil Aviation Safety Regulations - KCASR 15 - AERONAUTICAL INFORMATION SERVICES - VOL I.

Dear Sir,

Please find enclosed herewith the regulatory circular No. <u>2025-18</u> regarding the issuance of <u>KCASR 15 - AERONAUTICAL INFORMATION SERVICES - VOL I Rev. 4</u>. This is for your information and distribution to all concerned departments.

Up to date KCASR Parts are published on the DGCA/ASD website (https://kcasr.dgca.gov.kw).

If required, the DGCA/Aviation Safety Department personnel are available to answer your questions on the interpretation and intended implementation of the proposed amendments.

<u>KCASR 15 - AERONAUTICAL INFORMATION SERVICES - VOL I</u> <u>Rev.</u> <u>4</u> will be in effect from 26/Oct/2025.

Yours Sincerely,

President of Civil Aviation.

Eng. Duaij Khalaf Alotaibi

Acting Director General DGCA

CC:

Director General of Civil Aviation.

Dy. Dir. Gen. Kuwait. Intel. Airport Affairs.

Dy. Dir. Gen. for Air Navigation Services Affairs.

Safety Management Coordination Center (SMCC).

Head of Technical Office.

Civil Aviation Security Department.

Aviation Safety Director.

Air Transport Director.

Inspection & oversight Superintendent.

Head of Standards & Aviation Safety Regulations Division.

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STATE OF KUWAIT

DIRECTORATE GENERAL OF CIVIL AVIATION AVIATION SAFETY



دولى الكويت الإدارة العامي للطيران المدني سلامي الطيران

2025/09/28

2025/243/SUPDT-R/41

REGULATORY CIRCULAR (NO. 2025-18)

Subject:

Notice of Amendment to Kuwait Civil Aviation Safety Regulations KCASR (issue 4).

Purpose:

The purpose of this Regulatory Circular No. <u>2025-18</u> is to Amend KCASR 15 - AERONAUTICAL INFORMATION SERVICES - VOL I (issue 4) to comply with DGCA requirements.

This Regulatory Circular No. 2025-18 is based on (NPA) No. 2025-02 dated 17/Aug/2025

Revisions:

This amendment will be included in the revision ($\underline{4}$) of KCASR 15 - AERONAUTICAL INFORMATION SERVICES - VOL I.

Regulatory Requirements:

This amendment shall apply to the following Organizations approved by the Directorate General of Civil Aviation (DGCA) or authorised to operate within the State of Kuwait:

- 1. Airport Operators;
- 2. Air Navigation Service Providers;
- 3. Air Operator Certificate (AOC);
- 4. Approved Maintenance Organizations (AMO) Holders;
- 5. Ground Handling Service Providers;
- 6. Training Organizations;
- 7. All users of KCASRs.

Effective Date:

This new revision will be in effect from 26/Oct/2025.

Required Action:

All users of KCASR must comply with the provisions of this amendment from the effective date.

President of Civil Aviation

Eng. Duaij Khalaf Alotaibi

Acting Director General DGCA

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KCASR 15 – Aeronautical Information Services



Kuwait Civil Aviation Safety Regulations

KCASR 15 – AERONAUTICAL INFORMATION SERVICES – VOL I

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Amendment Record

Amendment No	Date of Issue	Remarks
1	June 2018	NSRA 2018-16 (ICAO Amendment 40) and Part Rename
2	Aug 2020	NPA 2020-10 updated to ICAO annex 15 (Amendment 41)
3	July 2024	NPA 2024-07 updated to ICAO annex 15 (Amendment 43)
3	Oct 2025	NPA 2025-02 updated to ICAO annex 15 (Amendment 44)

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Control of this Document

- DC.1 Introduction
- DC.1.1 Pursuant to Law No (30) of the year 1960 and subsequent Ministerial Decisions No (3) of the year 1986, No (18) of the year 1990, and No (3) of the year 1996, based upon that Law and as reflected in the Preamble to the Kuwait Civil Aviation Safety Regulations, Issue 3, Rev.2, August 2019, the President of the Kuwait Directorate General of Civil Aviation is empowered to adopt and amend Kuwait Civil Aviation Safety Regulations. In accordance herewith, the following KCASR 15 Aeronautical Information Services is hereby established for compliance by all persons concerned. This Regulation shall be known as KCASR 15 Aeronautical Information Services and any reference to this title shall mean referring to these regulations governing the requirements to be met for the additional airworthiness requirements for aircraft.
- DC.2 Authority for this Regulation
- DC.2.1 This KCASR 15 Aeronautical Information Services is issued on the authority of the President of the Kuwait Directorate General of Civil Aviation.
- DC.3 Applicability
- DC.3.1 This KCASR 15 Aeronautical Information Services is applicable to the aviation industry of the State of Kuwait.
- DC.4 Scope
- DC.4.1 KCASR 15 contains the regulatory requirements relating to Aeronautical Information Services in the State of Kuwait.
- DC.5 Definitions
- DC.5.1 Terms not defined shall have the meaning given to them in the relevant legal instruments or international legal instruments in which they appear, especially as they appear in the Convention and its Annexes.



KCASR 15 – Aeronautical Information Services

Chapter 1. General

- Note 1.-The object of the aeronautical information service (AIS) is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity, economy and efficiency in an environmentally sustainable manner. The role and importance of aeronautical data and aeronautical information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE). Corrupt, erroneous, late, or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation.
- **Note 2.-**These Standards and Recommended Practices are to be used in conjunction with the Procedures for Air Navigation Services ICAO Abbreviations and Codes (PANS-ABC, Doc 8400).
- **Note 3.** These Standards and Recommended Practices are to be used in conjunction with the Procedures for Air Navigation Services Aeronautical Information Management (PANS-AIM, Doc 10066).
- **Note 4.-** Guidance material on the organization and operation of aeronautical information services is contained in the Aeronautical Information Services Manual (Doc 8126).

1.1 Definitions

When the following terms are used in the Standards and Recommended Practices for aeronautical information services, 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 are 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.

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Aeronautical information product. Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include: — Aeronautical Information Publication (AIP), including Amendments and Supplements;

- Aeronautical Information Circulars (AIC);
- Aeronautical charts;
- NOTAM; and
- Digital data sets.

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

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 defense 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 (ATS).

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.

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.

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KCASR 15 – Aeronautical Information Services

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

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

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

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

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.

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

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

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

Data 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.

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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.

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.

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

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data are 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.

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:

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

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

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 an existing data or information.

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

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

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

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



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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 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-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.

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

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

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*).

Note1.- The term "quality" can be used with adjectives such as poor, good or excellent.

Note2.- "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*).

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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.

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

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.

SNOWTAM¹. (Applicable until 3 November 2021) A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

SNOWTAM² (Applicable as of 4 November 2021) A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice, or frost on the movement area.

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

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

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.

1.2 Common reference systems for air navigation

1.2.1 Horizontal reference system

- **1.2.1.1 World Geodetic System** 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
- **Note 1.-** Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System 1984 (WGS-84) Manual (Doc 9674).
- **1.2.1.2** In precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth's crust should be modelled and estimated. To reflect the temporal effect, an epoch should be included with any set of absolute station coordinates.
- Note 1.- The lastversion of the WGS-84 (G2139) reference frame is realized through coordinates of 17 GPS tracking stations which are part of the GPS Control Segment. They are aligned to IGb14 (considered to be equivalent to ITRF2014 (International Terrestrial Reference System 2014)) at epoch 2005.0.

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Note 2.- Another precise worldwide terrestrial coordinate system is the International Earth Rotation Service (IERS)

Terrestrial Reference System (ITRS), and the realization of ITRS is the IERS Terrestrial Reference Frame
(ITRF). Guidance material regarding the ITRS is provided in Appendix C of Doc 9674. The WGS-84
(G2139) is consistent with the ITRF 2014 and in practical realization the difference between these two
systems statistically insignificant for most applications, meaning WGS-84 (G2139) and ITRF 2014 are
essentially identical.

1.2.2 Vertical reference system

- **1.2.2.1 Mean sea level (MSL) datum**, shall be used as the vertical reference system for international air navigation.
- **Note** 1.- The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.
- **Note** 2.- Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.
- **1.2.2.2 The Earth Gravitational Model** 1996 (EGM-96), , shall be used by international air navigation as the global gravity model.
- **1.2.2.3** At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).
- **Note.** Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports are given in PANS-AIM (Doc 10066, Appendix 1).

1.2.3 Temporal reference system

- **1.2.3.1** The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation.
- Note 1.- A value in the time domain is a temporal position measured relative to a temporal reference system.
- **Note 2.-** UTC is a time scale maintained by the Bureau International de l'Heure and the IERS and forms the basis of a coordinated dissemination of standard frequencies and time signals
- **Note 3.-** See * KCASR Part 5 for guidance material relating to UTC.
- **Note 4.-** ISO Standard 8601 specifies the use of the Gregorian calendar and 24-hour local or UTC for information interchange while ISO Standard 19108 prescribes the Gregorian calendar and UTC as the primary temporal reference system for use with geographic information.
- **1.2.3.2** When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

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Note.- ISO Standard 19108, Annex D, describes some aspects of calendars that may have to be considered in such a description.

1.3 Miscellaneous specifications

- **1.3.1**-Aeronautical information products intended international distribution shall include English text for those parts expressed in plain language.
- **1.3.2** Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.
- **1.3.3** Units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information should be consistent with the decision taken by the State in respect of the use of the tables contained in-KCASR 5.
- **1.3.4** ICAO abbreviations shall be used in the aeronautical information Products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.

* 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



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Chapter 2 – Responsibilities and Functions

2.1 State of Kuwait responsibilities

- 2.1.1 The State of Kuwait shall:
 - a) provide an aeronautical information service; or if needed,
 - b) agree with one or more other Contracting State(s) for the provision of a joint service; or
 - c) delegate the authority for the provision of the service to a non-governmental agency, provided the Standards and Recommended Practices of this Annex are adequately met.
- 2.1.2 The State of Kuwait shall ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of air traffic services.
- 2.1.3 The State of Kuwait shall remain responsible for the aeronautical data and aeronautical information provided in accordance with 2.1.2. Aeronautical data and aeronautical information provided for and on behalf of the State of Kuwait shall clearly indicate that they are provided under the authority of the State. irrespective of the format in which they are provided.
- 2.1.4 The State of Kuwait shall ensure that the aeronautical data and aeronautical information provided are and of required quality in accordance with 2.3.
- 2.1.5 The State of Kuwait will shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the aeronautical information service in relation to the timely and complete provision of aeronautical data and aeronautical information.
 - **Note.** The scope of aeronautical data and aeronautical information that would be the subject of formal arrangements is specified in Chapter 4.

2.2 AIS responsibilities and functions

- 2.2.1 An aeronautical information service (AIS) shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation are made available in a form suitable for the operational requirements of the ATM community, including:
 - a) those involved in flight operations, including flight crews, flight planning and flight simulators; and
 - b) the air traffic services unit responsible for flight information service and the services responsible for pre-flight information

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

- 2.2.2 An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of air traffic services. Aeronautical data and aeronautical information shall be provided as aeronautical information Product.
- 2.2.3 Note.— An AIS may include origination functions. Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of AIS, plus a period of at least two hours before and after such a period. Service shall also be available at such other time as may be requested by an appropriate ground organization.

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- 2.2.4 An aeronautical information service (AIS) shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:
 - a) from the AIS of other States; and
 - b) from other sources that may be available.

Note.- One such source is the subject of a provision in 5.6.

- 2.2.5 Aeronautical data and aeronautical information obtained under 2.2.4a) shall, when distributed, be clearly identified as having the authority of the originating State.
 - -Aeronautical data and aeronautical information obtained under 2.2.4
 - b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.
- 2.2.6 An AIS shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with 2.2.1

2.3 Exchange of aeronautical data and aeronautical information

- 2.3.1 The State of Kuwait shall designate the office to which all elements of the aeronautical information products provided by other States shall be addressed. Such an office shall be qualified to deal with requests for aeronautical data and aeronautical information provided by other States.
- 2.3.2 Formal arrangements should be established between those parties providing aeronautical

data and aeronautical information on behalf of the States and their users in relation to the provision of the service.

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

2.3.2

- 2.3.3 Where more than one international NOTAM office is designated within a State, the extent of responsibility and the territory covered by each office shall be defined.
- 2.3.4 An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.
- 2.3.5 Wherever practicable, direct contact between aeronautical information services shall be established in order to facilitate the international exchange of aeronautical data and aeronautical information.
- 2.3.6 Except as provided in 2.3.8, one copy of each of the following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually-agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency.
 - a) Aeronautical Information Publication (AIP), including Amendments and Supplements:
 - b) Aeronautical Information Circulars (AIC);
 - c) NOTAM; and
 - d) Aeronautical Charts.

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- 2.3.7 The exchange of more than one copy of the elements of aeronautical information products and other air navigation documents, including those containing air navigation legislation and regulations, should be subject to bilateral agreement between the State of Kuwait and other ICAO the participating Contracting States and entities.
- 2.3.8 When aeronautical information and aeronautical data is provided in the form of digital data sets to be used by the AIS, it shall be provided on the basis of agreement between the Contracting States concerned.
 - Note.— The intention is that States are able to access foreign data for the purposes specified in 2.2.4.
- 2.3.9 The procurement of aeronautical data and aeronautical information, including the elements of, aeronautical information products and other air navigation documents, including those containing air navigation legislation and regulations, by States other than ICAO Contracting States and by other entities should be subject to separate agreement between the participating States and entities.
- 2.3.10 Globally interoperable aeronautical data and information exchange models shall be used for the provision of data sets.
 - **Note 1.—** Specifications concerning the globally interoperable aeronautical information and data exchange models are contained in the PANS-AIM (Doc 10066).
 - **Note 2.** Guidance on the globally interoperable aeronautical information and data exchange models may be found in Doc 8126.

2.4 Copyright

- Note.- In order to protect the investment in the products of a State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws
- 2.4.1 Any aeronautical information product of a the State of Kuwait AIS which has been granted copyright protection by the originating State and provided to another State in accordance with 2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the State of Kuwait.
- 2.4.2 When aeronautical information and aeronautical data is provided to a State in accordance with 2.3.8, the receiving State shall not provide digital data sets of the providing State to any third party without the consent of the providing State.

2.5 Cost recovery

- 2.5.1 The overhead cost of collecting and compiling aeronautical data and aeronautical information should be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082).
 - Note.- When costs of collection and compilation of aeronautical data and aeronautical information are recovered through airports and air navigation services charges, the charge to an individual customer for the supply of a particular aeronautical information product may be based on the costs of printing paper copies, production of electronic media, and costs of distribution.

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Chapter 3 - Aeronautical Information Management

3.1 Information management requirements

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

3.2 Data quality requirements

3.2.1 Data Accuracy

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

Note: Specifications concerning the order of accuracy (including confidence level) for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

3.2.2 Data Resolution

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

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

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

3.2.3 Data Integrity

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

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

- 3.2.3.2 Based on the applicable integrity classification, the validation and verification procedures shall procedures shall be put in place in order to:
 - a) for routine data: avoid corruption throughout the processing of the data;
 - b) for essential data: ensure corruption does not occur at any stage of the data processing life cycle (e.g. collection, processing, storing, integration, exchange and delivery) and include additional measures or steps as needed to address potential risks in the overall processing of aeronautical data to further ensure data integrity at this level; and
 - c) for critical data: ensure corruption does not occur at any stage of the data processing life cycle (e.g. collection, processing, storing, integration, exchange and delivery) and include additional data integrity assurance processes to mitigate the risk of errors.

Note.— Guidance concerning measures to ensure data integrity is contained in the Aeronautical Information Service Manual (Doc 8126), Part II, 4.1 and 6.2.

3.2.4 Data Traceability

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

3.2.5 Data Timeliness

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

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

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

3.2.6 Data Completeness

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

3.2.7 Data Format

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

3.3 Aeronautical data and aeronautical information validation and verification

- 3.3.1 Aeronautical data and aeronautical information to be published as part of an aeronautical information product shall be checked before being submitted to the Aeronautical information service, in order to make ensure that all necessary information has been included and that it is correct in detail prior to distribution.
- 3.3.2 An aeronautical information service (AIS) shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements-are met.

3.4 Data error detection

- 3.4.1 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets-
- 3.4.2 Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 3.2.3.

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

3.5 Use of automation

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

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

- 3.5.2 Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified Note.— Risks of altering the integrity of data and information may be introduced by automated processes in case of unexpected systems behaviors.
- 3.5.3 In order to meet the data quality requirements, automation shall:
 - a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and
 - b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

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3.6 Quality management system

3.6.1 Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in 2.2. The execution of such quality management systems shall be made demonstrable for each function stage.

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

- 3.6.2 Quality management shall be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.
- 3.6.3 The quality management system established in accordance with 3.6.1 shall follow the ISO 9000 series of quality assurance standards, and be certified by an accredited certification body.
- 3.6.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and attitudes required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and attitudes.
- 3.6.5 The training methodology established in accordance with 3.6.4 should follow the competency-based training and assessment methodology.
 - Note 1.— Provisions related to the competency-based training and assessment methodology are contained in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868) and in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).
 - Note 2.— Additional guidance concerning a competency-based training and assessment methodology to ensure the competency of personnel in accordance with the Procedures for Air Navigation Services— Training (PANS-TRG, Doc 9868) is contained in the Manual on Aeronautical Information Services Training (Doc 9991).
- 3.6.6 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.
- 3.6.7 The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements.
- 3.6.8 All necessary measures shall be taken to monitor compliance with the quality management system in place.
- 3.6.9 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.

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3.7 Human factors considerations

- 3.7.1 The organization of an AIS as well as the design, contents, processing and distribution of aeronautical data and aeronautical information shall take into consideration human factors principles which facilitate their optimum utilization.
- 3.7.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

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



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Chapter 4 – SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

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

- 4.1 Scope of aeronautical data and aeronautical information
- 4.1.1 The aeronautical data and aeronautical information to be received and managed by the AIS shall include at least the following sub-domains:
 - a) national regulations, rules and procedures;
 - b) aerodromes and heliports;
 - c) airspace;
 - d) ATS routes;
 - e) instrument flight procedures;
 - f) radio navigation aids/systems;
 - g) obstacles;
 - h) terrain;
 - i) geographic information.

Note 1.— Detailed specifications concerning the content of each sub-domain are contained in the PANS-AIM (Doc 10066), Appendix 1.

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

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

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

4.2 Metadata

- 4.2.1 Metadata shall be collected for aeronautical data processes and exchange points.
- 4.2.2 This metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.

Note. Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066). Each AIP shall not duplicate information within itself or from other sources.

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Chapter 5 – AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

5.1 General Origination

- 5.1.1 Aeronautical information shall be provided in the form of aeronautical information products and associated services.
 - **Note.** Specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product are contained in the PANSAIM (Doc 10066), Appendix 1.
- 5.1.2 When aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

5.2 Aeronautical information in a standardized presentation

- 5.2.1 Aeronautical information provided in a standardized presentation shall include the AIP, AIP Amendments, AIP Supplements, AICs, NOTAMs and Aeronautical Charts.
 - **Note 1.—** Detailed specifications about AIP, AIP Amendments, AIP Supplements, AICs and NOTAMs are contained in the PANS-AIM (Doc 10066).
 - **Note 2.—** Cases where digital data sets may replace the corresponding elements of the standardized presentation are detailed in the PANS-AIM (Doc 10066).
- 5.2.1.1 The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.
- 5.2.1.2 The AIP, AIP Amendment, AIP Supplement and AIC as an electronic document (eAIP) should allow for both displaying on a electronic devices and printing on paper.
- 5.2.2 Aeronautical Information Publication (AIP)
 - **Note 1.- AIP** are intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation. When practicable, the form of presentation is designed to facilitate their use in flight.
 - **Note 2.-** AIP constitute the basic information source for permanent information and long duration temporary changes.

5.2.2.1 AIP shall include

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

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- 5.2.3 AIP Supplement
- 5.2.3.1 A checklist of valid AIP Supplements shall be regularly provided
- 5.2.4 Aeronautical Information Circulars (AIC)
- 5.2.4.1 An AIC shall be used to provide:
 - a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
 - b) information of a purely explanatory or advisory nature liable to affect flight safety; or
 - c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.
- 5.2.4.2 An AIC shall not be used for information that qualifies for inclusion in AIP or NOTAM.
- 5.2.4.3 The validity of AIC currently in force shall be reviewed at least once a year.
- 5.2.4.4 A checklist of currently valid AIC regularly provided.

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

5.2.5 Aeronautical Charts

Note. KCASR 4 provides Standards and Recommended Practices including provision requirements for each chart type-

- 5.2.5.1 The aeronautical charts listed alphabetically below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be distributed provided separately to recipients of the AIP:
 - a) Aerodrome/Heliport Chart ICAO;
 - b) Aerodrome Ground Movement Chart ICAO;
 - c) Aerodrome Obstacle Chart ICAO Type A;
 - d) Aerodrome Obstacle Chart ICAO Type B (when available)
 - e) Aerodrome Terrain and Obstacle Chart ICAO (Electronic);
 - f) Aircraft Parking/Docking Chart ICAO;
 - g) Area Chart ICAO;
 - h) ATC Surveillance Minimum Altitude Chart ICAO;
 - i) Instrument Approach Chart ICAO;
 - j) Precision Approach Terrain Chart ICAO;
 - k) Standard Arrival Chart Instrument (STAR) ICAO;
 - I) Standard Departure Chart Instrument (SID) ICAO;
 - m) Visual Approach Chart ICAO.
- 5.2.5.2 The "En-route Chart ICAO" shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.

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- 5.2.5.3 The aeronautical charts listed alphabetically below shall, when available, be provided as aeronautical information products:
 - a) World Aeronautical Chart ICAO 1:1 000 000;
 - b) Aeronautical Chart ICAO 1:500 000;
 - c) Aeronautical Navigation Chart ICAO Small Scale;
 - d) Plotting Chart ICAO chart; and
 - e) ATC Surveillance Minimum Altitude Chart ICAO.
- 5.2.5.4 Electronic aeronautical charts should be provided based on digital databases and the use of geographic information systems.
- 5.2.5.5 The chart resolution of aeronautical data shall be that as specified for a particular chart.

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

5.2.6 NOTAM

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

5.2.6.1 A checklist of valid NOTAM shall be regularly provided

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

5.3 Digital data sets

5.3.1 General

- 5.3.1.1 Digital data shall be in the form of the following data sets:
 - a) AIP data set;
 - b) terrain data sets;
 - c) obstacle data sets;
 - d) aerodrome mapping data sets; and
 - e) instrument flight procedure data sets.

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

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

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

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

5.3.2 AIP data set

- 5.3.2.1 An AIP data set shall be provided covering the extent of information as provided in the AIP.
- 5.3.2.2 When it is not possible to provide a complete AIP data set, the data subset(s) that are available shall be provided.

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

5.3.3 Terrain and obstacle data sets

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

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

- 5.3.3.1 The coverage areas for sets of terrain and obstacle data shall be specified as:
 - Area 1: the entire territory of a State;
 - Area 2: within the vicinity of an aerodrome, subdivided as follows;
 - Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

Note.— See Annex 14, Volume I, Chapter 3, for dimensions for runway strip.

- Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;
- Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and
- Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;
- Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway center line and 50 m from the edge of all other parts of the aerodrome movement area.
- Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway center line in the direction of the approach on a precision approach runway, Category II or III.
- 5.3.3.2 Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold

5.3.3.3 Terrain data sets

- 5.3.3.3.1 Terrain data sets shall contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.
- 5.3.3.3.2 Terrain data shall be provided for Area 1.
- 5.3.3.3 For aerodromes regularly used by international civil aviation, electronic terrain data shall be provided for:

Area 2a;

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- a) the take-off flight path area; and
- b) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.
- 5.3.3.4 For aerodromes regularly used by international civil aviation, additional terrain data shall be provided within Area 2 as follows:
 - a) In the area extending to 10 Km from the ARP, and
 - b) within the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller) where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.
- 5.3.3.5 Arrangements shall be made for the coordination of providing terrain data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same terrain are correct.
- 5.3.3.3.6 For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share terrain data.
- 5.3.3.3.7 For aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for Area 3.
- 5.3.3.3.8 For aerodromes regularly used by international civil aviation, terrain data shall be provided for Area 4 surface specified in Appendix 8, for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.
- 5.3.3.9 Where additional or terrain data is collected to meet other aeronautical requirements, the terrain data sets shall be expanded to include this additional data.

5.3.3.4 Obstacle data sets

- 5.3.3.4.1 Obstacle data sets shall contain the digital representation of the vertical and horizontal extent of obstacles
- 5.3.3.4.2 Obstacles data shall not be included in terrain data sets
- 5.3.3.4.3 The obstacle data shall be provided for obstacles in Area 1 whose height is 100m or higher above ground.
- 5.3.3.4.4 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.
- 5.3.3.4.5 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for:
 - a) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have height of 3 m above the nearest runway elevation measured along the runway center line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;

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- b) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and
- c) penetrations of the aerodrome obstacle limitation surfaces.

Note. Take-off flight path areas are specified in KCASR 4, 3.8.2. Aerodrome obstacle limitation surfaces are specified in KCASR 14, Volume 1, Chapter 4.

- 5.3.3.4.6 For aerodromes regularly used by international civil aviation, obstacle data should be provided for Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant obstacle data collection surface specified as follows:
 - a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side. The Area 2b obstacle collection surface has a 1.2% slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15% to each side;
 - b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2% slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall be the elevation of the point of Area 2a at which it commences; and
 - c) Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground;
 - except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.
- 5.3.3.4.7 Arrangements should be made for the coordination of providing obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle are correct.
- 5.3.3.4.8 For those aerodromes located near territorial boundaries, arrangements should be made among States concerned to share obstacle data.
- 5.3.3.4.9 For aerodromes regularly used by international civil aviation, electronic terrain and obstacle data should be provided for Area 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.
- 5.3.3.4.10 For aerodromes regularly used by international civil aviation obstacle data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established
- 5.3.3.4.11 Where additional obstacle data are collected to meet other aeronautical requirements, the obstacle data sets should be expanded to include these additional data.
 - 5.3.4 Aerodrome mapping data sets.
 - 5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome.

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

- 5.3.4.2 Aerodrome mapping data sets shall be made available for aerodromes regularly used by international civil aviation.
- 5.3.5 Instrument flight procedure data sets
 - 5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.
 - 5.3.5.2 Instrument flight procedures data sets shall be made available for aerodromes regularly used by international civil aviation.
 - **Note.** Arrangements may be made for direct exchange of SNOWTAM (see Appendix 2) between aerodromes/heliports.

5.4 Distribution services

- 5.4.1 General
 - 5.4.1.1 Aeronautical information products shall be distributed to authorized users who request them.
 - 5.4.1.2 AIP, AIP Amendments AIP Supplements and AIC shall be made available by the most expeditious means.
 - 5.4.1.3 Global communication networks such as the Internet shall, whenever practicable, be employed for the provision of aeronautical information products

5.4.2 NOTAM distribution

- 5.4.2.1 NOTAM shall be distributed on the basis of a request.
- 5.4.2.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures
- 5.4.2.3 The Aeronautical Fixed Service (AFS) shall, whenever practicable, be employed for NOTAM distribution.
- 5.4.2.4 When a NOTAM is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text. The originating State shall select the NOTAM that are to be given international distribution.
- 5.4.2.5 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned and between the NOTAM offices and multinational NOTAM Processing Units
- 5.4.2.6 The originating State shall upon request grant distribution of NOTAM series other than those distributed internationally.
- 5.4.2.7 Selective distribution lists shall be used when practicable.

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

5.4.3 Data set information services

5.4.3.1 When provided, the digital data sets specified in 5.3 should be made available through information services.

Note 1.— In the context of system-wide information management, the notion of information service addresses machine-to-machine interaction in a service-oriented architecture.

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Note 2.— Procedures on information services are contained in the Procedures for Air Navigation Services— Information Management (PANS-IM, Doc 10199).

- **Note 3.—** Guidance material on information services can be found in the Manual on System-wide Information Management Implementation (Doc 10203).
- 5.4.3.1.1 A data set information service shall provide, as a minimum, the ability to query and retrieve as a whole each of the digital data sets specified in 5.3.
- 5.4.3.1.2 A data set information service should provide the ability to query and retrieve selected elements of the digital data sets specified in 5.3.
- Note.— Guidance material on how to query digital data sets is contained in the Aeronautical Information Services Manual (Doc 8126), Part IV.
- 5.4.3.1.3 A data set information service should provide the option to subscribe to notifications on data set updates.

5.5 Pre-Flight Information Service

- 5.5.1 For any aerodrome/heliport used for international air operations, aeronautical information relative to the route stages originating at the aerodrome/heliport shall be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.
- 5.5.2 Aeronautical information provided for pre-flight planning purposes shall include information of operational significance from the elements of the aeronautical information products.

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

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

5.6 Post-flight information Service

- 5.6.1 For any aerodrome/heliport used for international air operations shall be made to receive information concerning the state and operation of air navigation facilities or services noted by aircrews.
- 5.6.2 The arrangements specified in 5.6.1 shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.
- 5.6.3 For any aerodrome/heliport used for international air operations, arrangements shall be made to receive information concerning the presence of wildlife hazard observed by aircrews.
- 5.6.4 The information about presence of wildlife hazard shall be made available to the aeronautical information service for such distribution as the circumstances necessitate.

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Chapter 6 – AERONAUTICAL INFORMATION UPDATES

6.1 General specifications

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

6.2 Aeronautical Information Regulation and Control (AIRAC)

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

- a) Limits (horizontal and vertical), regulations and procedures applicable to:
 - 1) flight information regions;
 - 2) control areas:
 - 3) control zones:
 - 4) advisory areas;
 - 5) ATS routes;
 - 6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and ADIZ;
 - 7) permanent areas or routes or portions thereof where the possibility of interception exists.
- b) Positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities
- c) Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures.
- d) Transition levels, transition altitudes and minimum sector altitudes.
- e) Meteorological facilities (including broadcasts) and procedures.
- f) Runways and stopways
- g) Taxiways and aprons.
- h) Aerodrome ground operating procedures (including low visibility procedures).
- i) Approach and runway lighting.
- j) Aerodrome operating minima if published by a State.
- 6.2.1 The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period
- 6.2.2 Information provided under the AIRAC system in shall be made available by the AIS so as to reach recipients at least 28 days in advance of the effective date.
 - Note.- AIRAC Information is distributed by the AIS unit at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.
- 6.2.3 When information has not been submitted by the AIRAC date, a NIL notification shall be, not later than one cycle before the AIRAC effective date concerned.
- 6.2.4 Implementation dates other than AIRAC effective dates shall not be used for preplanned operationally significant changes requiring cartographic work and/or for updating of navigation databases.
- 6.2.5 The regulated system (AIRAC) should also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below:

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- a) Position, height and lighting of navigational obstacles
- b) Hours of service of aerodromes, facilities and services
- c) Customs, immigration and health services.
- Temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft.
- e) Temporary areas or routes or portions thereof where the possibility of interception exists.
- 6.2.6 Whenever major changes are planned and where advance notice is desirable and practicable, information shall be made available by the AIS so as to reach recipients at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in, below, and other major changes if deemed necessary.
 - a) New aerodromes for international IFR operations.
 - b) New runways for IFR operations at international aerodromes.
 - c) Design and structure of the air traffic services route network.
 - d) Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change).
 - e) Circumstances listed in Part 1 6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

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

6.3 Aeronautical Information Product updates

- 6.3.1 AIP updates
- 6.3.1.1 AIP shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.
- 6.3.1.2 Permanent changes to the AIP shall be published as AIP Amendments
- 6.3.1.3 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.
- 6.3.2 NOTAM
- 6.3.2.1 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a "Trigger" NOTAM shall be originated

Note: Detailed specifications concerning the Trigger NOTAM are contained in the PANS-AIM (Doc 10066).

- 6.3.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.
- 6.3.2.3 A NOTAM shall be originated and issued concerning the following information:
 - a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;

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- b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);
- c) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
- d) unavailability of back-up and secondary systems, having a direct operational impact;
- e) establishment, withdrawal or significant changes made to visual aids;
- f) interruption of or return to operation of major components of aerodrome lighting systems;
- g) establishment, withdrawal or significant changes made to procedures for air navigation services;
- h) occurrence or correction of major defects or impediments in the manoeuvring area;
- i) changes to and limitations on availability of fuel, oil and oxygen;
- j) major changes to search and rescue facilities and services available;
- establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
- changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
- m) presence of hazards not otherwise promulgated, which affect air navigation (including obstacles, military exercises and operations, intentional and unintentional radio frequency interferences, rocket launches, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events);
- conflict zones which affect air navigation (to include information that is as specific as possible regarding the nature and extent of threats of that conflict and its consequences for civil aviation);

Note. Guidance related to conflict zones is contained in the Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones (Doc 10084).

- planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;
- p) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
- q) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
- establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
- s) allocation, cancellation or change of location indicators;
- t) significant changes in aerodrome/heliport rescue and firefighting category provided changes in the level of protection normally available at an aerodrome/heliport for rescue and firefighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 17);

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- u) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
- v) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
- w) an operationally significant change in volcanic activity, the location, date and time
 of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud,
 including direction of movement, flight levels and routes or portions of routes which
 could be affected;
- release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
- y) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
- implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

Note. See KCASR 11 – Vol-I, 2.31 and attachment V to that Regulation.

Note. Specifications concerning the timely promulgation of information by NOTAM are contained in Chapter 6 of the Procedures for Air Navigation Services — Aeronautical Information Management (PANSAIM, Doc 10066).

6.3.2.4 The following information shall not be notified by NOTAM:

- routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;
- b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;
- c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;
- d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;
- e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;
- f) the lack of apron marshalling services and road traffic control;
- g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;
- h) parachuting when in uncontrolled airspace under VFR (see 5.1.1.1 l) 6.3.2.3 m) when controlled, at promulgated sites or within danger or prohibited areas;
- i) training activities by ground units;
- j) unavailability of back-up and secondary systems if these do not have an operational impact:
- k) limitations to airport facilities or general services with no operational impact;
- I) national regulations not affecting general aviation;
- m) announcement or warnings about possible/potential limitations, without any operational impact;
- n) general reminders on already published information:
- o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;

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- p) information about laser emissions without any operational impact and fireworks below minimum flying heights;
- q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
- r) closure, changes, unavailability in operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours;
- s) other non-operational information of a similar temporary nature.

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

- 6.3.3 Data set updates
- 6.3.3.1 Data sets shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.
- 6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a sub-set that includes only the differences from the previously issued complete data set.
- 6.3.3.3 When made available as a completely re-issued data set, the differences from the previously issued complete data set shall be indicated.
- 6.3.3.4 When temporary changes of short duration are made available as digital data (Digital NOTAM), they shall use the same aeronautical information model as the complete data set.
- 6.3.3.5 Updates to AIP and the digital data sets shall be synchronized.

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APPENDIX 1 - CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)

(See Chapter 4)

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" must 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 must be included in each volume.

GEN 0.1 Preface

Brief description of the Aeronautical Information Publication (AIP), including:

- 1) name of the publishing authority;
- 2) applicable ICAO documents;
- 3) publication media (i.e. printed, online or other electronic media);
- 4) the 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.

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GEN 0.4 Checklist of AIP pages

A checklist of AIP pages containing:

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

GEN 0.5 List of hand amendments to the AIP

A list of current hand amendments to the AIP containing:

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

GEN 0.6 Table of contents to Part 1

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

Note.-Subsections may be listed alphabetically.

GEN 1 NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 Designated authorities

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

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

GEN 1.2 Entry, transit and departure of aircraft

Regulations and requirements for advance notification and applications for permission concerning entry, transit and departure of aircraft on international flights.

GEN 1.3 Entry, transit and departure of passengers and crew

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

GEN 1.4 Entry, transit and departure of cargo

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

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

GEN 1.5 Aircraft instruments, equipment and flight documents

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

- instruments, equipment (including aircraft communication, navigation and surveillance equipment) and flight documents to be carried on aircraft, including any special requirement in addition to the provisions specified in Annex 6, Part I, Chapters 6 and 7; and
- 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 meetings, 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 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 must be listed under this subsection. All Annexes must be listed in numerical order even if there is no difference to an Annex, in which case a NIL notification must be provided. National differences or the degree of non-application of the regional supplementary procedures (SUPPs) must 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

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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 Annex 11 and 14 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 Annex 14 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 AIS publications

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

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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) must be provided.

GEN 2.5 List of radio navigation aids

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.

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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 aeronautical information service.

GEN 3.1.3 Aeronautical publications

Description of the elements of the Integrated Aeronautical Information Package, 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 must 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:

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- 1) elements of the Integrated Aeronautical Information Packages held;
- 2) maps and charts held; and
- 3) general area of coverage of such data.

GEN 3.1.6 Electronic terrain and obstacle data

Details of how electronic terrain and obstacle data may be obtained, containing:

- 1) name of the individual, service or organization responsible;
- 2) street address and e-mail address of the individual, service or organization responsible;
- 3) telefax number of the individual, service or organization responsible;
- 4) contact telephone number of the individual, service or organization responsible;
- 5) hours of service (time period including time zone when contact can be made);
- 6) online information that can be used to contact the individual, service or organization; and
- 7) 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;
- 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:

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- 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 1:1000000

An index chart showing coverage and sheet layout for the WAC 1:1000000 produced by a State. If Aeronautical Chart - ICAO 1:500000 is produced instead of WAC 1:1000000, index charts must be used to indicate coverage and sheet layout for the Aeronautical Chart - ICAO 1:500000.

GEN 3.2.7 Topographical charts

Details of how topographical charts may be obtained, containing:

- 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.

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GEN 3.3 Air traffic services

GEN 3.3.1 Responsible service

Description of the air traffic service 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 air traffic services are provided.

GEN 3.3.3 Types of services

Brief description of main types of air traffic services provided.

GEN 3.3.4 Coordination between the operator and ATS

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

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 services

GEN 3.4.1 Responsible service

Description of the service responsible for the provision of telecommunication and

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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:

- 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;
- postal address;
- 3) telephone number;
- 4) telefax number;
- 5) e-mail address:
- 6) AFS address;
- 7) website address, if available;

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- 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 authority from operators in respect of briefing, consultation and flight documentation and other meteorological information they require or change.

GEN 3.5.6 Aircraft reports

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

GEN 3.5.7 VOLMET service

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

- 1) name of transmitting station;
- call sign or identification and abbreviation for the radio communication emission;
- 3) frequency or frequencies used for broadcast;
- 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.

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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, 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) the air traffic services 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;
- 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 search and rescue 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

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

GEN 3.6.6 Procedures and signals used

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

GEN 4. CHARGES FOR AERODROMES/HELIPORTS AND AIR NAVIGATION SERVICES

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.

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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 must be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" must be entered against each of the above subsections.

ENR 0.6 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

The 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 must 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.

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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

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;
- basic altimeter setting procedures;

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- description of altimeter setting region(s);
- 4) procedures applicable to operators (including pilots); and
- 5) table of cruising levels.

ENR 1.8 Regional supplementary procedures

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

ENR 1.9 Air traffic flow management and airspace management

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

- 1) ATFM structure, service area, service provided, location of unit(s) and hours of operation;
- 2) types of flow messages and descriptions of the formats; and
- 3) procedures applicable for departing flights, containing:
 - a) service responsible for provision of information on applied ATFM measures;
 - b) flight plan requirements; and
 - c) slot allocations.
- 4) information on overall responsibility regarding airspace management within FIR(s), details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation) and general operating procedures.

ENR 1.10 Flight planning

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

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

ENR 1.11 Addressing of flight plan messages

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

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

ENR 1.12 Interception of civil aircraft

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

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

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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;
- 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.AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, UIR, TMA AND CTA

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

- name, geographical coordinates in degrees and minutes of the FIR/UIR lateral limits and in degrees, minutes and seconds of the CTA lateral limits, vertical limits and class of airspace;
- 2) identification of unit providing the service;
- 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.

Control zones around military air bases not otherwise described in the AIP must 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 must 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.

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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 Lower ATS routes

Detailed description of lower ATS 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) 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;
- 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, the defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.2 Upper ATS routes

Detailed description of upper ATS routes, including:

- route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including "compulsory" or "on-request" reporting points;
- 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 and airspace classification;
- 4) lateral limits;
- 5) direction of cruising levels;

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- 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 3.3 Area navigation routes

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 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;
- 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 3.4 Helicopter routes

Detailed description of helicopter 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) 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

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points;

- 3) upper and lower limits and airspace classification;
- 4) minimum flight altitudes to the nearest higher 50 m or 100 ft;
- the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and
- 6) remarks, including an indication of the controlling unit, its operating channel, and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.- In relation 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

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

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

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

- name of the station and magnetic variation to the nearest degree and for VOR, station declination to the nearest degree used for technical line-up of the aid;
- 2) identification;
- 3) frequency/channel for each element;
- 4) hours of operation;
- 5) geographical coordinates in degrees, minutes and seconds of the position of

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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 must be indicated in the remarks column. Facility coverage must be indicated in the remarks column.

ENR 4.2 Special navigation systems

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

- 1) name of station or chain;
- 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 must be indicated in the remarks column. Facility coverage must 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 must be indicated in the remarks column.

ENR 4.4 Name-code designators for significant points

An alphabetically arranged list of 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

A list of aeronautical ground lights and other light beacons designating geographical positions which are selected by the State as being significant, including:

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- 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

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 must be indicated in the remarks column.

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

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:

- 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:
- 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

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

- 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

Description, supplemented by charts where appropriate, of other potential hazards that could affect flights (e.g. active volcanoes, nuclear power stations, etc.)

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including:

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

ENR 5.4 Air navigation obstacles

The list of obstacles affecting air navigation in Area 1 (the entire State territory), including:

- 1) obstacle identification or designation;
- 2) type of obstacle;
- obstacle position, represented by geographical coordinates in degrees, minutes and seconds;
- 4) obstacle elevation and height to the nearest metre or foot;
- 5) type and colour of obstacle lighting (if any); and
- 6) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6.
- **Note 1.-** An obstacle whose height above the ground is 100 m and higher is considered an obstacle for Area 1.
- **Note 2.**-Specifications governing 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 Annex 11, Appendix 5, Tables 1 and 2, respectively.

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

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

Note.- This paragraph 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

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of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments must be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" must be entered against each of the above subsections.

AD 0.6 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 (LVP)

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 fire fighting services and snow plan

AD 1.2.1 Rescue and fire fighting services

Brief description of rules governing the establishment of rescue and fire fighting services at aerodromes and heliports available for public use together with an indication of rescue and fire fighting 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;
- surveillance of movement areas;
- 3) measuring methods and measurements taken;
- 4) actions taken to maintain the usability of movement areas;

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- 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 subparagraph may be subdivided accordingly.

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 (e.g. 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 must 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;
- direction and distance of aerodrome reference point from centre of the city or town which the aerodrome serves;
- aerodrome elevation to the nearest metre or foot, and reference temperature;
- 4) where appropriate, geoid undulation at the aerodrome elevation position to the nearest metre or foot;

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- 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:

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- 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 fire fighting services

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

- 1) aerodrome category for fire fighting;
- 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:

- designation, surface and strength of aprons;
- 2) designation, width, surface and strength of taxiways;
- 3) location and elevation to the nearest metre or foot of altimeter checkpoints;
- Iocation 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 must 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

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docking/parking guidance system at aircraft stands;

- 2) runway and taxiway markings and lights;
- 3) stop bars (if any); and
- 4) remarks.

AD 2.10 Aerodrome obstacles

Detailed description of obstacles, including:

- 1) obstacles in Area 2:
 - a) obstacle identification or designation;
 - b) type of obstacle;
 - 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);
 - f) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
 - g) NIL indication, if appropriate.
 - **Note 1.**-Chapter 10, 10.1.1, provides a description of Area 2 while Appendix 8, Figure A8-2, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.
 - **Note 2.**-Specifications governing 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 Annex 11, Appendix 5, Tables 1 and 2, and in Annex 14, Volume I, Appendix 5, Tables A5-1 and A5-2, respectively.
- 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;
 - 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 in electronic form, and a reference to GEN 3.1.6; and
 - g) NIL indication, if appropriate.

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- **Note 1.** Chapter 10, 10.1.1, provides a description of Area 3 while Appendix 8, Figure A8-3, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.
- Note 2.- Specifications governing 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 Annex 14, Volume I, Appendix 5, Tables A5-1 and A5-2, respectively.

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;
- 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;
- 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, etc.).

AD 2.12 Runway physical characteristics

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

- designations;
- 2) true bearings to one-hundredth of a degree;
- dimensions of runways to the nearest metre or foot;
- strength of pavement (PCN and associated data) and surface of each runway and associated stop ways;
- 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;

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- 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 must 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, secondary power supply

Description of other lighting and secondary power supply, including:

1) location, characteristics and hours of operation of aerodrome beacon/identification

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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

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

- 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

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Detailed description of air traffic services communication facilities established at the aerodrome, including:

- 1) service designation;
- 2) call sign;
- 3) channel(s);
- 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

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

- type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS, and GBAS and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;
- 2) identification, if required;
- frequency(ies), channel number(s), service provider, and reference path identifier(s) (RPI), as appropriate;
- 4) hours of operation, as appropriate;
- 5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;
- 6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft), elevation of GBAS reference point to the nearest 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 must also be given in section ENR 4. If the ground-based augmentation system (GBAS) serves more than one aerodrome, description of the aid must 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 must be indicated in the remarks column. Facility coverage must 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

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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:

- 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 Terrain and Obstacle Chart ICAO (Electronic);
- 6) Precision Approach Terrain Chart ICAO (precision approach Cat II and III runways);
- 7) Area Chart ICAO (departure and transit routes);
- Standard Departure Chart Instrument ICAO;
- 9) Area Chart ICAO (arrival and transit routes);
- 10) Standard Arrival Chart Instrument ICAO;
- 11) ATC Surveillance Minimum Altitude Chart ICAO;
- 12) Instrument Approach Chart ICAO (for each runway and procedure type);
- 13) Visual Approach Chart ICAO; and
- 14) bird concentrations in the vicinity of the aerodrome.

If some of the charts are not produced, a statement to this effect must be given in section GEN 3.2, Aeronautical charts.

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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 3. HELIPORTS

When a helicopter landing area is provided at the aerodrome, associated data must 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 must 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, and reference 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;

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- 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 helicopter;
- 6) repair facilities for visiting helicopter; 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 fire fighting services

Detailed description of the rescue and fire fighting services and equipment available at the heliport, including:

- 1) heliport category for fire fighting;
- 2) rescue equipment;
- 3) capability for removal of disabled helicopter; 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.

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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 must 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:

- 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

Detailed description of obstacles, including:

- obstacle identification or designation;
- 2) type of obstacle;
- obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
- 4) obstacle elevation and height to the nearest metre or foot;
- 5) obstacle marking, and type and colour of obstacle lighting (if any);
- 6) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
- 7) 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;

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- 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 air traffic services unit(s) provided with meteorological information; and
- 10) additional information (e.g. concerning any limitation of service, etc.).

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 (1000 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

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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, 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

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 air traffic services communication facilities established at the heliport, including:

- 1) service designation;
- 2) call sign;
- frequency(ies);
- 4) hours of operation; and

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5) remarks.

AD 3.18 Radio navigation and landing aids

Detailed description of radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the heliport, including:

- type of aids, magnetic variation (for VOR, station declination used for technical lineup of the aid) to the nearest degree, and type of operation for ILS, MLS, basic GNSS, SBAS and GBAS;
- 2) identification, if required;
- 3) frequency(ies), 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); and
- 7) remarks.

When the same aid is used for both en-route and heliport purposes, a description must also be given in section ENR 4. If the ground-based augmentation system (GBAS) serves more than one heliport, description of the aid must 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 must be indicated in the remarks column. Facility coverage must 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

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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.

APPENDIX 2 SNOWTAM FORMAT

	(PRIORITY INDICATO		(ADDRE)	(SES)														400
(COM heading)	(DATE AN	D TIME	<u> </u>		CRIGINATORS							ection.						
	OF FILING							(OPTIONAL GROUP)										
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heading)	5 W -	•																edit(
SINOM	ITAM	(Serial num	(ber)	_	\rightarrow													
			Aerop	ane pe	rformance	sectio												
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(DATE/TIM	E OF ASSE	SSMENT (TI	me of comp	edon o	anaemme	ertile (/)	rcg)							m)				
(LOWER R	UNWAY DE	SIGNATORS	0									M		C)				
	CONDITION AM) 0, 1, 2, :	000E ON 3, 4, 5 or 6	EACH THE	ID OF	RUNWAY	(From	Rumen	y Cont	ittion i	Annes.	ument	M		D)	- 1	I	•	
PER CENT	COVERAG	E CONTAMI	MANT FOR	CACHI	RUNWAYT	THIRD						0		E)	- 1	1		
DEPTH (m	m) OF LOOS	E CONTAM	MANT FOR	DACH	THIRD OF	RUNA	AAN)							F)	- 1	1		
CONDITIO	ON DESCRIP	TION OVER	TOTAL RU	MWAY	LENGTH							M	T	G)	- 1			
COMPACTED SNOW DRY 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 WET SNOW WET SNOW WET SNOW ON TOP OF COMPACTED SNOW																		
(WIDTH O	FRUNWAY	TO WHICH T	HE RWYC	in APP	LY, IF LES	S THAI	PUBL	CHED	WILD	10		0	ı	H)				400
			Situat	ional a	Wareness	section	1											
(REDUCED	DRUMWAYI	LENGTH, IF	LESS THAI	PUBL	ISHED LES	HGTH (m(i)					0		ŋ				
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LOOSE SA	ND ON THE	RUMWAY											ı	K)			-	ı
CHEMICAL	TREATMEN	NT ON RUNY	MAY									0	-	L)				
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SNOWBANKS ADJACENT TO THE RUNWAY						0		N)										
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(TAXIWAY CONDITIONS)							0		P)									
(APRON CONDITIONS)							0	\bot	R)									
(MEASURED FRICTION COEFFICIENT)							0	_	5)									
NOTES: 1. "Ente Identi 2. "Infor 3. "Infor	filer. mation on ot mation in the cable when n	onality letters her runways. Situational	recent from Awareness	B to H section	il.									D) -edili

SIGNATURE OF ORIGINATOR (not for transmission)

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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 PANS-Aerodromes (Doc 9981).

1. General

- a) When reporting on more than one runway, repeat Items B to H (the Aeroplane performance 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 shall be included as explained below.
- c) Metric units shall be used and the unit of measurement not reported.
- d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received.
- e) A SNOWTAM cancels the previous SNOWTAM.
- f) The abbreviated heading "TTAAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for SNOWTAM = SW;

AA = geographical designator for States, e.g. LF = FRANCE, EG = United

Kingdom (see Location Indicators (Doc 7910), Part 2, Index to Nationality

Letters for Location Indicators);

iiii = SNOWTAM serial number in a four-digit group;

CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM

refers (see Location Indicators (Doc 7910));

MMYYGGgg = date/time of observation/measurement, whereby: MM = month, e.g.

January = 01, December = 12

YY = day of the month

GGgg = time in hours (GG) and minutes (gg) UTC; (BBB) = optional group for:

Correction, in the case of an error, to 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/measurement are indicated by repeated Item B, the latest date/time of observation/measuring 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) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, and after the aeroplane performance section.
- h) 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.

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- i) Mandatory information is:
 - i) AERODROME LOCATION INDICATOR
 - ii) DATE AND TIME OF ASSESSMENT
 - iii) LOWER RUNWAY DESIGNATOR NUMBER
 - iv) RUNWAY CONDITION CODE FOR EACH RUNWAY THIRD
 - v) CONDITION DESCRIPTION FOR EACH RUNWAY THIRD (when runway condition code is reported 1-5)
- 2. Aeroplane performance calculation section
 - Item A Aerodrome location indicator (4-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 lowest 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.
 - 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.

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.
- Item G Condition description for each 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

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DRY SNOW ON TOP OF ICE

FROST

ICE

SLUSH

STANDING WATER

WATER ON TOP OF COMPACTED SNOW

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.

Item H — Width of RWY to which the RWYCCs 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 is 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 lowest runway designator and with a space "LOOSE SAND" (example: RWY nn or RWY nn[L] or nn[C] or nn[R] LOOSE SAND).
- Item L Chemical treatment on RWY. When chemical treatment has been reported applied, insert the lowest runway designator and with a space "CHEMICALLY TREATED" (example: RWY nn or RWY nn[L] or nn[C] or nn[R] CHEMICALLY TREATED).
- Item M Snow banks on the runway. When critical snow banks are reported present on the runway, insert the runway designator and with a space "SNOWBANK" and with a space left "L" or right "R" or both sides "LR", followed by the distance in metres from centreline separated by a space FM CL (example: RWY nn or RWY nn[L] or nn[C] or nn[R] SNOWBANK Lnn or Rnn or LRnn FM CL).
- Item N Snow banks on the taxiway. When critical snow banks are present on a taxiway, insert the taxiway designator and with a space "SNOWBANK" and with a space left "L" or right "R" or both sides "LR", followed by the distance in metres from centreline separated by a space FM CL (example: TWY [nn]n SNOWBANK Lnn or Rnn or LRnn FM CL).
- Item O Snow banks adjacent to the runway. When snow banks are reported present penetrating the height profile in the aerodrome snow plan, insert lowest runway designator and "ADJ SNOWBANKS" (example: RWY nn or RWY nn[L] or nn[C] or nn[R] ADJ SNOWBANKS).
- Item P Taxiway conditions. When taxiway conditions are reported slippery or poor insert taxiway designator followed by a space "POOR". (example: TWY [n or nn] POOR or

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ALL TWY POOR).

- Item R Apron conditions. When apron conditions are reported slippery or poor insert apron designator followed by a space "POOR" (example: 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 those States that have an established program of runway friction measurement using State approved friction measuring equipment.

Item T — Plain language remarks.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

Example SNOWTAM 1

GG EADBZQZX EADNZQZX EADSZQZX 070645 EADDYNYX SWEA0149 EADD 02170055 (SNOWTAM 0149 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/NR WET/WET/WET)

Example SNOWTAM 2

GG EADBZQZX EADNZQZX EADSZQZX 070645 EADDYNYX SWEA0149 EADD 02170135 (SNOWTAM 0150 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/NR WET/WET/WET EADD 02170135 09R 5/4/3 100/50/75 NR/06/06 WET/SLUSH/SLUSH)

Example SNOWTAM 3

GG EADBZQZX EADNZQZX EADSZQZX 070645 EADDYNYX SWEA0149 EADD 02170225 (SNOWTAM 0151 EADD 02170055 09L 5/5/5 100/100/100 NR/NR/NR WET/WET/WET EADD 02170135 09R 5/4/3 100/50/75 NR/06/06 WET/SLUSH/SLUSH EADD 02170225 09C 3/2/1 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW RWY 09L SNOWBANK R20 FM CL. RWY 09R ADJ SNOWBANKS. TWY B POOR. APRON NORTH POOR)

Example SNOWTAM 4

GG EADBZQZX EADNZQZX EADSZQZX 070645 EADDYNYX SWEA0149 EADD 02170345 (SNOWTAM 0152 EADD 02170345 09L 5/5/5 100/100/100 NR/NR/NR WET/WET/WET EADD 02170134 09R 5/4/3 100/50/75 NR/06/06 WET/SLUSH/SLUSH EADD 02170225 09C 3/2/1 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.)

Note.- See the Aeronautical Information Services Manual (Doc 8126) for additional SNOWTAM examples incorporating different runway conditions.

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APPENDIX 3 ASHTAM FORMAT

APPENDIX 3. ASHTAM FORMAT

(see Chapter 5, 5.2.4)

(COM	(PRIORITY INDICATOR)	(ADDRESSEE IN	DICATOR(S))1		
heading)	(DATE AND TIME OF FILING)		(ORIGINATOR'S INDICATOR)		
(Abbreviated heading)	(VA*2 SEF	RIAL NUMBER)	(LOCATION INDICATOR)	DATE/TIME OF ISSUANCE	(OPTIONAL GROUP)
	ASHTAM	0	(SERIAL NUMBER)		
(FLIGHT INFO	RMATION REGION A	FFECTED)		Se	A)
(DATE/TIME (UTC) OF ERUPTION)				В)
(VOLCANO N	AME AND NUMBER)				C)
(VOLCANO LA	ATITUDE/LONGITUDE	OR VOLCANO RAD	IAL AND DISTANCE FROM	/ NAVAID)	D)
(VOLCANO LE	EVEL OF ALERT COLO	OUR CODE, INCLUD	ING ANY PRIOR LEVEL O	F ALERT COLOUR CODE)3	E)
(EXISTENCE	AND HORIZONTAL/VE	RTICAL EXTENT OF	F VOLCANIC ASH CLOUD)	,	F)
(DIRECTION (OF MOVEMENT OF AS	SH CLOUD) ⁴			G)
(AIR ROUTES	OR PORTIONS OF A	R ROUTES AND FL	IGHT LEVELS AFFECTED)	(Н)
(CLOSURE OF AVAILABLE)	F AIRSPACE AND/OR	AIR ROUTES OR PO	ORTIONS OF AIR ROUTES	S, AND ALTERNATIVE AIR ROUTES	J)
(SOURCE OF	INFORMATION)				J)
(PLAIN-LANG	UAGE REMARKS)				к)
NOTES:	62 HARRION HAR	NAMES SERVICES US	\$253 \$500 AA MERSON		ž.
*Enter IC/ See parag Advice on the FIR co	AO nationality letter as graph 3.5 below.	given in ICAO Doc 7		ibution systems. may be obtained from the Volcanic Ash A	dvisory Centre(s) responsible for

SIGNATURE OF ORIGINATOR (not for transmission)

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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 section 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 must be issued whenever there is a change in the level of alert.

2. Abbreviated heading

- 2.1 Following the usual 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.

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- 3.3 Item C Name of volcano, and number of volcano as listed in the ICAO Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691), Appendix H, 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 the ICAO Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691), Appendix H, 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.
TEERT	or, after a change from 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 forecasted 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 fpossible].

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* Source of the information, e.g. "special air-report" or "vulcanological agency", etc. The source of information 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

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foregoing.

APPENDIX 4 - INFORMATION TO BE NOTIFIED BY AIRAC

(see Chapter 6, 6.1.1)

PART 1

- 1. The establishment and withdrawal of, and premeditated significant changes (including operational trials) to:
- 1.1 Limits (horizontal and vertical), regulations and procedures applicable to:
 - a) flight information regions;
 - b) control areas;
 - c) control zones;
 - d) advisory areas;
 - e) ATS routes;
 - f) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and ADIZ;
 - g) permanent areas or routes or portions thereof where the possibility of interception exists.
- 1.2 Positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities.
- 1.3 Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures.
- 1.4 Transition levels, transition altitudes and minimum sector altitudes.
- 1.5 Meteorological facilities (including broadcasts) and procedures.
- 1.6 Runways and stopways.
- 1.7 Taxiways and aprons.
- 1.8 Aerodrome ground operating procedures (including low visibility procedures).
- 1.9 Approach and runway lighting.
- 1.10 Aerodrome operating minima if published by a State.

PART 2

- 2. The establishment and withdrawal of, and premeditated significant changes to:
- 2.1 Position, height and lighting of navigational obstacles.
- 2.2 Hours of service of aerodromes, facilities and services.
- 2.3 Customs, immigration and health services.
- 2.4 Temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft.
- 2.5 Temporary areas or routes or portions thereof where the possibility of interception exists.

PART 3

- 3. The establishment of, and premeditated major changes to:
- 3.1 New aerodromes for international IFR operations.
- 3.2 New runways for IFR operations at international aerodromes.
- 3.3 Design and structure of the air traffic services route network.

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- 3.4 Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change).
- 3.5 Circumstances listed in Part 1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.



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APPENDIX 5 - PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM

(see Chapter 5, 5.3.4.2, 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 AFS direct to designated addressees predetermined by the receiving country 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 country.

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.

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APPENDIX 6 - NOTAM FORMAT

APPENDIX 6. NOTAM FORMAT

(see Chapter 5, 5.2.1)

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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.

4. 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 field 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 (Doc 8400) or in the NOTAM Selection Criteria (Doc 8126), insert "XX" as the second and third letters (e.g. QXXAK);
- 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);

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- c) When a NOTAM containing operationally significant information is issued in accordance with Appendix 4 and Chapter 6 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 = O perational is used for NOTAM cancellation, NOTAM promulgating new equipment or services use the following fourth and fifth letters Q CS = I 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 it is 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.

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5) SCOPE

A = Aerodrome

E = En-route

W = Nav Warning

K = Nav Warning

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. If the subject is qualified AE, the aerodrome location indicator must be reported in Item A).

6) and

7) LOWER/UPPER

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 location indicator as contained in ICAO 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,

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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.

Note.-For NOTAM examples see Doc 8126 and the PANS-ABC (Doc 8400).

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APPENDIX 7 - AERONAUTICAL DATA PUBLICATION RESOLUTION AND INTEGRITY CLASSIFICATION

Table A7-1. Latitude and longitude

Latitude and longitude	Publication resolution	Integrity classification
Flight information region boundary points	1 min	routine
P, R, D area boundary points (outside CTA/CTR boundaries)	1 min	routine
P, R, D area boundary points (inside CTA/CTR boundaries)	1 sec	essential
CTA/CTR boundary points	1 sec	essential
En-route NAVAIDS, intersections and waypoints, and holding, and STAR/SID points	1 sec	essential
Obstacles in Area 1 (the entire State territory)	1 sec	routine
Aerodrome/heliport reference point	1 sec	routine
NAVAIDS located at the aerodrome/heliport	1/10 sec	essential
Obstacles in Area 3	1/10 sec	essential
Obstacles in Area 2	1/10 sec	essential
Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	1/10 sec	essential
Runway threshold	1/100 sec	critical
Runway end	1/100 sec	critical
Runway holding position	1/100 sec	critical
Taxiway centre line/parking guidance line points	1/100 sec	essential
Taxiway intersection marking line	1/100 sec	essential
Exit guidance line	1/100 sec	essential
Aircraft stand points/INS checkpoints	1/100 sec	routine
Geometric centre of TLOF or FATO thresholds, heliports	1/100 sec	critical
Apron boundaries (polygon)	1/10 sec	routine
De-icing/anti-icing facility (polygon)	1/10 sec	routine

Note. — See Appendix 8 for graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in the defined areas.

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Table A7-2. Elevation/altitude/height

Elevation/altitude/height	Publication resolution	Integrity classification
Aerodrome/heliport elevation	1 m or 1 ft	essential
WGS-84 geoid undulation at aerodrome/heliport elevation position	1 m or 1 ft	essential
GBAS reference point	1 m or 1 ft	essential
Heliport crossing height, PinS approaches	1 m or 1 ft	essential
Runway or FATO threshold, non-precision approaches	1 m or 1 ft	essential
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric centre, non-precision approaches	1 m or 1 ft	essential
Runway or FATO threshold, precision approaches	0.1 m or 0.1 ft	critical
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric centre, precision approaches	0.1 m or 0.1 ft	critical
Threshold crossing height (reference datum height), precision approaches	0.1 m or 0.1 ft	critical
Obstacles in Area 2	1 m or 1 ft	essential
Obstacles in Area 3	0.1 m or 0.1 ft	essential
Obstacles in Area 1 (the entire State territory)	1 m or 1 ft	routine
Distance measuring equipment/precision (DME/P)	3 m (10 ft)	essential
Distance measuring equipment (DME)	30 m (100 ft)	essential
Minimum altitudes	50 m or 100 ft	routine

Note.- See Appendix 8 for graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in the defined areas.

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Table A7-3. Declination and magnetic variation

Declination/variation	Publication resolution	Integrity classification
VHF NAVAID station declination used for technical line-up	1 degree	essential
NDB NAVAID magnetic variation	1 degree	routine
Aerodrome/heliport magnetic variation	1 degree	essential
ILS localizer antenna magnetic variation	1 degree	essential
MLS azimuth antenna magnetic variation	1 degree	essential

Table A7-4. Bearing

Bearing	Publication resolution	Integrity classification
Airway segments	1 degree	routine
Bearing used for the formation of an en-route and a terminal fix	1/10 degree	routine
Terminal arrival/departure route segments	1 degree	routine
fix	1/100 degree	essential
ILS localizer alignment (True)	1/100 degree	essential
MLS zero azimuth alignment (True)	1/100 degree	essential
Runway and FATO bearing (True)	1/100 degree	routine



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Table A7-5. Length/distance/dimension

Length/distance/dimension	Publication resolution	Integrity classification	
Airway segment length	1/10 km or 1/10 NM	routine	
Distance used for the formation of an en-route fix	1/10 km or 1/10 NM	routine	
Terminal arrival/departure route segment length	1/100 km or 1/100 NM	essential	
Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km or 1/100 NM	essential	
Runway and FATO length, TLOF dimensions	1 m or 1 ft	critical	
Runway width	1 m or 1 ft	essential	
Displaced threshold distance	1 m or 1 ft	routine	
Clearway length and width	1 m or 1 ft	essential	
Stopway length and width	1 m or 1 ft	critical	
Landing distance available	1 m or 1 ft	critical	
Take-off run available	1 m or 1 ft	critical	
Take-off distance available	1 m or 1 ft	critical	
Accelerate-stop distance available	1 m or 1 ft	critical	
Runway shoulder width	1 m or 1 ft	essential	
Taxiway width	1 m or 1 ft	essential	
Taxiway shoulder width	1 m or 1 ft	essential	
Length/distance/dimension	Publication resolution	Integrity classification	
ILS localizer antenna-runway end, distance	1 m or 1 ft	routine	
ILS glide slope antenna-threshold, distance along centre line	1 m or 1 ft	routine	
ILS marker-threshold distance	1 m or 1 ft	essential	
ILS DME antenna-threshold, distance along centre line	1 m or 1 ft	essential	
MLS azimuth antenna-runway end, distance	1 m or 1 ft	routine	
MLS elevation antenna-threshold, distance along centre line	1 m or 1 ft	routine	
MLS DME/P antenna-threshold, distance along centre line	1 m or 1 ft	essential	

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APPENDIX 8 - TERRAIN AND OBSTACLE DATA REQUIREMENTS

(see Chapter 10)

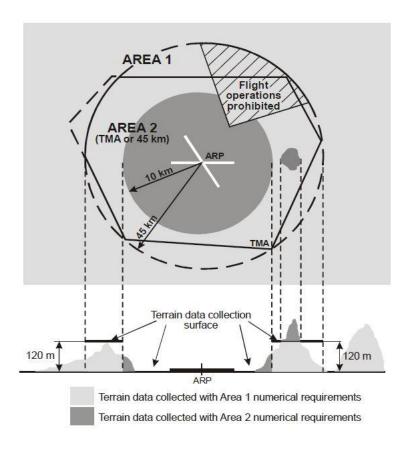


Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

- 1. Within the area covered by a 10-km radius from the ARP, terrain data shall comply with the Area 2 numerical requirements.
- 2. In the area between 10 km and the 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 Table A8-1.

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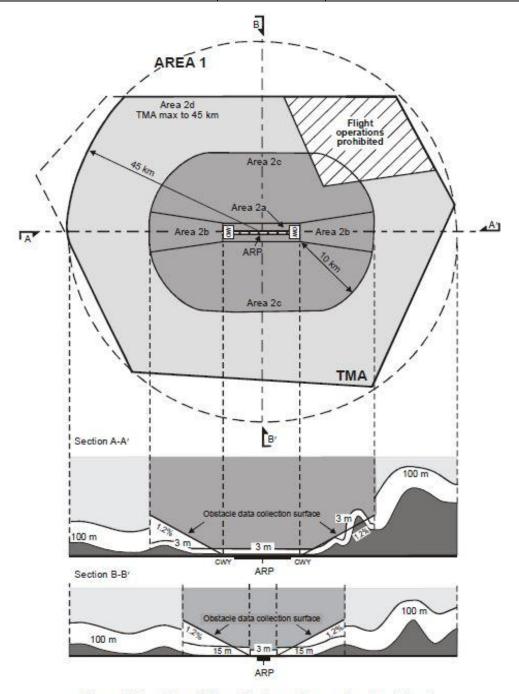


Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2



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- 1. Obstacle data shall be collected and recorded in accordance with the Area 2 numerical requirements specified in Table A8-2:
 - Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest

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runway end;

- b) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side. The Area 2b obstacle collection surface has a 1.2% slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15% to each side. Obstacles less than 3 m in height above ground need not be collected;
- c) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2% slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall be the elevation of the point of Area 2a at which it commences. Obstacles less than 15 m in height above ground need not be collected; and
- d) Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground.
- 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 Table A8-2.



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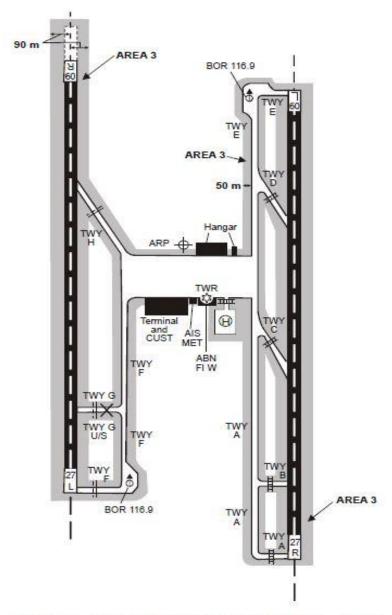


Figure A8-3. Terrain and obstacle data collection surface — Area 3



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- 1. The data collection surface for terrain and obstacles extends a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.
- 2. Terrain and obstacle data in Area 3 shall comply with the numerical requirements specified in Table A8-1 and Table A8-2, respectively.

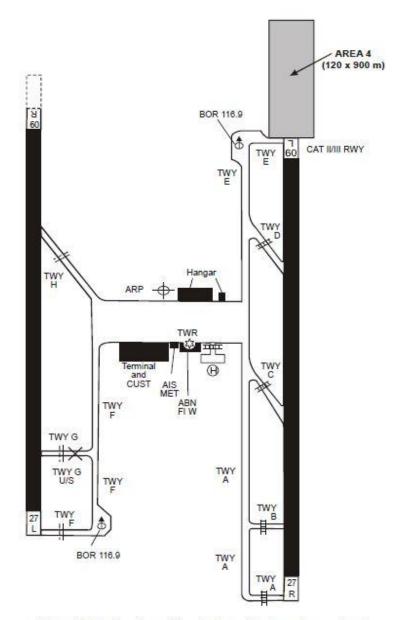


Figure A8-4. Terrain and obstacle data collection surface — Area 4



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Terrain and obstacle data in Area 4 shall comply with the numerical requirements specified in Table A8-1 and Table A8-2 respectively.

Note.- Area 4 may be extended in accordance with 10.1.2.

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Table A8-1. Terrain data numerical requirements

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

Table A8-2. Obstacle data numerical requirements

	Area 1	Area 2	Area 3	Area 4
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level	90%	90%	90%	90%
Integrity classification	routine	essential	essential	essential
Maintenance period	as required	as required	as required	as required



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Table A8-3.	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

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Table A8-4.	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

<u>END</u>

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Affected Pages from Last Update

#	Page	Amendmant
1.	4	[TABLE] 3 Oct 2025 NPA 2025-02 updated to ICAO annex 15 (Amendment 44)
2.	37	observations or forecasts of solar cosmic radiation, where provided space weather phenomena, the date and time of their occurrence, the flight levels where provided, and portions of the airspace which may be affected by the phenomena; an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;