GHANA CIVIL AVIATION
(AIR NAVIGATION SERVICES)
DIRECTIVES

PART 15 – AERONAUTICAL INFORMATION SERVICES

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15.1 GENERAL

15.1.1 INTRODUCTION

(1) The object of the Aeronautical Information Service is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity, economic 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.

(2) These Directives shall be used in conjunction with the following:

(a) Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400);

(b) Aeronautical Information Management (PANS-AIM, Doc 10066); and

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

15.1.2 DEFINITIONS

When the following terms are used in this Part, they shall 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.

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

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

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

interpretation or processing.

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

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

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

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

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

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.

~~***AIS Section***~~***AIS Provider***. The Section under the Directorate of the Air Navigation Services of the Authority 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 published by means of special pages.

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

practices.

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

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

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

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.

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.

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.

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.

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*).

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

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*).

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

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*).

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.

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

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*).

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

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

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

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data 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 Ghana 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). The NOTAM office of the Authority 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*).

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 them manoeuvring area and the apron(s).

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

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

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

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

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

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

a) are located on an area intended for the surface movement of aircraft; or

b) extend above a defined surface intended to protect aircraft in flight; or

c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

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

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

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

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.

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.

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*).

Quality assurance. Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).

Quality control. Part of quality management focused on fulfilling quality

requirements (ISO 9000*).

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

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

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

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

Requirement. Need or expectation that is stated, generally implied or obligatory (ISO 9000*).

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.

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

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

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

Traceability. Ability to trace the history, application or location of an entity by means of recorded identifications (ISO 8402*).

Validation. Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000*).

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

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.

15.1.2 COMMON REFERENCE SYSTEMS FOR AIR NAVIGATION

15.1.2.1 HORIZONTAL REFERENCE SYSTEM

(1) The ~~AIS Section~~ AIS Provider shall use the World Geodetic System — 1984 (WGS-84) as the horizontal (geodetic) reference system for international air navigation. Consequently, the ~~AIS Section~~AIS Provider shall ensure that published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

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

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

15.1.2.2 VERTICAL REFERENCE SYSTEM

(1) The ~~AIS~~ AIS Provider~~Section~~ shall use Mean sea level (MSL) datum 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.*~~

(2) The Earth Gravitational Model - 1996 (EGM-96) shall be used as the global gravity

model for international air navigation.

(3) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that at those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation specified in Parts 14 and 30 on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data are 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).

(4) Specifications concerning determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports shall be as specified in the IS:15.1.2.2(4)~~PANS-AIM (Doc 10066), Appendix 1~~.

15.1.2.3 TEMPORAL REFERENCE SYSTEM

(1) The ~~AIS~~ AIS Provider~~Section~~ shall use the Gregorian calendar and Coordinated Universal Time (UTC) as the temporal reference system for domestic and 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.— Guidance material relating to UTC is contained in Attachment D of Annex 5 — Units of Measurement to be Used in Air and Ground Operations.*~~

~~*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.*~~

(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, the ~~AIS Section~~AIS Provider shall include either a description of that system or a citation for a document that describes that temporal reference system.

15.1.2.4 MISCELLANEOUS SPECIFICATIONS

(1) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that Aeronautical Information Products for international distribution includes English text for those parts expressed in plain language.

(2) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that place names are spelt in conformity

with local usage, transliterated, when necessary, into the Latin alphabet.

(3) Units of measurement used by the ~~AIS~~ AIS Provider~~Section~~ in the origination, processing and distribution of aeronautical data and aeronautical information shall be consistent with ~~the~~ Part 22 of the Ghana Civil Aviation Directives.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall use ICAO abbreviations in aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.

15.2 RESPONSIBILITIES AND FUNCTIONS

15.2.1 STATE RESPONSIBILITIES

(1) Under the Ghana Civil Aviation Act, as amended, the AIS Provider~~Authority~~ shall provide information necessary for the safety, regularity and efficiency of international air navigation by means of publications issued by the Authority or by any other means.

(2) The AIS Provider~~Authority~~ shall take all necessary measures to ensure that the aeronautical data and aeronautical information it provides, covers the territory of the Republic of Ghana, as well as the Accra Flight Information Region.

(3) The AIS Provider~~Authority~~ shall remain responsible for the aeronautical data and aeronautical information published under the authority vested by the Ghana Civil Aviation Act.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the aeronautical data and aeronautical information provided are complete, timely and of required quality in accordance with 15.3.3.

(5) The AIS Provider~~Authority~~ shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the AIS in relation to the timely and complete provision of aeronautical data and aeronautical information.

~~*Note. — The scope of aeronautical data and aeronautical information that would be the subject of formal arrangements is specified in Chapter 4.*~~

15.2.2 AIS RESPONSIBILITIES AND FUNCTIONS

(1) The ~~AIS~~ AIS Provider~~Section~~ 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 air traffic management (ATM) community, including:

(a) those involved in flight operations, including flight crews, flight planning

and flight simulators; and

(b) the air traffic services 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) The ~~AIS~~ AIS Provider~~Section~~ shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the Republic of Ghana as well as areas within the Accra Flight Information Region. Aeronautical data and aeronautical information shall be provided as aeronautical information products.

~~*Note.— An AIS may include origination functions.*~~

(3) Where 24-hour service is not provided, the ~~AIS~~ AIS Provider~~Section~~ shall ensure that service shall be available during the whole period an aircraft is in flight within the Accra Flight Information Region, 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.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall, in addition, obtain information to enable it provide pre-flight information services and to meet the need for in-flight information:

(a) from the AIS of other States;

(b) from other sources that may be available.

~~*Note.— One such source is the subject of a provision in 5.6.*~~

(5) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that aeronautical data and aeronautical information obtained under 15.2.2(4)(a) are, when distributed, clearly identified as having the authority of the Republic of Ghana.

(6) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that aeronautical data and aeronautical information obtained under 15.2.2(4)(b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

(7) The ~~AIS~~ AIS Provider~~Section~~ shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with 15.2.2(1).

15.2.3 EXCHANGE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

(1) All elements of the aeronautical information products provided by other States shall be addressed to the ~~AIS~~ AIS Provider~~Section~~. The ~~AIS~~ AIS Provider~~Section~~ shall respond to requests for aeronautical information and aeronautical data provided by other States.

(2) Formal arrangements shall be established between ~~AIS~~ AIS Provider~~Section~~ and users of its service 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).*~~

(3) The ~~AIS~~ AIS Provider~~Section~~ shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

(4) The Provider~~Authority~~ shall, wherever practicable, establish direct contact between aeronautical information services in order to facilitate the international exchange of aeronautical data and aeronautical information.

(5) Except as provided in 15.2.3(7), one copy of each of the following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency:

Aeronautical Information Publication (AIP), including Amendments and Supplements;
Aeronautical Information Circulars (AIC);
c) NOTAM; and
d) aeronautical charts.

(6) When aeronautical data and aeronautical information are provided in the form of digital data sets to be used by the ~~AIS~~ AIS Provider~~Section~~, they shall be provided on the basis of agreement between the Authority and the Contracting State concerned.

(7) The procurement of aeronautical data and aeronautical information, including the elements of the Integrated Aeronautical Information Package, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than ICAO Contracting States and by other entities shall be subject to separate agreement with the Authority.

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

(9) Specifications concerning globally interoperable aeronautical data and aeronautical information exchange models shall be as specified in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).

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

15.2.4 COPYRIGHT

1) Any product of the ~~AIS~~ AIS Provider ~~Section of the Authority~~ which has been granted

copyright protection by Ghana and provided to another State in accordance with 15.2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the AIS Provider~~Authority~~.

2) When aeronautical data and aeronautical information are provided to a State in accordance with 2.3.8, the receiving State shall not provide the digital data sets of the providing State to any third party without the consent of the providing State.

15.2.5 COST RECOVERY

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

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

15.3 AERONAUTICAL INFORMATION MANAGEMENT

15.3.1 INFORMATION MANAGEMENT REQUIREMENTS

The information management resources and processes established by the AIS Provider~~Authority~~ shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the Air Traffic Management (ATM) system.

15.3.2 DATA QUALITY SPECIFICATIONS

15.3.2.1 DATA ACCURACY

(1) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the order of accuracy for aeronautical data shall be in accordance with its intended use.

(2) Specifications concerning the order of accuracy (including confidence level) for aeronautical data shall be as IS:15.2.2(4) ~~specified in the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1~~.

15.3.2.2 DATA RESOLUTION

(1) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the order of resolution of aeronautical data shall be commensurate with the actual data accuracy.

(2) Specifications concerning the resolution of aeronautical data shall be as specified in IS:15.2.2(4)~~the PANS-AIM (Doc 10066), Appendix 1~~.

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

15.3.2.3 DATA INTEGRITY

(1) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the integrity of aeronautical data shall be maintained throughout the data chain from origination to distribution to the next intended user.

(2) Specifications concerning the integrity classification related to aeronautical data shall be as specified in IS:15.2.2(4)~~the PANS-AIM (Doc 10066), Appendix 1~~.

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

(a) **for routine data**: avoid corruption throughout the processing of the data;

(b) **for essential data**: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

(c) **for critical data**: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

15.3.2.4 DATA TRACEABILITY

Traceability of aeronautical data shall be ensured and retained by the ~~AIS Section~~AIS Provider as long as the data is in use.

15.3.2.5 DATA TIMELINESS

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

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

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

15.3.2.6 DATA COMPLETENESS

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

15.3.2.7 DATA FORMAT

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

15.3.3 AERONAUTICAL DATA AND AERONAUTICAL INFORMATION VALIDATION AND VERIFICATION

(1) Material to be issued as part of the aeronautical information product shall be thoroughly checked before it is submitted to the ~~AIS~~ AIS Provider~~Section~~, in order to ensure that all necessary information has been included and that it is correct in detail.

(2) The ~~AIS~~ AIS Provider~~Section~~ shall establish verification and validation procedures, which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements.

15.3.4 DATA ERROR DETECTION

(1) The ~~AIS~~ AIS Provider~~Section~~ shall use digital data error detection techniques during the transmission and/or storage of aeronautical data and digital data sets.

(2) The ~~AIS~~ AIS Provider~~Section~~ shall use digital data error detection techniques in order to maintain the integrity levels as specified in 3.2.3.

(3) Detailed specifications concerning digital data error detection techniques shall be as specified in the PANS-AIM (Doc 10066).

15.3.5 USE OF AUTOMATION

(1) The AIS Provider~~Authority~~ shall apply automation in order to ensure the quality, efficiency and cost- effectiveness of aeronautical information services.

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

(2) The ~~AIS~~ AIS Provider~~Section~~ shall give due consideration to the integrity of data and information when automated processes are implemented and mitigating steps taken where risks are identified.

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

(3) In order for the ~~AIS~~ AIS Provider~~Section~~ 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.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall submit these processes for approval by the Authority.

15.3.6 QUALITY MANAGEMENT SYSTEM

(1) The ~~AIS~~ AIS Provider~~Section~~ shall implement and maintain quality management systems encompassing all functions of AIS, as outlined in 15.2.2. The execution of such quality management systems shall be made demonstrable for each function stage.

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

(2) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that 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) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the quality management system established in accordance with 15.3.6(1) shall follow the ISO 9000 series of quality assurance standards, and be certified by an approved organization.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and AIS personnel assigned to perform those functions shall be appropriately trained. The ~~AIS Section~~AIS Provider shall have processes in place to ensure that AIS personnel possess the competencies required to perform specific assigned functions. The ~~AIS~~ AIS Provider~~Section~~ shall maintain appropriate records so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and abilities.

(5) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that the quality management system includes the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data are 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.

(6) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that 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.

(7) The Authority shall take all necessary measures to monitor compliance with the quality management system in place.

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

15.3.7 HUMAN FACTORS CONSIDERATIONS

(1) The ~~AIS~~ AIS Provider~~Section~~ shall take into consideration human factors principles in its organization as well as the design, contents, processing and distribution of aeronautical data and aeronautical information to facilitate their optimum utilization.

(2) The ~~AIS~~ AIS Provider~~Section~~ shall give due consideration to the integrity of information where human interaction is required and ensure mitigating steps are taken where risks are identified.

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

15.4 SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

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

15.4.1 Scope of aeronautical data and aeronautical information

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

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

~~(2)~~ Detailed specifications concerning the content of each sub-domain shall be as specified in IS:15.2.2(4). ~~the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066),~~

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(3) 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.

(4) Specifications concerning the accuracy and integrity classification related to aeronautical data are contained in the IS:15.2.2(4) ~~PANS-AIM (Doc 10066), Appendix 1~~.

15.4.2 METADATA

(1)The ~~AIS~~ AIS Provider~~Section~~ shall collect and retain Metadata for aeronautical data processes and exchange points.

(2) This metadata collection shall be applied throughout the aeronautical information data chain, from survey or origin to distribution to the next intended user.

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

15.5 AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

15.5.1 GENERAL

(1) The ~~AIS~~ AIS Provider~~Section~~ shall provide aeronautical information in the form of aeronautical information products and associated services.

(2) Specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product are contained in IS:15.2.2(4)~~the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066), Appendix 1~~.

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

15.5.2 AERONAUTICAL INFORMATION IN A STANDARDIZED PRESENTATION

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

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

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

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

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

(2) Detailed specifications about AIP, AIP Amendments, AIP Supplements, AIC and NOTAM shall be specified in the IS:15.5.2.1(2) ~~PANS-AIM (Doc 10066)~~.

(3) Cases where digital data sets may replace the corresponding elements of the standardized presentation shall be specified in the IS:15.5.2.2(4)~~PANS-AIM (Doc 10066)~~.

15.5.2.2 AERONAUTICAL INFORMATION PUBLICATION

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

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

The GHANA AIP shall include:

(a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;

(b) the general conditions under which the services or facilities are available for international use;

(c) a list of significant differences between the national Directives and practices of the Authority 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 Authority and the related ICAO provisions;

(d) the choice made by the Authority in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.

15.5.2.3 AIP SUPPLEMENT

(1) A checklist of valid AIP Supplements shall be regularly provided.

(2) Detailed specifications concerning the frequency for providing checklists of valid AIP Supplements shall be specified in the PANS-AIM (Doc 10066).

15.5.2.4 AERONAUTICAL INFORMATION CIRCULARS

(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.

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

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

(4) A checklist of currently valid AIC shall be regularly provided.

(5) ~~Detailed S~~specifications concerning the frequency for providing checklists of valid AIC shall be as follows: ~~specified in the PANS-AIM (Doc 10066).~~

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

~~(5)~~(b) A checklist of AIC provided internationally shall be included in the NOTAM checklist.

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15.5.2.5 AERONAUTICAL CHARTS

~~*Note. Part 21 of Ghana Civil Aviation Directives provides Standards including provision requirements for each chart type.*~~

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

a) Aerodrome/Heliport Chart — ICAO;

b) Aerodrome Ground Movement Chart — ICAO;

c) Aerodrome Obstacle Chart — ICAO Type A;

d) Aerodrome Obstacle Chart — ICAO Type B (when available);

e) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);

f) Aircraft Parking/Docking Chart — ICAO;

g) Area Chart — ICAO;

h) ATC Surveillance Minimum Altitude Chart — ICAO;

i) Instrument Approach Chart — ICAO;

j) Precision Approach Terrain Chart — ICAO;

k) Standard Arrival Chart — Instrument (STAR) — ICAO;

l) Standard Departure Chart — Instrument (SID) — ICAO; and

m) Visual Approach Chart — ICAO.

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

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

(3) The aeronautical charts listed below shall, when available, be provided as aeronautical information products:

a) World Aeronautical Chart — ICAO 1:1 000 000;

b) Aeronautical Chart — ICAO 1:500 000;

c) Aeronautical Navigation Chart — ICAO Small Scale; and

d) Plotting Chart — ICAO chart.

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

(5) The chart resolution of aeronautical data shall be that as specified for a particular chart.

(6) Specifications concerning the chart resolution for aeronautical data shall be specified in the IS:15.2.2(4)~~PANS-AIM (Doc 10066), Appendix 1~~.

15.5.2.6 NOTAM

(1) Detailed specifications for NOTAM, ~~including formats for~~ SNOWTAM ~~and ASHTAM~~, are contained in IS:15.5.2.6(1).~~the PANS-AIM (Doc 10066).~~

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(2) Detailed specifications for SNOWTAM are contained in IS:15.5.2.6(2).

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(3) Detailed specifications for ASHTAM, are contained in IS:15.5.2.6(3).

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~~(2)~~(4) A checklist of valid NOTAM shall be regularly provided.

~~(3)~~(5) Detailed specifications concerning the frequency for providing checklists of valid NOTAM are contained in the PANS-AIM (Doc 10066).

15.5.3 DIGITAL DATA SETS

15.5.3.1 GENERAL

(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.

(2) Detailed specifications concerning the content of the digital data sets shall be specified in the PANS-AIM (Doc 10066).

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

(4) Detailed specifications concerning metadata shall be specified in the PANS-AIM (Doc 10066).

(5) A checklist of valid data sets shall be regularly provided.

15.5.3.2 AIP DATA SET

(1) An AIP data set shall be provided covering the extent of information as provided in the AIP.

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

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

15.5.3.3 TERRAIN AND OBSTACLE DATA SETS

~~Numerical requirements for terrain and obstacle data sets shall be specified in the PANS-AIM (Doc 10066), Appendices 1 and 8.~~

~~Note 2.— Requirements for terrain and obstacle data collection surfaces shall be~~

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~~specified in the PANS-AIM (Doc 10066), Appendix 8.~~

(1) Numerical requirements for terrain and obstacle data sets shall be as specified in IS:15.1.2.2(4), -and IS:15.5.3.3(1)(b) ~~the PANS-AIM (Doc 10066), Appendices 1 and 8~~.

(2) ~~Note 2.—~~ Requirements for terrain and obstacle data collection surfaces shall be as specified in IS:15.5.3.3(1)(b) ~~the PANS-AIM (Doc 10066), Appendix 8~~.

~~(2)~~(3) Requirements for terrain and obstacle attributes provision shall be as specified in 15.5.3.3(1)(a)

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~~(3)~~(4) The coverage areas for terrain and obstacle data sets 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 Part 14, Ghana Civil Aviation (Aerodromes) Directives, for dimensions for runway strips.*~~

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

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

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

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

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

~~(4)~~(5) Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

15.5.3.3.3 TERRAIN DATA SETS

(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.

(2) Terrain data shall be provided for Area 1.

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

(a) Area 2a;

(b) the take-off flight path area; and

(c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

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

(a) in the area extending to a 10-km radius from the ARP; and

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

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

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

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

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

(9) Where additional terrain data is collected to meet other aeronautical requirements, the terrain data sets should be expanded to include this additional data.

15.3.3.4 **OBSTACLE DATA SETS**

(1) Obstacle data sets shall contain the digital representation of the vertical and horizontal extent of obstacles.

(2) Obstacle data shall not be included in terrain data sets.

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

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

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

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

(c) penetrations of the aerodrome obstacle limitation surfaces.

~~*Note.— Take-off flight path areas are specified in Part 21, Ghana Civil Aviation (ANS) Directives. Aerodrome obstacle limitation surfaces are specified in Part 14, Ghana Civil Aviation (Aerodromes) Directives.*~~

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

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

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

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

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

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

(8) For those aerodromes located near territorial boundaries, arrangements shall be made among States concerned to share obstacle data

(9) For aerodromes regularly used by international civil aviation, 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.

(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.

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

15.3.4 AERODROME MAPPING DATA SETS

(1) Aerodrome mapping data sets shall contain the digital representation of aerodrome features.

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

(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

(1) Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

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

5.4 DISTRIBUTION SERVICES

5.4.1 GENERAL

(1) Aeronautical information products shall be distributed to authorized users who request them.

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

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

15.5.4.2 NOTAM DISTRIBUTION

(1) NOTAM shall be distributed on the basis of a request.

(2) NOTAM shall be prepared in conformity with the relevant provisions of *Part 23.2 of Ghana Civil Aviation (ANS) Directives* on communication procedures.

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

(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 Authority shall select the NOTAM that are to be given international distribution.

(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.

(6) The AIS Provider ~~originating State~~ shall, upon request, grant distribution of NOTAM series other than those distributed internationally.

(7) Selective distribution lists shall be used when practicable.

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

15.5.5 PRE-FLIGHT INFORMATION SERVICE

(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.

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

~~*Note 1.— The elements of aeronautical information products may be limited to national publications and when practicable, those of adjacent States, provided a complete library*~~

~~*of aeronautical information is available at a central location and means of direct communications are available with that library.*~~

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

15.5.6 POST-FLIGHT INFORMATION SERVICE

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

(2) The arrangements specified in 5.6.1 shall ensure that such information is made available to the aeronautical information service (AIS) for distribution as the circumstances necessitate.

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

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

~~*Note.— See Part 14, Ghana Civil Aviation (Aerodromes) Directives,*~~

15.6 AERONAUTICAL INFORMATION UPDATES

15.6.1 GENERAL SPECIFICATIONS

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

15.6.2 AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC)

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

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

1) flight information regions;
2) control areas;

3) control zones;

4) advisory areas;

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5) air traffic services (ATS) routes;

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

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

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

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

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

e) meteorological facilities (including broadcasts) and procedures;

e) runways and stopways;

g) taxiways and aprons;

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

i) approach and runway lighting; and

j) aerodrome operating minima if published by a State.

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

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

~~*Note.— AIRAC information is distributed by the AIS unit at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.*~~

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

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

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

a) position, height and lighting of navigational obstacles;

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

b) customs, immigration and health services;

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

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

(7) Whenever major changes are planned and where advance notice is desirable and practicable, information shall be made available by the ~~AIS~~AIS Provider 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 below, and other major changes if deemed necessary:

a) new aerodromes for international instrument flight rules (IFR) operations;

b) new runways for IFR operations at international aerodromes;

c) design and structure of the ATS route network;

c) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);

e) circumstances listed in 15.6.2.(1) if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

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

15.6.3 AERONAUTICAL INFORMATION PRODUCT UPDATES

15.6.3.1 AIP UPDATES

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

(2) Permanent changes to the Ghana AIP shall be published as AIP Amendments.

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

15.6.3.2 NOTAM

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

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

(3) 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.

(4) A NOTAM shall be originated and issued concerning the following information:

a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;

b) establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.);

c) establishment, withdrawal or significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;

d) unavailability of back-up and secondary systems, having a direct operational impact;

e) establishment, withdrawal or significant changes to visual aids;

f) interruption of or return to operation of major components of aerodrome lighting systems;

g) establishment, withdrawal or significant changes to procedures for air navigation services;

h) occurrence or correction of major defects or impediments in the manoeuvring area;

i) changes to and limitations on availability of fuel, oil and oxygen;

j) major changes to search and rescue facilities and services available;

k) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;

l) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;

m) presence of hazards which affect air navigation (including obstacles, military exercises, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events outside promulgated sites);

n) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;

o) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;

p) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;

q) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;

r) allocation, cancellation or change of location indicators;

s) changes in aerodrome/heliport rescue and firefighting category provided (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 17);

t) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;

u) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;

v) observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;

w) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;

x) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;

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

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

(5) The following information shall not be notified by NOTAM:

a) routine maintenance work on aprons and taxiways which does not affect the safe

movement of aircraft;

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

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

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

d) 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 6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;

i) training activities by ground units;

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

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

l) national regulations not affecting general aviation;

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

n) general reminders on already published information;

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

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

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

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

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

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

local contact with flight crews.

15.6.3.3 DATA SET UPDATES

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

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

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

(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.

(5) Updates to AIP and digital data sets shall be synchronized.

15.7 ADDITIONAL REQUIREMENTS FOR PROVISION OF AIS

15.7.1 APPROVAL OF AERONAUTICAL INFORMATION SERVICES

15.7.1.1 No person shall provide an aeronautical information service or operate an aeronautical facility except under the authority of, and in accordance with the provisions of an approval granted by the Authority.

15.7.2 DEMONSTRATION OF COMPLIANCE

15.7.2.1 The service provider shall:

(a) provide all the relevant evidence to demonstrate compliance with the applicable requirements of these Directives at the request of the Authority.

(b) notify the Authority of planned changes to its provision of aeronautical information services which may affect its compliance with the applicable requirements of these Directive.

15.7.2.2 Where the service provider does not comply with the applicable requirements any longer, the Authority shall take a decision within a time period not exceeding one month, requiring the service provider to take corrective action.

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15.7.2.3 The decision made with respect to 15.7.2.2 shall immediately be notified to the relevant service provider.

15.7.2.4

15.7.2.5 The Authority shall check that the corrective action has been implemented before notifying its approval to the service provider. Where the Authority considers that corrective action has not been properly implemented within the agreed timetable, it shall take appropriate enforcement measures in accordance with the Ghana Civil Aviation Directives (GCADs) while taking into account the need to ensure the continuity of services.

15.7.3 **FACILITATION OF COMPLIANCE MONITORING (SAFETY INSPECTION AND AUDITS)**

15.7.3.1 The service provider shall:

(a) facilitate inspections and surveys by the Authority or by authorized persons acting on the latter's behalf, including site visits and visits without prior notice.

(b) without charge, at the request of the Authority, allow and provide the equipment necessary to conduct any inspections, or conduct tests of aeronautical facilities, equipment or operating procedures at aerodromes or navigational sites where service is being provided to determine compliance with applicable parts of the Ghana Civil Aviation Directives (GCADs) for the purpose of ensuring the safety of air navigation.

15.7.3.2 The service provider shall allow the Authority to make special inspections to ensure aviation safety:

(a) as soon as practicable after any aircraft accident or incident;

(b) during the period of installation or repair of the aeronautical facilities or equipment that is critical to the safety aircraft operations; and

(c)

(d) under any other conditions that could affect aviation safety.

MANAGEMENT

(1) The ~~AIS~~ AIS Provider~~Section~~ shall have a documented organizational structure clearly defining lines of accountability of personnel with respect to the provision of services in accordance with ICAO requirements.

(2) The ~~AIS~~ AIS Provider~~Section~~ shall have a documented organizational structure showing the relationship between

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operational units.

(3) The ~~AIS~~ AIS Provider~~Section~~ shall have the functions, duties and responsibilities of its management staff clearly defined and documented.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that management positions are filled with personnel who are appropriately qualified to perform the required functions.

(5) The ~~AIS~~ AIS Provider~~Section~~ shall have adequate personnel to plan, perform, supervise and provide the required services to ensure aviation safety at all times.

(6) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that a system of supervision for all tasks performed shall be established, with clear descriptions of supervisory functions and supervisors adequately trained to effectively perform these functions.

(7) The ~~AIS~~ AIS Provider~~Section~~ shall ensure procedures for control, analysis and storage of records, documents and safety related data shall be documented.

(8) The ~~AIS~~ AIS Provider~~Section~~ shall have job descriptions for operations and training personnel clearly defined and documented and a system of personal files containing all relevant information of persons under training, OJT instructors and leave records shall be maintained.

(9) The ~~AIS~~ AIS Provider~~Section~~ shall have a procedure in place for taking remedial action following an error or offence done by an officer on duty.

(10) The ~~AIS~~ AIS Provider~~Section~~ shall establish a system of communication in the following form:

(a) Circulars,

(b) Orders and,

(c) Log entries.

(11) The ~~AIS~~ AIS Provider~~Section~~ shall conduct regular operational meetings. Minutes of the meetings shall be kept and follow up done on matters arising from the meetings.

(12) The ~~AIS~~ AIS Provider~~Section~~ shall supply monthly serviceability reports and statistics on AFTN/AMHS and other facilities and equipment to the Head of the Department.

15.7.4 PERSONNEL REQUIREMENTS

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(1) The Authority shall ensure that the ~~AIS~~ AIS Provider~~Section~~ is staffed with appropriately skilled personnel to ensure the provision of aeronautical information service in a safe, efficient, continuous and sustainable manner. In this context, they shall establish policies for the recruitment and training of personnel.

(2) The AIS Provider ~~Authority~~ shall employ, contract, or otherwise engage:

(a) a senior person or persons responsible to the ~~head of the AIS~~chief executive ~~Section~~ for ensuring that all activities undertaken by the ~~AIS~~ AIS Provider~~Section~~ are in compliance with these requirements and those prescribed by the G~~hana Civil Aviation Directives~~CADs, and who shall in addition be vested with the following powers and duties in respect of the compliance with such requirements: ~~have unrestricted access to work performed or activities undertaken by all other persons as employees of, and other persons rendering services for and on behalf of the AIS Section.~~

(1) unrestricted access to work performed or activities undertaken by all other persons as employees of, and other persons rendering services for and on behalf of the service provider;

(2) full rights of consultation with any such person(s) in respect of such compliance by him or her; and

(3) Powers to order cessation of any activity where such compliance is not effected; and

(4) Has a duty to establish liaison mechanisms with the Authority with a view to ascertain correct manners of compliance with the said requirements, and interpretations of such requirements by the Authority, and to facilitate liaison between the Authority and the unit concerned; and

(5) Powers to report directly to the management of his or her organization, on his or her investigations and consultations generally, and in cases contemplated in 15.7.5(1) (a) (3), and with regard to the results of the liaison contemplated in 15.7.5(1) (a)(4).

~~(a)~~

(b) Sufficient personnel to ~~Promulgate~~ carry out the duties of the AIS Provider~~and maintain the facilities~~ listed in the Operations Manual.

(3) The ~~AIS~~ AIS Provider~~Section~~ shall ensure that its personnel are competent and are of sufficient numbers and have been

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provided with written evidence of the scope of their authorization to be able to discharge their allocated responsibilities. The job description should depict the job purpose, key responsibilities, and outcome to be achieved of each staff.

(4) The AIS Provider~~Authority~~ shall have a documented methodology for determining the number of staff required to work efficiently for each unit.

(5) The ~~AIS Section~~AIS Provider shall establish procedures for personnel, who are authorized to place into operational service any of the facilities listed in their Operations Manual, to:

(a) Assess the competence of those authorized personnel;

(b) Maintain the competence of those authorized personnel; and

(c) Establish a means to provide those personnel with written evidence of the scope of their authorization.

15.7.5 FORMAT FOR DEVELOPMENT OF MANUALS

(1) The manual shall be prepared in conventional manual format and provided in an electronic version or printed.

(a) ***Introduction or Preface.***

The first page shall contain a brief description of the manual, its intent and intended users. This page shall contain a section for endorsement by the approving authority. The introduction or preface section shall contain a statement of signed by the Chief Executive on behalf of the service providers' organization confirming that;

i. the manual defines the organisation and demonstrates its means and methods for ensuring ongoing compliance with the this Directive; and

ii. the Operations Manual and all other technical manuals, operating and maintenance instructions, must be complied with by the organization's personnel at all times. This section emphasizes that the procedures and policies in the manual are expected to be used by the organization personnel.

(b) ***Revision Control.***

The manual shall be bound in a manner easy to revise and shall contain a revision control page or section from which the user can readily determine whether the manual is current or not. This page or section should follow the cover page. The control date of the most recent revision of each individual page

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must appear on each page.

(c) ***A Bulletin and numbering system***
The manual may be established to bring temporary information or changes that should not be delayed by a formal revision process, to the attention of the user. The bulletin system should have a means of control that includes giving bulletins a limited life and systematically incorporating them into appropriate manuals in a timely manner. Users should be able to easily determine whether they possess all current bulletins.

(d) ***List of Effective pages (LEP)***.
The manual shall have a List of Effective Pages used to ensure that the manual contains current information. The LEP shows the revision status of each page.

(e) ***Table of Contents.***
The manual shall have a table of contents containing lists of major topics with their respective page numbers.

(f) ***References.***
The Manual may include references to other manuals when it is necessary to clarify the intent of the text or when it is useful to the user for looking up specific subject matter. References should not be made to Advisory Circular (AC) as these sources are advisory. Operators should use caution when adapting the text of advisory documents into their manuals. AC text may not necessarily translate into a Regulation.

(g) ***Definitions.*** Significant terms used in manuals should be defined. Any acronym or abbreviation not in common use should also be defined.

(h) ***Elements of Style.*** The Manuals should be composed in the style of general technical writing. This style should be clear, concise, and easy to understand.

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~~15.7.3~~15.7.6 OPERATIONS MANUAL

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(1) The ~~AIS Section~~AIS Provider shall develop and keep up-to-date operations manual relating to the provision of their services for the use and guidance of operations personnel.

(2) The contents of the operations manual shall include but not be limited to the following:

(a) a table of contents based on the items in the manual, indicating the page number on which each item begins;

(b) a description of the organizational structure and a statement setting out the functions that the ~~AIS Section~~AIS Provider performs, or proposes to perform;

(c) a description of the chain of command established and a statement of the duties and responsibilities of any supervisory positions within the organizational structure;

(d) a statement showing how the ~~AIS Section~~AIS Provider determines the number of operational staff required including the number of operational supervisory staff;

(e) a statement of the responsibilities and functions for each position;

(f) a description of the ~~AIS Section~~AIS Provider's record keeping system;

(g) a description of the processes and documentation used to provide operational instructions to staff;

(h) a description of the procedures to be followed to ensure all operational staff are familiar with any operational changes that have been issued since they last performed operational duties;

(i) a description of the procedures to be used in commissioning new facilities, equipment and services;

(j) the procedures to be followed for revising the operations manual.

(3) The ~~AIS Section~~AIS Provider shall ensure that:

(a) operations manuals contain the instructions and information required by the operations personnel to perform their duties;

(b) relevant parts of the operations manuals are accessible to the personnel concerned;

(c) the operations personnel are expeditiously informed of amendments to the operations manual applying to their duties as well as of their entry into force.

(d) the initial copy of the manual shall be submitted to the Authority both in hard and soft copies for review and approval.

15.7.7 15.7.4 TRAINING

(1) The AIS Provider ~~Authority~~ shall;

~~(1)~~(2)

(a) Ensure that all its AIS personnel possess the skills and competencies required in the provision of the a~~A~~eronautical i~~I~~nformation s~~S~~ervices.

(b) Develop an ~~AIS Training Manual, which shall contain the~~ overall training policy and program for its ~~AIS~~ personnel, which include ~~-~~the details of the training courses that different levels of technical staff have to undergo to perform their duties. This shall include;

i. ~~-~~Basic,

ii. Advanced; ~~–~~

iii. Specialized;

iv. Recurrent training when there are changes in the available criteria and Directives and also to update their knowledge skills and abilities and competencies in accordance with the latest requirements, technologies, legislation, organizational structure, and best-practice benchmarks ~~training,~~

v. Refresher training to strengthen knowledge and skills that have weakened through disuse and the passage of time;

vi. Management training;

vii. On-the-job-training (OJT) and

viii. ~~-~~Human factors initial and recurrent training, where applicable in accordance with ICAO Training Manual for AIS or any such training program, which is acceptable to the Authority.

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(c) Training shall be competency-based and a competency assessment programme put in place to ensure personnel are assigned duties based on their competencies.

(d) Authority shall ensure that the AIS Section trains personnel dedicated to OJT as OJT Instructors.

~~(b)~~ Submit the training programme to the Authority for acceptance.

(e)

~~(c)~~ Maintain individual training records for each of its AIS staff, which should include a training plan detailing the courses completed by each staff as well as the time frame for attending future courses as required under this training plan.

~~(2) The Authority shall ensure that the AIS Section trains personnel dedicated to OJT.~~

~~(3) The Authority shall ensure the implementation of its training policy and programme for its technical staff.~~

~~(d) Training for AIS technical personnel shall be as prescribed in Doc 7192, Part E-3 (ICAO AIS Training manual).~~

(f)

(g)

(1) (2) The head of the AIS Provider shall maintain training files for the operational staff.

15.7.8 CHANGES TO SERVICE PROVIDERS' ORGANIZATION

The AIS Provider shall

(a) Ensure that its Operations Manual is amended, as required, to remain a current description of the organization, the AIS office and services; and

(b) Ensure that any amendments made to its Operations Manual meet the applicable requirements of this Directive; and

(c)

(d) Comply with the amendment procedure contained in its Operations Manual; and

(e)

(f) Provide the Authority with a copy of each amendment to its Operations Manual, immediately after the amendment is incorporated into the Operations Manual; and

(g)

(h) Make such amendments to its Operations Manual as the Authority

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may consider necessary in the interests of aviation safety.

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15.7.9 ~~15.7.5~~ AERONAUTICAL INFORMATION FACILITY REQUIREMENTS

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The ~~AIS Section~~AIS Provider shall establish a procedure in its Operations Manual to ensure that each Aeronautical Information Service facility:

(a) Is designed, installed, and commissioned to meet the applicable operational specification for that facility

(a) Conforms with the applicable system characteristics and specification standards prescribed in the Ghana Civil Aviation Directives and relevant ICAO Documents;

(b) Is installed with suitable power supplies and means to ensure continuity of services.

15.7.10 APPROVAL OF AIS FACILITIES

(1) The AIS Provider shall not introduce any new AIS system, including equipment, facilities, procedures, or structural changes or changes to AIS courses, without the required regulatory approval prior to commencement of the new AIS system.

(2) The concept of the change, including any design, specifications, purpose of introducing the change and initial safety assessment performed, shall be sent to the Authority for assessment and approval before continuing with the process.

(3) The AIS Provider shall include the AIS Inspector(s) in the training of its technical staff regarding any new equipment, procedures or other technical changes.

(4) The AIS Provider shall not conduct any Factory and Site Acceptance Tests (FAT and SAT) without the involvement of AIS Inspector(s) from the Authority. This is to enable the Authority to make appropriate evaluation prior to the acceptance of the equipment.

(5) The AIS Provider shall establish processes and procedures to ensure that Installation and implementation processes of new AIS equipment are monitored and assessed by its internal audit to ensure proper procedures are being adhered to for safety assurance.

(6) The AIS Provider shall carry out post-implementation monitoring to ensure acceptable levels of safety are maintained.

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~~15.7.6~~15.7.11 **DOCUMENTATION**

(1) The AIS Provider~~Aeronautical Information Service Section~~ shall:

(a) Document the format and standards for the aeronautical information published under the authority of the mandate of the Director-General;

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(b) Ensure that the format and standards take into account the circumstances under which the information will be used;

(c) Hold copies of applicable Ghana Civil Aviation Directives (GCADs), Civil Aviation Advisory Publications and Information Circulars, relevant , ICAO Annexes, and any other documents ~~relevant reference materials, standards, practices and procedures, and any other documentation that is~~ necessary for the aeronautical information services listed in its~~their~~ Operations Manual.

~~(2) These documents shall include, but not be limited to:~~

~~(a) Applicable Ghana Civil Aviation Directives,~~

~~(b) ANNEX 4 – Aeronautical Charts,~~

~~(c) ANNEX 15 – Aeronautical Information Services~~

~~(d) ICAO Doc 9839 – Manual on the Quality Management System for Aeronautical Information Services~~

~~(e) ICAO Doc 7383 – Aeronautical Information Services provided by States~~

~~(f) ICAO Doc 7910 – ICAO Location Indicators~~

~~(g) ICAO Doc 8126 – Aeronautical Information Services Manual~~

~~(h) ICAO Doc 8400 – ICAO Abbreviations and Codes~~

~~(i) ICAO Doc 8585 – Designators for Aircraft Operating Agencies~~

~~(j) ICAO Doc 8697 – Charting Manual~~

~~(k) ICAO Doc 9377 – Manual on Coordination between Air Traffic Service, Aeronautical Information Services and Aeronautical Meteorological Services~~

~~(l) ICAO Doc 9674 – World Geodetic System – 1984 (WGS – 84) Manual~~

~~(m) ICAO Doc 9683 – Human Factors Training Manual~~

(1) (All documents developed by the ~~AIS~~ AIS Provider~~Section~~ shall be reviewed and approved by the Authority.

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~~15.7.7~~15.7.12 **AIS OPERATIONS LOGBOOK**

(1) The ~~AIS Section~~AIS Provider shall establish procedures in its Operations Manual to ensure that a logbook, with sequentially numbered pages, is kept at each office and where an office has physically separate operation areas, at each of such location within the office.

(2) The procedure shall ensure that:

(a) The logbook is maintained by the senior person, or the person on duty at a nominated operating position;

(b) the logbook is maintained throughout the operating hours of the office;

(c) all entries include the date, time of entry and signature;

(d) Every page of the logbook must be signed by the Shift manager or a designated senior person;

(e) Logbook entries are:

(i) In chronological sequence and in ink;

(ii) Without erasure, defacement, or obliteration; and

(iii) Corrected by drawing a single line through the erroneous information and initialing the correction.

(f) Actual times of opening and closing of the office are recorded in the logbook, together with the reason for every variation from published hours of service; and

(g) Logbooks are retained for a period of not less than two (2) years from the date of final entry to serve as a source of a~~A~~rchiving for future referencing.

~~15.7.8~~15.7.13 **PREVENTION OF FATIGUE**

(1) The ~~AIS Section~~AIS Provider shall establish procedures to ensure that AIS Personnel are not subject to fatigue in that:

(a) There is a minimum of 12 consecutive hours rest period between shifts and minimum of 24 hours after night shifts.

(b) At any time a minimum of two (2) personnel shall be present in a shift;

(c) Except in an emergency, AIS Personnel shall refrain from performing any duties for at least 24 consecutive hours at least once during each 7 consecutive days.

(2) The ~~AIS Section~~AIS Provider shall establish a five (5) Group shift system.

~~15.7.9~~15.7.14 **SHIFT ADMINISTRATION**

The ~~AIS Section~~AIS Provider shall establish a procedure to ensure that:

(a) Adequate time is provided at the beginning and end of each shift, for the performance of those duties required before start of the shift; and after the end of the shift.

(b) A minimum of 30 minutes is provided for each transfer of duties. This shall be done to ensure all briefings to the incoming team have been done well and all handovers of both documentation and other related things such as cash in the briefing office is well handed over.

~~15.7.10~~15.7.15 **USE OF UNAUTHORISED DRUGS**

The ~~AIS Section~~AIS Provider shall establish procedures to ensure that no AIS personnel whose function is critical to the safety of aviation shall undertake that function while under the influence of any psychoactive substance, by reason of which human performance is impaired and that they shall not engage in any unauthorized use of such substances.

~~15.7.11~~15.7.16 **COORDINATION**

(1) The ~~AIS Section~~AIS Provider shall establish systems and procedures in its Operations Manual to ensure where applicable, co-ordination with the

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following:

(a) The Air Traffic Control Section
(b) The Search and Rescue Unit;

(c) National Security Agencies;

(d) Agencies responsible for Search And Rescue;

(e) The Aeronautical Telecommunication Service Section;

(f) Airport and aerodrome operators;

(g) Ghana Meteorological Agency.

(2)

(3) The AIS Provider shall establish procedures covering each office in its Operations Manual to ensure that Service Level Agreement (SLA) is in place between it (Service provider) and:

(a) entities providing services to the facility; and

(b) entities receiving services from the facility;

(4)

(5) The entities in items 15.7.14.2(a) and (b) above may be internal within the service provider facilities or external to the service providers.

~~(a) The Air Traffic Control Section~~
~~(b) The Search and Rescue Unit;~~

~~(c) National Security Agencies;~~

~~(d) Agencies responsible for Search And Rescue;~~

~~(e) The Aeronautical Telecommunication Service Section;~~

~~(f) Airport and aerodrome operators;~~

~~(g) Ghana Meteorological Agency.~~

~~15.7.12~~15.7.17 **MANAGEMENT OF RECORDS**

(1) The ~~AIS Section~~AIS Provider shall establish procedures to identify, collect, index, store, maintain and dispose of the records that are necessary for the Aeronautical Information Service listed in their Operations Manual.

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(2) Procedures shall ensure that:

(3)

(a) There are records enabling all incoming and outgoing aeronautical information to be readily identified and that supplementary information can be similarly identified, verified and where necessary, authenticated;

(b) There is a record of each person who is authorized by the ~~AIS Section~~AIS Provider to check, edit and publish aeronautical information;

(c) There is a record of each occurrence of error correction under the procedure;

(d) There is a record of each internal quality assurance review of the ~~AIS Section~~AIS Provider carried out under the procedure;

(e) There is a record of all audits and reviews required under the Quality management procedure;

(f) All records are legible and of a permanent nature; and

(g) All records are retained for ~~at least 5 years except NOTAM, AIP Supplements and Aeronautical Information Circulars, which need only to be retained for 31 days after cancellation.~~the period listed in its operations manual.

~~15.7.13~~15.7.18 **SAFETY MANAGEMENT SYSTEM (SMS)**

(1) The ~~Aeronautical Information Service Section~~AIS Provider shall establish a Safety Management System in accordance with Part 36 of Ghana Civil Aviation (SMS) Directives.

(2) The safety management system shall include:

(a) Hazard identification;

(b) Risk management;

(c) Safety assurance;

(d) Safety performance monitoring, auditing and measurement;

(e) Change management; and

(f) Management Reviews.

(3) The ~~AIS Section~~ AIS Provider shall develop procedures for managing safety when introducing new functional systems or changing the existing functional systems.

(4) The ~~AIS~~ AIS Provider~~Section~~ shall notify the Authority of all planned safety related changes where the changes may impact on the safety of an air traffic service.

~~15.7.14~~15.7.19 **CONTINGENCY PLAN**

(1) The ~~AIS Section~~AIS Provider shall have in place contingency plans for all the services they provide in the case of events which result in significant degradation or interruption of their operations.

(2) Interruption of operations refers to a major event which impacts on the ~~AIS~~ AIS Provider ~~Section~~'s ability to continue to provide a safe service such as a major ATS equipment failure, serious aircraft incident, terrorist incident, fire, bomb threat, pandemic influenza, major IT failures etc. Such situations would normally be considered as part of a business continuity plan requiring specific contingency plans to be drawn up as mitigation.

(3) Emergency procedures shall detail the responsibilities and accountabilities of all personnel involved.

(4) Procedures shall be established for events that cause operational deficiencies to arise whereby the facilities promulgated in the Ghana AIP are temporarily not available.

15.7.20 **SECURITY MANAGEMENT SYSTEM**
~~15.7.15~~

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(1) The ~~AIS Section~~AIS Provider shall establish a security management system to ensure:

(a) the security of their facilities and personnel so as to prevent unlawful interference with the provision of aeronautical information service;

(b) the security of operational data they receive or produce or otherwise employ, so that access to it is restricted only to those authorized.

(2) The security management system shall define:

(a) the procedures relating to security risk assessment and mitigation, security monitoring and improvement, security reviews and lesson dissemination;

(b) the means designed to detect security breaches and to alert personnel with appropriate security warnings;

(c) the means of containing the effects of security breaches and to identify recovery action and mitigation procedures to prevent reoccurrence.

(3) The ~~AIS Section~~AIS Provider shall ensure the security clearance of their personnel and coordinate with the relevant civil and military authorities to ensure the security of their facilities, personnel and data.

15.7.21 OFFICE ENVIRONMENT

(1) The AIS Provider shall ensure the following are provided for efficient operations:

(a) Photocopier dedicated for AIS operations
(b) Enough computers for AIS Operations
(c) Direct telephone line designated for AIS operations for coordination with other units
(d) Fax machine for AIS operations
(e) Back-up power supply system
(f) A transceiver for communication in emergency
(g) A scanner for operational use
(h) A clock
(i) Enough furniture
(j) A dedicated and reliable internet service
(k) Filing cabinets for storage of documents
(l) Office devoid of Noise distractions
(m) Good Ventilation
(n) Good Lighting

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GHANA CIVIL AVIATION DIRECTIVES

PART 15 – IMPLEMENTING STANDARDS

For ease of reference, the number assigned to each implementing standard corresponds to its associated regulation. For example, IS 15.2.1 would reflect a standard required in subsection 15.2.1

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IS:15.1.2.2(4) AERONAUTICAL DATA CATALOGUE

Note 1.— The Aeronautical Data Catalogue is available electronically at www.gcaa.com.gh/.

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

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

Note 4.— The Aeronautical Data Catalogue contains the aeronautical data subjects, properties and sub-propertiesorganized in:

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

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

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

Note 7.— The tables of the Aeronautical Data Catalogue are composed of the following columns:

(1) Subject for which data can be collected.

(2)(3) Property is an identifiable characteristic of a subject which can be further defined into sub-properties. Theclassification of a catalogue element as subject, property or sub-property does not impose a certain data model.

(4) The data is classified in different types. See Table A1-9 for more information on data types.

(5) A description of the data element.

(6) Notes are additional information or conditions of the provision.

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(7) Accuracy requirements for aeronautical data are based on a 95 per cent confidence level. For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies. Accuracy requirements for obstacle and terrain data are based on a 90 per cent confidence level.

(8) Integrity classification.

(9) Origination type. Positional data is identified as surveyed, calculated or declared.

(10) Publication resolution. The publication resolutions for geographical position data (latitude and longitude) are applicable to coordinates formatted in degrees, minutes and seconds. When a different format is used (such as degrees with decimals for digital data sets) or when the location is significantly further to the north/south, the publication resolution needs to be commensurate with the accuracy requirements.

(11) Chart resolution

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IS:15.5.2.1(2) CONTENTS OF THE AERONAUTICALINFORMATION PUBLICATION (AIP)

PART 1 — GENERAL (GEN)

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

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

GEN 0.1 Preface

Brief description of the AIP, including:

1) name of the publishing authority;

2) applicable ICAO documents;

3) publication media (i.e. printed, online or other electronic media);

4) AIP structure and established regular amendment interval;

5) copyright policy, if applicable; and

6) service to contact in case of detected AIP errors or omissions.

GEN 0.2 Record of AIP Amendments

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

1) amendment number;

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2) publication date;

3) date inserted (for the AIRAC AIP Amendments, effective date); and

4) initials of officer who inserted the amendment.

GEN 0.3 Record of AIP Supplements

A record of issued AIP Supplements containing:

1) Supplement number;

2) Supplement subject;

3) AIP section(s) affected;

4) period of validity; and

5) cancellation record.

GEN 0.4 Checklist of AIP pages

A checklist of AIP pages containing:

1) page number/chart title; and

2) publication or effective date (day, month by name and year) of the aeronautical information.

GEN 0.5 List of hand amendments to the AIP

A list of current hand amendments to the AIP containing:

1) AIP page(s) affected;

2) amendment text; and

3) AIP Amendment number by which a hand amendment was introduced.

GEN 0.6 Table of contents to Part 1

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

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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

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

GEN 1.4 Entry, transit and departure of cargo

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

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

GEN 1.5 Aircraft instruments, equipment and flight documents

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

1) instruments, equipment (including aircraft communication, navigation and surveillance equipment) and flight documents to be carried on aircraft, including any special requirement in addition to the provisions specified in Annex 6, Part I, Chapters 6 and 7; and

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2) emergency locator transmitter (ELT), signalling devices and life-saving equipment as presented in Annex 6, Part I, 6.6 and Part II, 2.4.5, where so determined by regional air navigation agreement, for flights over designated land areas.

GEN 1.6 Summary of national regulations and international agreements/conventions

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

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

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

1) provision affected (Annex and edition number, paragraph); and

2) difference in full text.

All significant differences shall be listed under this subsection. All Annexes shall be listed in numerical order even if there is no difference to an Annex, in which case a NIL notification shall be provided. National differences or the degree of non-application of the regional supplementary procedures (SUPPs) shall be notified immediately following the Annex to which the supplementary procedure relates.

GEN 2. TABLES AND CODES

GEN 2.1 Measuring system, aircraft markings, holidays

GEN 2.1.1 Units of measurement Description of units of measurement used including table

of units of measurement.

GEN 2.1.2 Temporal reference system

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

GEN 2.1.3 Horizontal reference system

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

1) name/designation of the reference system;

2) identification and parameters of the projection;

3) identification of the ellipsoid used;

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4) identification of the datum used;

5) area(s) of application; and

6) an explanation, if applicable, of the asterisk used to identify those coordinates that do not meet the accuracy requirements.

GEN 2.1.4 Vertical reference systemBrief description of the vertical reference system

used, including:

1) name/designation of the reference system;

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

3) an explanation, if applicable, of the asterisk used to identify those elevations/geoid undulations that do not meet the accuracy requirements.

GEN 2.1.5 Aircraft nationality and registration marks

Indication of aircraft nationality and registration marks adopted by the State.

GEN 2.1.6 Public holidaysA list of public holidays with indication of services

being affected.

GEN 2.2 Abbreviations used in aeronautical information products

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

GEN 2.3 Chart symbols

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

GEN 2.4 Location indicators

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

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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 AIS.

GEN 3.1.3 Aeronautical publicationsDescription of the elements of the aeronautical information products, including:

1) AIP and related amendment service;

2) AIP Supplements;

3) AIC;

4) NOTAM and pre-flight information bulletins (PIB);

5) checklists and lists of valid NOTAM; and

6) how they may be obtained.

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

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GEN 3.1.4 AIRAC system

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

GEN 3.1.5 Pre-flight information service at aerodromes/heliports

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

1) elements of the aeronautical information products held;

2) maps and charts held; and

3) general area of coverage of such information.

GEN 3.1.6 Digital data setsDescription of the available data sets, including:

1) data set title;

2) short description;

3) data subjects included;

4) geographical scope; and

5) if applicable, limitations related to its usage.

6) Contact details of how data sets may be obtained, containing:

a) name of the individual, service or organization responsible;

b) street address and e-mail address of the individual, service or organization responsible;

c) telefax number of the individual, service or organization responsible;

d) contact telephone number of the individual, service or organization responsible;

e) hours of service (time period including time zone when contact can be made);

f) online information that can be used to contact the individual, service or organization; and

g) supplemental information, if necessary, on how and when to contact the individual, service or organization.

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GEN 3.2 Aeronautical charts

GEN 3.2.1 Responsible service(s)

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

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.2.2 Maintenance of chartsBrief description of how aeronautical charts are revised

and amended.

GEN 3.2.3 Purchase arrangementsDetails of how charts may be obtained, containing:

1) service/sales agency(ies);

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

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GEN 3.2.4 Aeronautical chart series available

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

GEN 3.2.5 List of aeronautical charts available

A list of aeronautical charts available, including:

1) title of series;

2) scale of series;

3) name and/or number of each chart or each sheet in a series;

4) price per sheet; and

5) date of latest revision.

GEN 3.2.6 Index to the World Aeronautical Chart (WAC) — ICAO 1:1 000 000

An index chart showing coverage and sheet layout for the WAC 1:1 000 000 produced by a State. If Aeronautical Chart — ICAO 1:500 000 is produced instead of WAC 1:1 000 000, index charts shall be used to indicate coverage and sheet layout for the Aeronautical Chart — ICAO 1:500 000.

GEN 3.2.7 Topographical chartsDetails of how topographical charts may be obtained,

containing:

1) name of service/agency(ies);

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

GEN 3.2.8 Corrections to charts not contained in the AIP

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

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GEN 3.3 Air traffic services

GEN 3.3.1 Responsible service

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

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.3.2 Area of responsibilityBrief description of area of responsibility for which ATS is provided.

GEN 3.3.3 Types of servicesBrief description of main types of ATS provided.

GEN 3.3.4 Coordination between the operator and ATS

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

GEN 3.3.5 Minimum flight altitudeThe criteria used to determine minimum flight altitudes.

GEN 3.3.6 ATS units address listA list of ATS units and their addresses arranged alphabetically, containing:

1) unit name;

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2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

GEN 3.4 Communication and navigation services

GEN 3.4.1 Responsible service

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

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.4.2 Area of responsibility

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

GEN 3.4.3 Types of service Brief description of the main types of service and

facilities provided, including:

1) radio navigation services;

2) voice and/or data link services;

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3) broadcasting service;

4) language(s) used; and

5) an indication of where detailed information can be obtained.

GEN 3.4.4 Requirements and conditions

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

GEN 3.4.5 Miscellaneous

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

GEN 3.5 Meteorological services

GEN 3.5.1 Responsible service

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

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.5.2 Area of responsibility

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

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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 serviceDescription of VOLMET and/or D-VOLMET service,

including:

1) name of transmitting station;

2) call sign or identification and abbreviation for the radio communication emission;

3) frequency or frequencies used for broadcast;

4) broadcasting period;

5) hours of service;

6) list of aerodromes/heliports for which reports and/or forecasts are included; and

7) reports, forecasts and SIGMET information included and remarks.

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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 trafficservices are provided, including a list of the meteorological watch offices with:

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

2) hours of service;

3) flight information region(s) or control area(s) served;

4) SIGMET validity periods;

5) specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones);

6) procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);

7) ATS unit(s) provided with SIGMET and AIRMET information; and

8) additional information (e.g. concerning any limitation of service, etc.).

GEN 3.5.9 Other automated meteorological services

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

1) service name;

2) information available;

3) areas, routes and aerodromes covered; and

4) telephone and telefax number(s), e-mail address, and, if available, website address.

GEN 3.6 Search and rescue

GEN 3.6.1 Responsible service(s)

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

1) service/unit name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

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7) website address, if available; and

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed.

GEN 3.6.2 Area of responsibility Brief description of area of responsibility within which

SAR services are provided.

GEN 3.6.3 Types of service

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

GEN 3.6.4 SAR agreements

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

GEN 3.6.5 Conditions of availability

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

GEN 3.6.6 Procedures and signals used

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

GEN 4. CHARGES FOR AERODROMES/HELIPORTSAND AIR NAVIGATION SERVICES

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;

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2) parking, hangarage and long-term storage of aircraft;

3) passenger service;

4) security;

5) noise-related items;

6) other (customs, health, immigration, etc.);

7) exemptions/reductions; and

8) methods of payment.

GEN 4.2 Air navigation services charges

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

1) approach control;

2) route air navigation services;

3) cost basis for air navigation services and exemptions/reductions; and

4) methods of payment.

PART 2 — EN-ROUTE (ENR)

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

ENR 0.1 Table of contents to Part 2

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

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.

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ENR 1.2 Visual flight rules

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

ENR 1.3 Instrument flight rules

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

ENR 1.4 ATS airspace classification and description

ENR 1.4.1 ATS airspace classification

Description of ATS airspace classes in the form of the ATS airspace classification table in GCAD Part 24, appropriately annotated to indicate those airspace classes not used by the State.

ENR 1.4.2 ATS airspace description

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

ENR 1.5 Holding, approach and departure procedures

ENR 1.5.1 General

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

ENR 1.5.2 Arriving flights

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

ENR 1.5.3 Departing flights

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

ENR 1.5.4 Other relevant information and procedures

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

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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

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

1) emergency procedures;

2) air-ground communication failure and unlawful interference procedures;

3) the system of SSR code assignment;

4) voice and CPDLC position reporting requirements; and

5) graphic portrayal of area of SSR coverage.

ENR 1.6.3 Automatic dependent surveillance — broadcast

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.

ENR 1.6.4 Other relevant information and procedures

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

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

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with differences to ICAO provisions, if any;

2) basic altimeter setting procedures;

3) description of altimeter setting region(s);

4) procedures applicable to operators (including pilots); and

5) table of cruising levels.

ENR 1.8 Regional supplementary procedures

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

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.

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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 clearindication of whether ICAO provisions are applied and, if not, that differences exist.

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

ENR 1.13 Unlawful interference

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

ENR 1.14 Air traffic incidents

Description of air traffic incidents reporting system, including:

1) definition of air traffic incidents;

2) use of the "Air Traffic Incident Reporting Form";

3) reporting procedures (including in-flight procedures); and

4) purpose of reporting and handling of the form.

ENR 2. ATS 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:

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1) name, geographical coordinates in degrees and minutes of the FIR/UIR lateral limits and in degrees, minutes and seconds of the CTA lateral limits, vertical limits and class of airspace;

2) identification of unit providing the service;

3) call sign of aeronautical station serving the unit and language(s) used, specifying the area and conditions, when and where to be used, if applicable;

4) frequencies, and if applicable SATVOICE number, supplemented by indications for specific purposes; and

5) remarks.

Control zones around military air bases not otherwise described in the AIP shall be included in this subsection. Where the requirements of Annex 2 concerning flight plans, two-way communications and positionreporting apply to all flights in order to eliminate or reduce the need for interceptions and/or where the possibility of interception exists and the maintenance of guard on the VHF emergency channel 121.5 MHz is required, a statement to this effect shall be included for the relevant area(s) or portion(s) thereof.

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

ENR 2.2 Other regulated airspace

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

ENR 3. ATS ROUTES

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

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

Note 3.— Guidance material on the organization of ATS route publication is contained in the Aeronautical Information Services Manual *(Doc 8126).*

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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;

5) direction of cruising levels;

6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

ENR 3.2 Upper ATS routes

Detailed description of upper 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 and airspace classification;

4) lateral limits;

5) direction of cruising levels;

6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

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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;

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.

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 points;

3) upper and lower limits and airspace classification;

4) minimum flight altitudes to the nearest higher 50 m or 100 ft;

5) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

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6) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

ENR 3.5 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.

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 arrangedalphabetically by name of the station, including:

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

2) identification;

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3) frequency/channel for each element;

4) hours of operation;

5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting antenna;

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

7) remarks.

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

ENR 4.2 Special navigation systems

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

1) name of station or chain;

2) type of service available (master signal, slave signal, colour);

3) frequency (channel number, basic pulse rate, recurrence rate, as applicable);

4) hours of operation;

5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting station; and

6) remarks.

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

ENR 4.3 Global navigation satellite system (GNSS)

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

1) the name of the GNSS element, (GPS, GLONASS, EGNOS, MSAS, WAAS, etc.);

2) frequency(ies), as appropriate;

3) geographical coordinates in degrees, minutes and seconds of the nominal service area and coverage area; and

4) remarks.

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

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ENR 4.4 Name-code designators for significant points

A list of alphabetically arranged name-code designators (five-letter pronounceable "name-code") establishedfor 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 areselected by the State as being significant, including:

1) name of the city or town or other identification of the beacon;

2) type of beacon and intensity of the light in thousands of candelas;

3) characteristics of the signal;

4) operational hours; and

5) remarks.

ENR 5. NAVIGATION WARNINGS

ENR 5.1 Prohibited, restricted and danger areas

Description, supplemented by graphic portrayal where appropriate, of prohibited, restricted and danger areastogether with information regarding their establishment and activation, including:

1) identification, name and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) upper and lower limits; and

3) remarks, including time of activity.

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

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

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

1) geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) upper and lower limits and system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures; and

3) remarks, including time of activity and risk of interception in the event of penetration of ADIZ.

ENR 5.3 Other activities of a dangerousnature 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:

1) geographical coordinates in degrees and minutes of centre of area and range of influence;

2) vertical limits;

3) advisory measures;

4) authority responsible for the provision of information; and

5) remarks, including time of activity.

ENR 5.3.2 Other potential hazards

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

1) geographical coordinates in degrees and minutes of location of potential hazard;

2) vertical limits;

3) advisory measures;

4) authority responsible for the provision of information; and

5) remarks.

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ENR 5.4 Air navigation obstacles

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

1) obstacle identification or designation;

2) type of obstacle;

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

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

5) type and colour of obstacle lighting (if any).

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

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations/heights for obstacles in Area 1 are given in IS 15..

ENR 5.5 Aerial sporting and recreational activities

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

1) designation and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) vertical limits;

3) operator/user telephone number; and

4) remarks, including time of activity.

ENR 5.6 Bird migration and areas with sensitive fauna

Description, supplemented by charts where practicable, of movements of birds associated with migration, includingmigration 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.

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PART 3 — AERODROMES (AD)

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

AD 0.1 Table of contents to Part 3

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

AD 1. AERODROMES/HELIPORTS — INTRODUCTION

AD 1.1 Aerodrome/heliport availability and conditions of use

AD 1.1.1 General conditions

Brief description of the State's designated authority responsible for aerodromes and heliports, including:

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

2) a statement concerning the ICAO documents on which the services are based and a reference to the AIP location where differences, if any, are listed.

AD 1.1.2 Use of military air bases

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

AD 1.1.3 Low visibility procedures

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

AD 1.1.4 Aerodrome operating minimaDetails of aerodrome operating minima applied by

the State.

AD 1.1.5 Other informationIf applicable, other information of a similar nature.

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AD 1.2 Rescue and firefighting services and snow plan

AD 1.2.1 Rescue and firefighting services

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

AD 1.2.2 Snow plan

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

1) organization of the winter service;

2) surveillance of movement areas;

3) measuring methods and measurements taken;

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

5) system and means of reporting;

6) the cases of runway closure; and

7) distribution of information about snow conditions.

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

AD 1.3 Index to aerodromes and heliports

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

1) aerodrome/heliport name and ICAO location indicator;

2) type of traffic permitted to use the aerodrome/heliport (international/national, IFR/VFR, scheduled/non-scheduled, general aviation, military and other); and

3) reference to AIP, Part 3 subsection in which aerodrome/heliport details are presented.

AD 1.4 Grouping of aerodromes/heliports

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

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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 ICAOlocation indicator shall be an integral part of the referencing system applicable to all subsections in section AD 2.

**** AD 2.2 Aerodrome geographical and administrative data

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

1) aerodrome reference point (geographical coordinates in degrees, minutes and seconds) and its site;

2) direction and distance of aerodrome reference point from centre of the city or town which the aerodrome serves;

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

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

5) magnetic variation to the nearest degree, date of information and annual change;

6) name of aerodrome operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address;

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

8) remarks.

**** AD 2.3 Operational hours

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

1) aerodrome operator;

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2) customs and immigration;

3) health and sanitation;

4) AIS briefing office;

5) ATS reporting office (ARO);

6) MET briefing office;

7) air traffic service;

8) fuelling;

9) handling;

10) security;

11) de-icing; and

12) remarks.

****** AD 2.4 Handling services and facilities**

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

1) cargo-handling facilities;

2) fuel and oil types;

3) fuelling facilities and capacity;

4) de-icing facilities;

5) hangar space for visiting aircraft;

6) repair facilities for visiting aircraft; and

7) remarks.

****** AD 2.5 Passenger facilities**

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

1) hotel(s) at or in the vicinity of aerodrome;

2) restaurant(s) at or in the vicinity of aerodrome;

3) transportation possibilities;

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4) medical facilities;

5) bank and post office at or in the vicinity of aerodrome;

6) tourist office; and

7) remarks.

****** AD 2.6 Rescue and firefighting services**

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

1) aerodrome category for firefighting;

2) rescue equipment;

3) capability for removal of disabled aircraft; and

4) remarks.

****** AD 2.7 Seasonal availability — clearing**

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

1) type(s) of clearing equipment;

2) clearance priorities; and

3) remarks.

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

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

1) designation, surface and strength of aprons;

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

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

4) location of VOR checkpoints;

5) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and

6) remarks.

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

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

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

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

2) runway and taxiway markings and lights;

3) stop bars and runway guard lights (if any);

4) other runway protection measures; and

5) remarks.

****** AD 2.10 Aerodrome obstacles**

Detailed description of obstacles, including:

1) obstacles in Area 2:

a) obstacle identification or designation;

b) type of obstacle;

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

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

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

f) NIL indication, if appropriate.

Note 1.— GCAD Part 15.3 provides a description of Area 2 while IS:15.5.3.3(1)(b), Figure A8-2 of this document contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 2 are given in IS:15.2.2(4).

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;

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

d) obstacle elevation and height to the nearest tenth of a metre or tenth of a foot;

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

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

g) NIL indication, if appropriate.

Note 1.— GCAD Part 15.5.3 provides a description of Area 3 while IS:15.5.3.3(1)(b), Figure A8-3 of this document contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.

Note 2.— Specifications concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 3 are given in IS:15.2.2(4).

****** AD 2.11 Meteorological information provided**

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

1) name of the associated meteorological office;

2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;

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

4) availability of the trend forecasts for the aerodrome, and interval of issuance;

5) information on how briefing and/or consultation is provided;

6) types of flight documentation supplied and language(s) used in flight documentation;

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

8) supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;

9) the air traffic services unit(s) provided with meteorological information; and

10) additional information (e.g. concerning any limitation of service).

****** AD 2.12 Runway physical characteristics**

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

1) designations;

2) true bearings to one-hundredth of a degree;

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3) dimensions of runways to the nearest metre or foot;

4) strength of pavement (PCN and associated data) and surface of each runway and associated stopways;

5) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for each threshold and runway end and, where appropriate, geoid undulation of:

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

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

6) elevations of:

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

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

7) slope of each runway and associated stopways;

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

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

10) dimensions of strips;

11) dimensions of runway end safety areas;

12) location (which runway end) and description of arresting system (if any);

13) the existence of an obstacle-free zone; and

14) remarks.

****** AD 2.13 Declared distances**

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

1) runway designator;

2) take-off run available;

3) take-off distance available, and if applicable, alternative reduced declared distances;

4) accelerate-stop distance available;

5) landing distance available; and

6) remarks, including runway entry or start point where alternative reduced declared distances have been declared.

If a runway direction cannot be used for take-off or landing, or both, because it is operationally forbidden, then this shall be declared and the words "not usable" or the abbreviation "NU" entered (Annex 14, Volume I, Attachment A, Section 3).

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****** AD 2.14 Approach and runway lighting**

Detailed description of approach and runway lighting, including:

1) runway designator;

2) type, length and intensity of approach lighting system;

3) runway threshold lights, colour and wing bars;

4) type of visual approach slope indicator system;

5) length of runway touchdown zone lights;

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

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

8) colour of runway end lights and wing bars;

9) length and colour of stopway lights; and

10) remarks.

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

Description of other lighting and secondary power supply, including:

1) location, characteristics and hours of operation of aerodrome beacon/identification beacon (if any);

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

3) taxiway edge and taxiway centre line lights;

4) secondary power supply including switch-over time; and

5) remarks.

****** AD 2.16 Helicopter landing area**

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

1) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric centre of touchdown and lift-off (TLOF) or of each threshold of final approach and take-off (FATO) area:

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

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

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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:

1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;

2) vertical limits;

3) airspace classification;

4) call sign and language(s) of the ATS unit providing service;

5) transition altitude;

6) hours of applicability; and

7) remarks.

****** AD 2.18 Air traffic services communication facilities**

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

1) service designation;

2) call sign;

3) channel(s);

4) SATVOICE number(s), if available;

5) logon address, as appropriate;

6) hours of operation; and

7) remarks.

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****** 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:

1) type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS, and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;

2) identification, if required;

3) frequency(ies), channel number(s), service provider and reference path identifier(s) (RPI), as appropriate;

4) hours of operation, as appropriate;

5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;

6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft); elevation of GBAS reference point to the nearest metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot;

7) service volume radius from the GBAS reference point to the nearest kilometre or nautical mile; and

8) remarks.

When the same aid is used for both en-route and aerodrome purposes, a description shall also be given in sectionENR 4. If the GBAS serves more than one aerodrome, description of the aid shall be provided under each aerodrome. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

****** AD 2.20 Local aerodrome regulations**

Detailed description of regulations applicable to the use of the aerodrome, including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

****** AD 2.21 Noise abatement procedures**

Detailed description of noise abatement procedures established at the aerodrome.

****** AD 2.22 Flight procedures**

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome. When established, detailed description of the low visibility procedures at the aerodrome, including:

1) runway(s) and associated equipment authorized for use under low visibility procedures;

2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;

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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 withan indication of significant daily movement between resting and feeding areas, to the extent practicable.

****** AD 2.24 Charts related to an aerodrome**

The requirement is for charts related to an aerodrome to be included in the following order:

1) Aerodrome/Heliport Chart — ICAO;

2) Aircraft Parking/Docking Chart — ICAO;

3) Aerodrome Ground Movement Chart — ICAO;

4) Aerodrome Obstacle Chart — ICAO Type A (for each runway);

5) Aerodrome Obstacle Chart — ICAO Type B (when available);

6) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);

7) Precision Approach Terrain Chart — ICAO (precision approach Cat II and III runways);

8) Area Chart — ICAO (departure and transit routes);

9) Standard Departure Chart — Instrument — ICAO;

10) Area Chart — ICAO (arrival and transit routes);

11) Standard Arrival Chart — Instrument — ICAO;

12) ATC Surveillance Minimum Altitude Chart — ICAO;

13) Instrument Approach Chart — ICAO (for each runway and procedure type);

14) Visual Approach Chart — ICAO; and

15) bird concentrations in the vicinity of the aerodrome.

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

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

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AD 3. HELIPORTS

When a helicopter landing area is provided at the aerodrome, associated data shall be listed only under **** AD 2.16.

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

**** AD 3.1 Heliport location indicator and name

The requirement is for the ICAO location indicator assigned to the heliport and the name of heliport. An ICAO location indicator shall be an integral part of the referencing system applicable to all subsections in section AD 3.

**** AD 3.2 Heliport geographical and administrative data

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

1) heliport reference point (geographical coordinates in degrees, minutes and seconds) and its site;

2) direction and distance of heliport reference point from centre of the city or town which the heliport serves;

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

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

5) magnetic variation to the nearest degree, date of information and annual change;

6) name of heliport operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address;

7) types of traffic permitted to use the heliport (IFR/VFR); and

8) remarks.

**** AD 3.3 Operational hours

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

1) heliport operator;

2) customs and immigration;

3) health and sanitation;

4) AIS briefing office;

5) ATS reporting office (ARO);

6) MET briefing office;

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7) air traffic service;

8) fuelling;

9) handling;

10) security;

11) de-icing; and

12) remarks.

****** AD 3.4 Handling services and facilities**

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

1) cargo-handling facilities;

2) fuel and oil types;

3) fuelling facilities and capacity;

4) de-icing facilities;

5) hangar space for visiting helicopters;

6) repair facilities for visiting helicopters; and

7) remarks.

****** AD 3.5 Passenger facilities**

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

1) hotel(s) at or in the vicinity of the heliport;

2) restaurant(s) at or in the vicinity of the heliport;

3) transportation possibilities;

4) medical facilities;

5) bank and post office at or in the vicinity of the heliport;

6) tourist office; and

7) remarks.

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****** AD 3.6 Rescue and firefighting services**

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

1) heliport category for firefighting;

2) rescue equipment;

3) capability for removal of disabled helicopters; and

4) remarks.

****** AD 3.7 Seasonal availability — clearing**

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

1) type(s) of clearing equipment;

2) clearance priorities; and

3) remarks.

****** AD 3.8 Aprons, taxiways and check locations/positions data**

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

1) designation, surface and strength of aprons, helicopter stands;

2) designation, width and surface type of helicopter ground taxiways;

3) width and designation of helicopter air taxiway and air transit route;

4) location and elevation to the nearest metre or foot of altimeter checkpoints;

5) location of VOR checkpoints;

6) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and

7) remarks.

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

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****** AD 3.9 Markings and markers**

Brief description of final approach and take-off area and taxiway markings and markers, including:

1) final approach and take-off markings;

2) taxiway markings, air taxiway markers and air transit route markers; and

3) remarks.

****** AD 3.10 Heliport obstacles**

Detailed description of obstacles, including:

1) obstacle identification or designation;

2) type of obstacle;

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

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

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

6) NIL indication, if appropriate.

****** AD 3.11 Meteorological information provided**

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

1) name of the associated meteorological office;

2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;

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

4) availability of the trend forecasts for the heliport, and interval of issuance;

5) information on how briefing and/or consultation is provided;

6) type of flight documentation supplied and language(s) used in flight documentation;

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

8) supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;

9) the ATS unit(s) provided with meteorological information; and

10) additional information (e.g. concerning any limitation of service).

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****** AD 3.12 Heliport data**

Detailed description of heliport dimensions and related information, including:

1) heliport type (surface-level, elevated or helideck);

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

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

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

5) surface and bearing strength in tonnes (1 000 kg) of TLOF;

6) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric centre of TLOF or of each threshold of FATO:

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

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

7) TLOF and/or FATO slope and elevation:

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

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

8) dimensions of safety area;

9) dimensions, to the nearest metre or foot, of helicopter clearway;

10) the existence of an obstacle-free sector; and

11) remarks.

****** AD 3.13 Declared distances**

Detailed description of declared distances to the nearest metre or foot, where relevant for a heliport, including:

1) take-off distance available, and if applicable, alternative reduced declared distances;

2) rejected take-off distance available;

3) landing distance available; and

4) remarks, including entry or start point where alternative reduced declared distances have been declared.

****** AD 3.14 Approach and FATO lighting**

Detailed description of approach and FATO lighting, including:

1) type, length and intensity of approach lighting system;

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2) type of visual approach slope indicator system;

3) characteristics and location of FATO area lights;

4) characteristics and location of aiming point lights;

5) characteristics and location of TLOF lighting system; and

6) remarks.

****** AD 3.15 Other lighting and secondary power supply**

Description of other lighting and secondary power supply, including:

1) location, characteristics and hours of operation of heliport beacon;

2) location and lighting of wind direction indicator (WDI);

3) taxiway edge and taxiway centre line lights;

4) secondary power supply including switch-over time; and

5) remarks.

****** AD 3.16 Air traffic services airspace**

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

1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;

2) vertical limits;

3) airspace classification;

4) call sign and language(s) of ATS unit providing service;

5) transition altitude;

6) hours of applicability; and

7) remarks.

****** AD 3.17 Air traffic services communication facilities**

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

1) service designation;

2) call sign;

3) channel(s);

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4) SATVOICE number(s), if available;

5) logon address, as appropriate;

6) hours of operation; and

7) remarks.

****** AD 3.18 Radio navigation and landing aids**

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

1) type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;

2) identification, if required;

3) frequency(ies), channel number(s), service provider and reference path identifier(s) (RPI), as appropriate;

4) hours of operation, as appropriate;

5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;

6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft), elevation of GBAS reference point to the nearest metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot;

7) service volume radius from the GBAS reference point to the nearest kilometre or nautical mile; and

8) remarks.

When the same aid is used for both en-route and heliport purposes, a description shall also be given in section ENR 4. If the GBAS serves more than one heliport, description of the aid shall be provided under each heliport. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

****** AD 3.19 Local heliport regulations**

Detailed description of regulations applicable to the use of the heliport, including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

****** AD 3.20 Noise abatement procedures**

Detailed description of noise abatement procedures established at the heliport.

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**** 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 visibilityprocedures at the heliport, including:

1) touchdown and lift-off (TLOF) area(s) and associated equipment authorized for use under low visibility procedures;

2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;

3) description of ground marking/lighting for use under low visibility procedures; and

4) remarks.

**** AD 3.22 Additional information

Additional information about the heliport, such as an indication of bird concentrations at the heliport, together with an indication of significant daily movement between resting and feeding areas, to the extent practicable.

**** AD 3.23 Charts related to a heliport

The requirement is for charts related to a heliport to be included in the following order:

1) Aerodrome/Heliport Chart — ICAO;

2) Area Chart — ICAO (departure and transit routes);

3) Standard Departure Chart — Instrument — ICAO;

4) Area Chart — ICAO (arrival and transit routes);

5) Standard Arrival Chart — Instrument — ICAO;

6) ATC Surveillance Minimum Altitude Chart — ICAO;

7) Instrument Approach Chart — ICAO (for each procedure type);

8) Visual Approach Chart — ICAO; and

9) bird concentrations in the vicinity of heliport.

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

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IS 15.5.2.6(1) NOTAM FORMAT

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Priority indicator	→
Address	
	«≡
Date and time of filing	→
Originator's indicator	«≡(

Message series, number and identifier

NOTAM containing new information	..... NOTAMN (series and number/year)
NOTAM replacing a previous NOTAM	..... NOTAMR ..... (series and number/year) (series and number/year of NOTAM to be replaced)
NOTAM cancelling a previous NOTAM	..... NOTAMC ..... (series and number/year) (series and number/year of NOTAM to be cancelled) «≡

Qualifiers

	FIR	NOTAM Code	Traffic	Purpose	Scope	Lower limit	Upper limit	Coordinates, Radius	
Q)		Q							«≡

Identification of ICAO location indicator in which the facility, airspace or condition reported on is located	A)

Period of validity

From *(date-time group)*	B)										→	
To *(PERM or date-time group)*	C)										**EST* PERM***	«≡
Time schedule *(if applicable)*	D)											→
												«≡

Text of NOTAM; plain-language entry (using ICAO abbreviations)

E)

«≡

Lower limit	F) →
Upper limit	G)) «≡
Signature	

***Delete as appropriate**

INSTRUCTIONS FOR THE COMPLETION OF THE NOTAM FORMAT

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

1. General

The qualifier line (Item Q)) and all identifiers (Items A) to G) inclusive) each followed by a closing parenthesis, as shown in the format, shall be transmitted unless there is no entry to be made against a particular identifier.

2. NOTAM numbering

Each NOTAM shall be allocated a series identified by a letter and a four-digit number followed by a stroke and a two- digit number for the year (e.g. A0023/03). Each series shall start on 1 January with number 0001.

3. Qualifiers (Item Q)

Item Q) is divided into eight fields, each separated by a stroke. An entry shall be made in each field. Examples of how fields are to be filled are shown in the *Aeronautical Information Services Manual* (Doc 8126). The definition of the fields is as follows:

1) FIR

a) If the subject of the information is located geographically within one FIR, the ICAO location indicator shall be that of the FIR concerned. When an aerodrome is situated within the overlying FIR of another State, the first field of Item Q) shall contain the code for that overlying FIR (e.g. Q) LFRR/…A) EGJJ);

or,

if the subject of the information is located geographically within more than one FIR, the FIR field shall be composed of the ICAO nationality letters of the State originating the NOTAM followed by "XX". (The location indicator of the overlying UIR shall not be used). The ICAO location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or non-governmental agency which is responsible for provision of a navigation service in more than one State.

b) If one State issues a NOTAM affecting FIRs in a group of States, the first two letters of the ICAO location indicator of the issuing State plus "XX" shall be included. The location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or non-governmental agency which is responsible for provision of a navigation service in more than one State.

2) NOTAM CODE

All NOTAM Code groups contain a total of five letters and the first letter is always the letter Q. The second and third letters identify the subject, and the fourth and fifth letters denote the status or condition of the subject reported upon. The two-letter codes for subjects and conditions are those contained in the PANS-ABC (Doc 8400). For combinations of second and third, and fourth and fifth letters, refer to the NOTAM Selection Criteria contained in Doc 8126 or insert one of the following combinations, as appropriate:

a) If the subject is not listed in the NOTAM Code (PANS-ABC, Doc 8400) or in the NOTAM Selection Criteria (Doc 8126), insert "XX" as the second and third letters ; If subject is "XX", use "XX" also for condition (e.g. QXXXX).

b) If the condition of the subject is not listed in the NOTAM Code (Doc 8400) or in the NOTAM Selection Criteria (Doc 8126), insert "XX" as the fourth and fifth letters (e.g. QFAXX);

c) When a NOTAM containing operationally significant information is issued in accordance with Annex 15, 6.2.1, and when it is used to announce the existence of AIRAC AIP Amendments or Supplements, insert "TT" as the fourth and fifth letters of the NOTAM Code;

d) When a NOTAM is issued containing a checklist of valid NOTAM, insert "KKKK" as the second, third, fourth and fifth letters; and

e) The following fourth and fifth letters of the NOTAM Code shall be used in NOTAM cancellations:

AK = RESUMED NORMAL OPERATION
AL = OPERATIVE (OR RE-OPERATIVE) SUBJECT TO PREVIOUSLY PUBLISHED LIMITATIONS/CONDITIONS AO = OPERATIONAL
CC = COMPLETED
CN = CANCELLED
HV = WORK COMPLETED
XX = PLAIN LANGUAGE

Note 1.— As Q - - AO = Operational is used for NOTAM cancellation, NOTAM promulgating new equipmentor services use the following fourth and fifth letters Q - - CS = Installed.

Note 2.— Q - - CN = CANCELLED shall be used to cancel planned activities, e.g. navigation warnings; Q - - HV = WORK COMPLETED is used to cancel work in progress.

3) TRAFFIC

I = IFR
V = VFR
K = NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field TRAFFIC may contain combined qualifiers. Guidance concerning the combination of TRAFFIC qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

4) PURPOSE

N = NOTAM selected for the immediate attention of flight crew members
B = NOTAM of operational significance selected for PIB entry
O = NOTAM concerning flight operations
M = Miscellaneous NOTAM; not subject for a briefing, but available on request
K = NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field PURPOSE may contain the combined qualifiers BO or NBO. Guidance concerning the combination of PURPOSE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

5) SCOPE

A = Aerodrome
E = En-route
W = Nav Warning
K = NOTAM is a checklist

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

Note.— Depending on the NOTAM subject and content, the qualifier field SCOPE may contain combined qualifiers. Guidance concerning the combination of SCOPE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

6) and 7) LOWER/UPPER LIMITS

Lower and upper limits shall only be expressed in flight levels (FL) and shall express the actual vertical limits of the area of influence without the addition of buffers. In the case of navigation warnings and airspace restrictions, values entered shall be consistent with those provided under Items F) and G).

If the subject does not contain specific height information, insert "000" for LOWER and "999" for UPPER as default values.

8) COORDINATES, RADIUS

The latitude and longitude accurate to one minute, as well as a three-digit distance figure giving the radius of influence in NM (e.g. 4700N01140E043). Coordinates present approximate centre of circle whose radius encompasses the whole area of influence, and if the NOTAM affects the entire FIR/UIR or more than one FIR/UIR,enter the default value "999" for radius.

4. Item A)

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Insert the ICAO location indicator as contained in Doc 7910 of the aerodrome or FIR in which the facility, airspace, or condition being reported on is located. More than one FIR/UIR may be indicated when appropriate. If there is no available ICAO location indicator, use the ICAO nationality letter as given in ICAO Doc 7910, Part 2, plus "XX" and followed up in Item E) by the name, in plain language.

If information concerns GNSS, insert the appropriate ICAO location indicator allocated for a GNSS element or the common location indicator allocated for all elements of GNSS (except GBAS).

Note.— In the case of GNSS, the location indicator may be used when identifying a GNSS element outage(e.g. KNMH for a GPS satellite outage).

5. Item B)

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For date-time group use a ten-figure group, giving year, month, day, hours and minutes in UTC. This entry is the date- time at which the NOTAMN comes into force. In the cases of NOTAMR and NOTAMC, the date-time group is the actual date and time of the NOTAM origination. The start of a day shall be indicated by "0000".

6. Item C)

With the exception of NOTAMC, a date-time group (a ten-figure group giving year, month, day, hours and minutes in UTC) indicating duration of information shall be used unless the information is of a permanent nature in which case the abbreviation "PERM" is inserted instead. The end of a day shall be indicated by "2359" (i.e. do not use "2400"). If the information on timing is uncertain, the approximate duration shall be indicated using a date-time group followed by the abbreviation "EST". Any NOTAM which includes an "EST" shall be cancelled or replaced before the date-time specified in Item C).

7. Item D)

If the hazard, status of operation or condition of facilities being reported on will be active in accordance with a specific time and date schedule between the dates-times indicated in Items B) and C), insert such information under Item D). If Item D) exceeds 200 characters, consideration shall be given to providing such information in a separate, consecutive NOTAM.

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

8. Item E)

Use decoded NOTAM Code, complemented where necessary by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language. When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language. This entry shall be clear and concise in order to provide a suitable PIB entry. In the case of NOTAMC, a subject reference and status message shall be included to enable accurate plausibility checks.

9. Items F) and G)

These items are normally applicable to navigation warnings or airspace restrictions and are usually part of the PIB entry. Insert both lower and upper height limits of activities or restrictions, clearly indicating only one reference datum and unit of measurement. The abbreviations GND or SFC shall be used in Item F) to designate ground and surface respectively. The abbreviation UNL shall be used in Item G) to designate unlimited.

IS 15.5.2.6(2) SNOWTAM FORMAT

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

SNOWTAM	(Serial number) <≡

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

NOTES:

1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2 or otherwise applicable aerodrome identifier.
2. Information on other runways, repeat from B to H.
3. Information in the situational awareness section repeated for each runway, taxiway and apron. Repeat as applicable when reported.
4. Words in brackets ( ) not to be transmitted.
5. For letters A) to T) refer to the *Instructions for the completion of the SNOWTAM Format*, paragraph 1, item b).

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

Note.— Origin of data, assessment process and the procedures linked to the surface conditions reporting system are prescribed in the Procedures for Air Navigation Services — Aerodromes *(PANS-Aerodromes, Doc 9981).*

1. General

a) When reporting on more than one runway, repeat Items B to H (aeroplane performance calculation section).

b) The letters used to indicate items are only used for reference purpose and should not be included in the messages. The letters, M (mandatory), C (conditional) and O (optional) mark the usage and information and shall be included as explained below.

c) Metric units shall be used and the unit of measurement not reported.

d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received.

e) A SNOWTAM cancels the previous SNOWTAM.

f) The abbreviated heading "TTAAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for SNOWTAM = SW;
AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
iiii = SNOWTAM serial number in a four-digit group;
CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));
MMYYGGgg = date/time of observation/measurement, whereby:MM = month,
e.g. January = 01, December = 12 YY = day of the month
GGgg = time in hours (GG) and minutes (gg) UTC;
(BBB) = optional group for correction, in the case of an error, to a SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/assessment are indicated by repeated Item B, the latest date/time of observation/assessment is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

g) The text "SNOWTAM" in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.

h) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, and after the aeroplane performance calculation section.

i) When reporting on more than one runway, repeat the information in the aeroplane performance calculation section from the date and time of assessment for each runway before the information in the situational awareness section.

j) Mandatory information is:

1) AERODROME LOCATION INDICATOR;

2) DATE AND TIME OF ASSESSMENT;

3) LOWER RUNWAY DESIGNATOR NUMBER;

4) RUNWAY CONDITION CODE FOR EACH RUNWAY THIRD; and

5) CONDITION DESCRIPTION FOR EACH RUNWAY THIRD (when runway condition code (RWYCC) is reported 1–5)

2. Aeroplane performance calculation section

Item A — Aerodrome location indicator (four-letter location indicator).

Item B — Date and time of assessment (eight-figure date/time group giving time of observation as month, day, hour and minute in UTC).

Item C — Lower runway designator number (nn[L] or nn[C] or nn[R]).

Note.— Only one runway designator is inserted for each runway and always the lower number.

Item D — Runway condition code for each runway third. Only one digit (0, 1, 2, 3, 4, 5 or 6) is inserted for eachrunway third, separated by an oblique stroke (n/n/n).

Item E — Per cent coverage for each runway third. When provided, insert 25, 50, 75 or 100 for each runway third, separated by an oblique stroke ([n]nn/[n]nn/[n]nn).

Note 1.— This information is provided only when the runway condition for each runway third (Item D) has been reported as other than 6 and there is a condition description for each runway third (Item G) that has been reported other than DRY.

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item F — Depth of loose contaminant for each runway third. When provided, insert in millimetres for each runway third, separated by an oblique stroke (nn/nn/nn or nnn/nnn/nnn).

Note 1.— This information is only provided for the following contamination types:

— *standing water, values to be reported 04, then assessed value. Significant changes 3 mm up to and including 15 mm;*

— *slush, values to be reported 03, then assessed value. Significant changes 3 mm up to and including 15 mm;*

— *wet snow, values to be reported 03, then assessed value. Significant changes 5 mm; and*

— *dry snow, values to be reported 03, then assessed value. Significant changes 20 mm.*

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item G — Condition description for each runway third. Insert any of the following condition descriptions for each runway third, separated by an oblique stroke.

COMPACTED SNOWDRY SNOW
DRY SNOW ON TOP OF COMPACTED SNOWDRY SNOW ON TOP OF ICE
FROSTICE SLUSH
STANDING WATER
WATER ON TOP OF COMPACTED SNOWWET
WET ICE WET SNOW
WET SNOW ON TOP OF COMPACTED SNOWWET SNOW ON TOP OF ICE

DRY (only reported when there is no contaminant)

Note.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate runway third(s).

Item H — Width of runway to which the runway condition codes apply. Insert the width in metres if less than the published runway width.

3. Situational awareness section

Note 1.— Elements in the situational awareness section end with a full stop.

Note 2.— Elements in the situational awareness section for which no information exists, or where the conditional circumstances for publication are not fulfilled, are left out completely.

Item I — Reduced runway length. Insert the applicable runway designator and available length in meters (example: RWY nn [L] *or* nn [C] *or* nn [R] REDUCED TO [n]nnn).

Note.— This information is conditional when a NOTAM has been published with a new set of declareddistances.

Item J — Drifting snow on the runway. When reported, insert "DRIFTING SNOW".

Item K — Loose sand on the runway. When loose sand is reported on the runway, insert the lower runway designator and with a space "LOOSE SAND" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] LOOSE SAND).

Item L — Chemical treatment on the runway. When chemical treatment has been reported applied, insert the lower runway designator and with a space "CHEMICALLY TREATED" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] CHEMICALLY TREATED).

Item M — Snow banks on the runway. When snow banks are reported present on the runway, insert the lower runway designator and with a space "SNOW BANK" and with a space left "L" or right "R" or both sides "LR", followed by the distance in metres from centre line separated by a space FM CL (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] SNOW BANK Lnn *or* Rnn *or* LRnn FM CL).

Item N — Snow banks on a taxiway. When snow banks are present on a taxiway, insert the taxiway designator and with a space "SNOW BANK" (TWY [nn]n SNOW BANK).

Item O — Snow banks adjacent to the runway. When snow banks are reported present penetrating the height profile in the aerodrome snow plan, insert the lower runway designator and "ADJ SNOW BANKS" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] ADJ SNOW BANKS).

Item P — Taxiway conditions. When taxiway conditions are reported as poor, insert the taxiway designator followed by a space "POOR" (TWY [n *or* nn] POOR *or* ALL TWYS POOR).

Item R — Apron conditions. When apron conditions are reported as poor, insert the apron designator followed by a space "POOR" (APRON [nnnn] POOR *or* ALL APRONS POOR).

Item S — Measured friction coefficient. Where reported, insert the measured friction coefficient and friction measuring device.

Note.— This will only be reported for States that have an established programme of runway friction measurement using a State-approved friction measuring device.

Item T — Plain language remarks.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

Example SNOWTAM 1

GG EADBZQZX EADNZQZX EADSZQZX170100
EADDYNYX
SWEA0149 EADD 02170055
(SNOWTAM 0149EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
)
Example SNOWTAM 2

GG EADBZQZX EADNZQZX EADSZQZX170140
EADDYNYX
SWEA0150 EADD 02170135
(SNOWTAM 0150EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
)

Example SNOWTAM 3

GG EADBZQZX EADNZQZX EADSZQZX170229
EADDYNYX
SWEA0151 EADD 02170225
(SNOWTAM 0151EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW

RWY 09L SNOW BANK R20 FM CL. RWY 09R ADJ SNOW BANKS. TWY B POOR. APRON NORTH POOR)

Example SNOWTAM 4

GG EADBZQZX EADNZQZX EADSZQZX170350
EADDYNYX
SWEA0152 EADD 02170345
(SNOWTAM 0152EADD
02170345 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/SLUSH
02170134 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW 35

DRIFTING SNOW. RWY 09L LOOSE SAND. RWY 09R CHEMICALLY TREATED. RWY 09C CHEMICALLYTREATED.)

IS 15.5.2.6(3) ASHTAM FORMAT

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

ASHTAM	(SERIAL NUMBER)

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

NOTES:

1. See also Appendix 5 regarding addressee indicators used in predetermined distribution systems.
2. *Enter ICAO nationality letter as given in ICAO Doc 7910, Part 2.
3. See paragraph 3.5 below.
4. Advice on the existence, extent and movement of volcanic ash cloud G) and H) may be obtained from the volcanic ash advisory centre(s) responsible for the FIR concerned.
5. Item titles in brackets ( ) not to be transmitted.

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE ASHTAM FORMAT

1. General

1.1 The ASHTAM provides information on the status of activity of a volcano when a change in its activity is, or is expected to be, of operational significance. This information is provided using the volcano level of alert colour code given in 3.5 below.

1.2 In the event of a volcanic eruption producing ash cloud of operational significance, the ASHTAM also provides information on the location, extent and movement of the ash cloud and the air routes and flight levels affected.

1.3 Issuance of an ASHTAM giving information on a volcanic eruption, in accordance with paragraph 3 below, should **not** be delayed until complete information A) to K) is available but should be issued immediately following receipt of notification that an eruption has occurred or is expected to occur, or a change in the status of activity of a volcano of operational significance has occurred or is expected to occur, or an ash cloud is reported. In the case of an expected eruption, and hence no ash cloud evident at that time, items A) to E) should be completed and items F) to I) indicated as "not applicable". Similarly, if a volcanic ash cloud is reported, e.g. by special air-report, but the source volcano is not known at that time, the ASHTAM should be issued initially with items A) to E) indicated as "unknown", and items F) to K) completed, as necessary, based on the special air-report, pending receipt of further information. In other circumstances, if information for a specific field A) to K) is not available, indicate "NIL".

1.4 The maximum period of validity of ASHTAM is 24 hours. New ASHTAM shall be issued whenever there is a change in the level of alert.

2. Abbreviated heading

2.1 Following the usual aeronautical fixed telecommunication network (AFTN) communications header, the abbreviated heading "TT AAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of ASHTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for ASHTAM = VA;
AA = geographical designator for States, e.g. NZ = New Zealand (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
iiii = ASHTAM serial number in a four-figure group;
CCCC = four-letter location indicator of the flight information region concerned (see *Location Indicators* (Doc 7910), Part 5, addresses of centres in charge of FIR/UIR);
MMYYGGgg = date/time of report, whereby:
MM = month, e.g. January = 01, December = 12YY = day of the month
GGgg = time in hours (GG) and minutes (gg) UTC;
(BBB) = Optional group for correction to an ASHTAM message previously disseminated with the same serial number = COR.

Note.— Brackets in (BBB) are used to indicate that this group is optional.

Example: Abbreviated heading of ASHTAM for Auckland Oceanic FIR, report on 7 November at 0620 UTC:VANZ0001

NZZO 11070620

3. Content of ASHTAM

3.1 *Item A* — Flight information region affected, plain-language equivalent of the location indicator given in the abbreviated heading, in this example "Auckland Oceanic FIR".

3.2 *Item B* — Date and time (UTC) of first eruption.

3.3 *Item C* — Name of volcano, and number of volcano as listed in the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691), Appendix E, and on the World Map of Volcanoes and Principal Aeronautical Features.

3.4 *Item D* — Latitude/Longitude of the volcano in whole degrees or radial and distance of volcano from NAVAID as listed in Doc 9691, Appendix E, and on the World Map of Volcanoes and Principal Aeronautical Features).

3.5 *Item E* — Colour code for level of alert indicating volcanic activity, including any previous level of alert colour code as follows:

Level of alert colour code	*Status of activity of volcano*
GREEN ALERT	Volcano is in normal, non-eruptive state. *or, after a change from a higher alert level:* Volcanic activity considered to have ceased, and volcano reverted to its normal, non-eruptive state.
YELLOW ALERT	Volcano is experiencing signs of elevated unrest above known background levels. *or, after a change from a higher alert level:* Volcanic activity has decreased significantly but continues to be closely monitored for possible renewed increase.
ORANGE ALERT	Volcano is exhibiting heightened unrest with increased likelihood of eruption. *or,* Volcanic eruption is underway with no or minor ash emission *[specify ash-plume height if possible].*
RED ALERT	Eruption is forecast to be imminent with significant emission of ash into the atmosphere likely. *or,* Eruption is underway with significant emission of ash into the atmosphere *[specify ash-plume height if possible].*

Note.— The colour code for the level of alert indicating the status of activity of the volcano and any change from a previous status of activity should be provided to the area control centre by the responsible vulcanological agency in the State concerned, e.g. "RED ALERT FOLLOWING YELLOW" OR "GREEN ALERT FOLLOWING ORANGE".

3.6 *Item F* — If volcanic ash cloud of operational significance is reported, indicate the horizontal extent and base/top of the ash cloud using latitude/longitude (in whole degrees) and altitudes in thousands of metres (feet) and/or radial and distance from source volcano. Information initially may be based only on special air-report, but subsequent information may be more detailed based on advice from the responsible meteorological watch office and/or volcanic ash advisory centre.

3.7 *Item G* — Indicate forecast direction of movement of the ash cloud at selected levels based on advice from the responsible meteorological watch office and/or volcanic ash advisory centre.

3.8 *Item H* — Indicate air routes and portions of air routes and flight levels affected, or expected to become affected.

3.9 *Item I* — Indicate closure of airspace, air routes or portions of air routes, and availability of alternative routes.

3.10 *Item J* — The source of the information (e.g. "special air-report" or "vulcanological agency.)should always be indicated, whether an eruption has actually occurred or ash cloud reported, or not.

3.11 *Item K* — Include in plain language any operationally significant information additional to the foregoing.

IS:15.5.3.3(1)(a) TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

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Table A6-1. Terrain attributes

Terrain attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Acquisition method	Mandatory
Post spacing	Mandatory
Horizontal reference system	Mandatory
Horizontal resolution	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Elevation	Mandatory
Elevation reference	Mandatory
Vertical reference system	Mandatory
Vertical resolution	Mandatory
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Surface type	Optional
Recorded surface	Mandatory
Penetration level	Optional
Known variations	Optional
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory

Table A6-2. Obstacle attributes

Obstacle attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Obstacle identifier	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Horizontal resolution	Mandatory
Horizontal extent	Mandatory
Horizontal reference system	Mandatory
Elevation	Mandatory
Height	Optional
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Vertical resolution	Mandatory
Vertical reference system	Mandatory
Obstacle type	Mandatory
Geometry type	Mandatory
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory
Operations	Optional
Effectivity	Optional
Lighting	Mandatory

IS:15.5.3.3(1)(b) TERRAIN AND OBSTACLE DATA REQUIREMENTS

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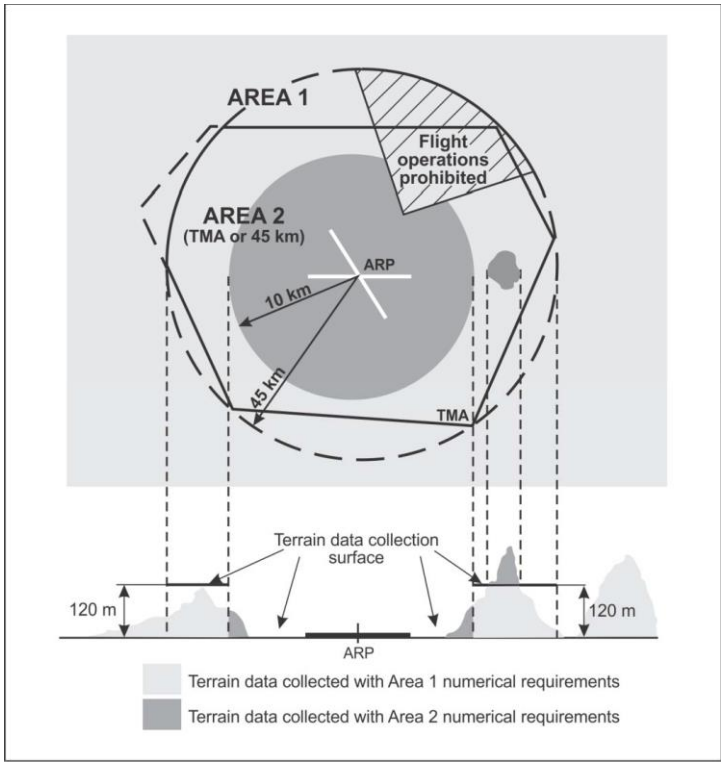

Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

1. Within the area covered by a 10-km radius from the aerodrome reference point (ARP), terrain data shall comply with the Area 2 numerical requirements.

2. In the area between 10 km and the terminal control area (TMA) boundary or 45-km radius (whichever is smaller), data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 2 numerical requirements.

3. In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 1 numerical requirements.

4. In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data shall comply with the Area 1 numerical requirements.

Note.— Terrain data numerical requirements for Areas 1 and 2 are specified in IS:15.2.2(4).

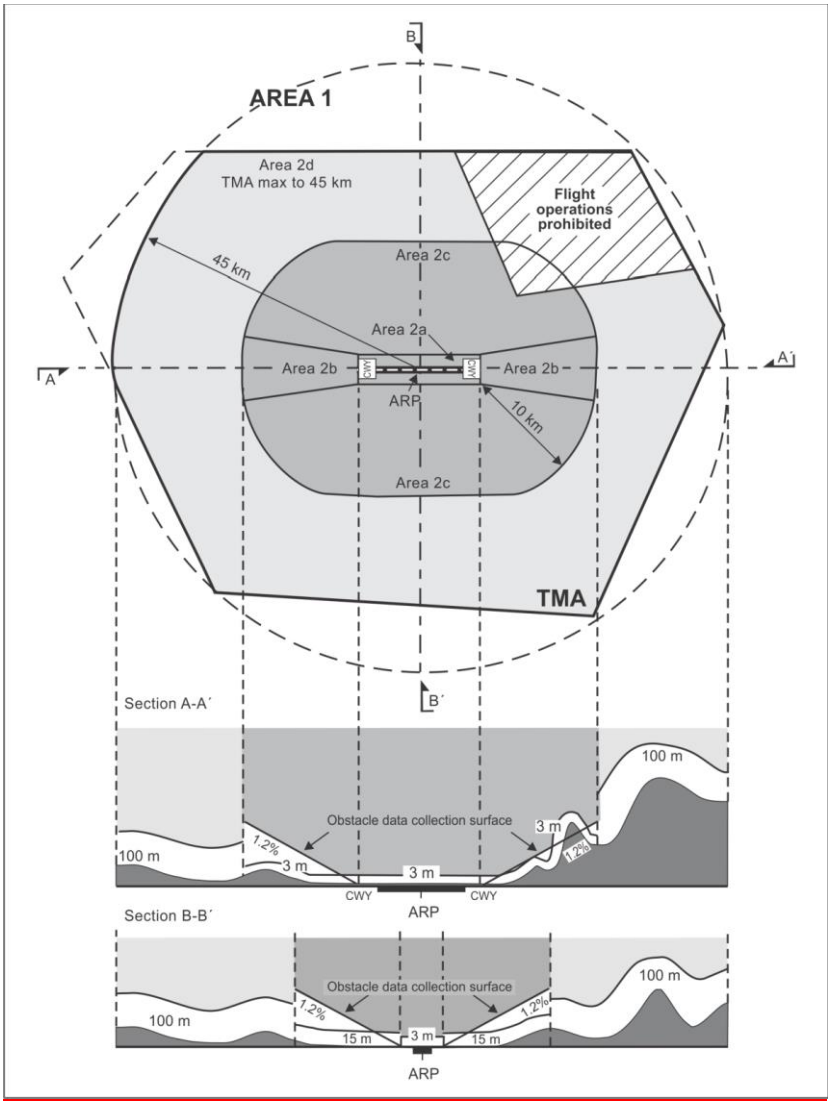

Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

1. Obstacle data shall be collected and recorded in accordance with the Area 2 numerical requirements specified in IS:15.2.2(4).

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 IS:15.2.2(4).

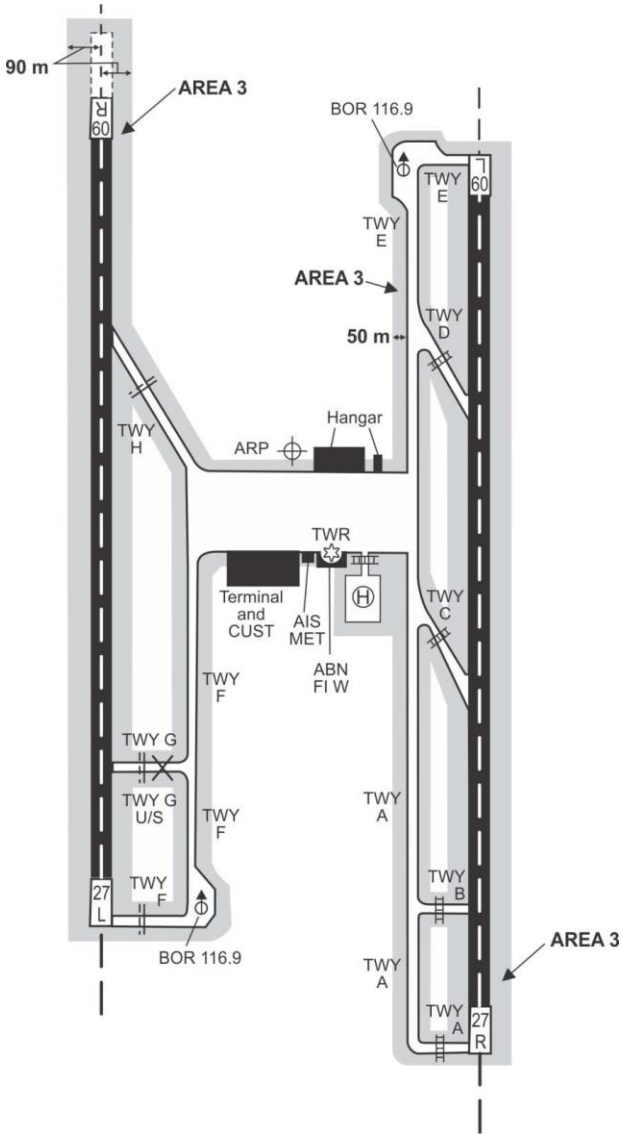

Figure A8-3. Terrain and obstacle data collection surface — Area 3

Terrain and obstacle data in Area 3 shall comply with the numerical requirements specified in IS:15.2.2(4).

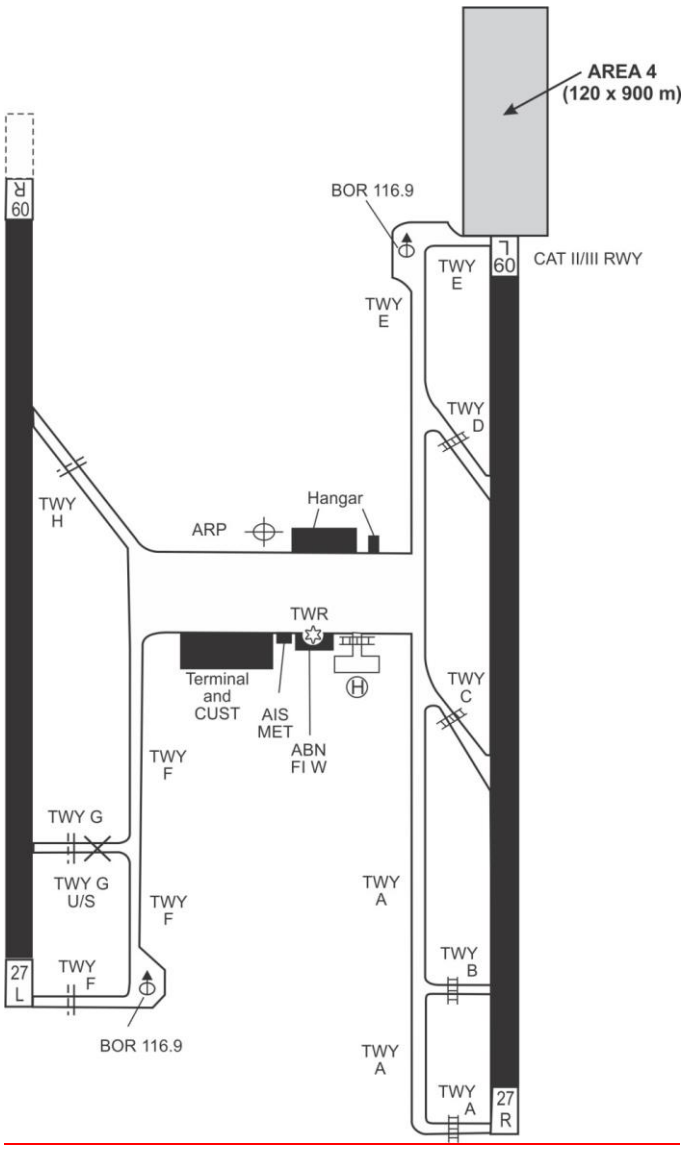

Figure A8-4. Terrain and obstacle data collection surface — Area 4

Terrain and obstacle data in Area 4 shall comply with the numerical requirements specified in IS:15.2.2(4).

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