Aeronaautical Information Services Manual

AIRPORTS AUTHORITY OF INDIA
DIRECTORATE OF AIR TRAFFIC MANAGEMENT
AERONAUTICAL INFORMATION SERVICE

Approved by: S. V. Satish
Executive Director (ATM)
Airports Authority of India

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FOREWORD

Aeronautical information/data plays a vital role in the safety, regularity and efficiency of international air navigation. Aeronautical data has become more significant with the implementation of area navigation (RNAV), required navigation performance (RNP) and sophisticated computer based air navigation systems, such as Flight Management System (FMS).

Aeronautical information/data is provided by Aeronautical Information Management (AIM) Department of Airports Authority of India, through Integrated Aeronautical Information Product consisting of Aeronautical Information Publication (AIP), AIP Amendments, AIP Supplements, NOTAM and Digital Data sets; while Aeronautical Information Circulars (AIC) are published and distributed by Directorate General of Civil Aviation (DGCA). The Integrated Aeronautical Information Product constitutes fundamental tool for Aviation Industry as the data so published is utilized by Airlines, General Aircraft Operators, ATS Personnel, Aviation Service Providers, etc.

This manual provides information, guidance and procedures for the provision of Aeronautical Information Services in conformity with ICAO Annex and Docs relevant to AIS. The parameters of Aeronautical Information Services in India harmonize with the promulgated standards and recommended practices/procedures of ICAO.

I am sure that this manual will prove useful for all AAI personnel engaged in the provision of Aeronautical Information Services at the AIS sections of the CHQ and field stations.

(Vineet Gulati)
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PREFACE

Pursuant to the provision of article 37 of the Convention on International Civil Aviation (Chicago 1944), each contracting state is committed to provide Aeronautical Information Service. India being a Contracting State of ICAO, provides Aeronautical Information Service (AIS). The AIS was initially provided by Directorate General of Civil Aviation, India. Since 1995, DGCA and Airports Authority of India are providing Aeronautical Information Service in respect of entire territory of India as well as areas in which India is responsible for Air Traffic Services outside its territory.

AIS is provided by AAI and DGCA through publication of Integrated Aeronautical Information Product, wherein Aeronautical Information Publication (AIP), AIP Supplement, AIP Amendment and NOTAMs are published by AAI and Aeronautical Information Circulars (AICs) are issued by DGCA.

The aeronautical information/data, so published, is immensely utilized by Aviation Services Providers, as the aeronautical data has become dynamic and it has become integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

The Management of Aeronautical Information/Data in India is in conformity with the promulgated standards and recommended practices of ICAO. This manual provides guidance for the provision of Aeronautical Information Services/Management in line with the provisions of ICAO Annex and Docs relevant to AIS.

I am sure that all the users of this manual including AAI personnel engaged in the provision of Aeronautical Information Services will be benefited.

(S. V. Satish)
Executive Director (ATM)
TITLE OF THE DOCUMENT:
This document is identified as the Aeronautical Information Services Manual.

PURPOSE OF THE DOCUMENT:
The purpose of this manual is to explain the basic functions of AIS in India and also assist in the uniform application of the Standards and Recommended Practices (SARPs) contained in Annex 15 and the provisions of relevant Civil Aviation Requirements issued by DGCA India.

This manual should be read in conjunction with the latest editions of the following related documents:

- DGCA Civil Aviation Requirements, Section 9, Series I, Part I, Issue II,
- ICAO Annex 4 — Aeronautical Charts
- ICAO Annex 15 — Aeronautical Information Services
- ICAO Doc 8697 — Aeronautical Chart Manual

SCOPE:
This AIS Manual shall be applied to the procedure to be followed for the publication of aeronautical information products and is applicable to the Aeronautical Information Service, Corporate Headquarters, Airports Authority of India, Rajiv Gandhi Bhawan, New Delhi and the International NOTAM Offices at Delhi, Mumbai, Kolkata and Chennai.

COMPETENT AUTHORITY TO APPROVE CHANGES:
The Executive Director (ATM) is the competent authority to approve amendment/changes to the AIS Manual.

REVIEW:
The General Manager (AIS) will conduct yearly audit/review of this manual to ensure accuracy and updating of all its content and reference data. The General Manager (AIS), on behalf of the Executive Director (ATM), will ensure

- changes being incorporated are duly approved by the competent authority,
- relevant pages in the manual are revised.

EFFECTIVE DATE:
Effective date of an instruction is indicated at the foot of the page. New edition will be indicated by date at the foot of the page.
CHANGE HISTORY:
This is first version (V1.0) of the AIS Manual. Subsequent changes will be indicated on ‘Record of Amendments and Corrigenda’ page. The next version will be sequentially numbered as V2.0, V3.0 and so on.

FORMAT:
Amendment-documentation being inserted in the manual must contain headers and footers that are consistent with those residing in this document.

CONTROLLING THE AIS MANUAL:
General Manager (AIS) will control this manual electronically through AIM website https://aim-india.aai.aero. The originators of the aeronautical information may check the currency of the document from the website where a current copy will be maintained. Only copies with "Controlled Copy" in red are subject to AIS document control. In case of changes, AIS Section, ATM Directorate, CHQ, AAI will distribute a "Notice of Change", together with the updated pages. Recipients are requested to consistently incorporate the new pages. AIS Section, CHQ accept no liability for damage resulting from non-compliance. Holders of hard copies of this Manual are responsible for ensuring that the Manual is kept up to date. This includes inserting new pages/amendments/corrigenda in a timely manner and complying with any instruction or amendment advice.

DISTRIBUTION OF THE MANUAL:
General Manager (AIS), CHQ may produce hard copies and control the distribution of these copies, as deemed appropriate.

MASTER COPY:
An electronic and a hard Master Copy of the document will be held and maintained by the General Manager (AIS), CHQ of the ATM Directorate.

ENQUIRIES:
Request for changes/enquiries/clarifications/suggestions, if any, should be addressed to:

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Rajiv Gandhi Bhawan, Safdarjung Airport
New Delhi-110003.
Email: gmais@aai.aero
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3. Declination and magnetic variation
4. Bearing
5. Length/Distance/Dimension
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CHAPTER 1 : GENERAL

1.1 The object of aeronautical information service is to ensure flow of aeronautical data and aeronautical information for global air traffic management (ATM) system safety, regularity, economy and efficiency in an environmentally sustainable manner based on International Standards and recommended practices and procedures for Aeronautical Information Services in Annex 15. The role and importance of aeronautical information/data changed significantly with the implementation of area navigation (RNAV), performance based navigation (PBN), and airborne computer based navigation systems and data link systems. Corrupt, erroneous, late or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation.

1.2 Aeronautical information service is provided by Airports Authority of India for the whole of Indian Territory and adjoining oceanic airspace over Bay of Bengal, Indian Ocean and Arabian Sea allocated to India by ICAO for the provision of Air Traffic Services.

1.3 Aeronautical Information Service (AIS) Section, of Airports Authority of India has the responsibility to receive, collate, format, edit, and publish aeronautical information relating to permanent or temporary changes of longer duration in respect of all field stations under the control of AAI, other airport operators and the territory/airspace for which AAI is made responsible by ICAO in accordance with the laid down rules, regulations, procedures and guidelines.

1.4 AIS section receives aeronautical information from the following sources:
   i. Aerodromes
   ii. Communication Service Providers
   iii. Airspace Designers
   iv. Flight Procedures Designers
   v. Survey and Cartography Section
   vi. Search and Rescue (SAR) Service Providers
   vii. Airport Operators
   viii. Meteorological Service Providers
ix. Defence Services Providers

x. Director General of Civil Aviation (DGCA).

Wherein

➢ AIS section at the Corporate Headquarters (CHQ), Rajiv Gandhi Bhawan, New Delhi is responsible for the publication of Aeronautical Information Publication (AIP), Amendment service to the AIP (AIP AMDT), Supplement to the AIP (AIP SUP) and originating ‘G’ Series NOTAMs.

➢ NOF is responsible for the publication of NOTAMs; PIB, NOTAM check lists and monthly NOTAM Summary.

➢ Aeronautical Information Circular (AIC) is published by DGCA.

1.5 This Manual contains the standards, requirements and procedures pertaining to the planning and operation of aeronautical information services.

1.6 This manual documents information pertaining to the rules, regulation, procedures and instructions to be followed for the provision of Aeronautical Information Services by officers & staff working in the AIS Section at CHQ, New Delhi and International NOTAM Offices (NOFs) located at Delhi, Kolkata, Mumbai & Chennai. AIS functions are performed by ATS/CNS personnel where the dedicated AIS staff is not posted.

1.7 Differences from ICAO Standards & Recommended practices of ICAO Annex 15 are published in GEN 1.7 of AIP India.

1.8 This manual shall not be reproduced or copied in part or full in anyway by any other organization except AAI.

1.9 Aeronautical Information Service is provided in conformity with the following ICAO Annex and documents:


ii. DOC 8126 - Aeronautical Information Services Manual.

iii. DOC 10066 - PANS – Aeronautical Information Management

iv. DOC 8400 - ICAO Abbreviations & Codes.

v. DOC 7383 - Aeronautical Information Service providers.

vi. DOC 7910 - Location Indicators.
1.10 This manual may be amended as and when considered appropriate. The need to amend this manual may arise due to the following reasons, (some of the parameters on account of which amendment may be considered are listed below):

i. Amendments to the applicable ICAO Annex and documents.

ii. Introduction of new technologies in the provision of AIS.

iii. Changes/introduction of DGCA CARs.

iv. Requirements from ATS, Airlines or any other concerned aviation agency.

1.11 The manual will be amended by General Manager (AIS) under the authority of Executive Director (ATM) and/or Member (ANS).

1.12 Any queries or further guidance required on the contents of this Manual should be addressed to:

General Manager (AIS)
Airports Authority of India
Rajiv Gandhi Bhawan
Safdarjung Airport
New Delhi-110003

Email: gmais@aai.aero

1.13 Definitions

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

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

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

Note: - Aerodrome mapping data are collected for purposes that include the improvement of the user’s situational awareness, surface navigation operations, training, charting and planning.
Aerodrome mapping database (AMDB). A collection of aerodrome mapping data organized and arranged as a structured data set.

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

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

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

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

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

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

Note: - Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.
Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

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

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

AIP Supplement. Temporary changes to the information contained in the AIP which are 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.

Note: - Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.
**ASHTAM.** A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

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

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

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

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

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

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

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

*Note:* - *The abbreviated term “ADS contract” is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.*

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

*Data link-automatic terminal information service (D-ATIS).* The provision of ATIS via data link.
Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

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

**Calendar.** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).

**Canopy.** Bare Earth supplemented by vegetation height.

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

*Note:* - The interval is usually referred to as the accuracy of the estimate.

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

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

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

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

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

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

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

**Data integrity (assurance level).** A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.
**Data product.** Data set or data set series that conforms to a data product specification (ISO 19131*).

**Data product specification.** Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131*).

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

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

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

**Data set.** Identifiable collection of data (ISO 19101*).

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

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

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

**Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104*).

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

*Note:* - Digital Terrain Model (DTM) is sometimes referred to as DEM.

**Direct transit arrangements.** Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.
**Ellipsoid height (Geodetic height).** The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

**Feature.** Abstraction of real world phenomena (ISO 19101*).

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

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

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

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

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

**Feature relationship.** Relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101*).

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

* Note: - In a feature catalogue, the basic level of classification is the feature type.

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

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

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

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

**Geoid undulation.** The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.
Note: In respect to the World Geodetic System – 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

**Gregorian calendar.** Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108*).

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

**Height.** The vertical distance of a level, point or an object considered as 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 helicopter.

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

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

a) routine data: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

b) essential data: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

c) critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

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

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

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

**Metadata.** Data about data (ISO 19115*).

*Note:* - A structured description of the content, quality, condition or other characteristics of data.

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

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

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

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


*Note 2:* - The term RNP as previously defined as “a statement of the navigation performance, necessary for operation within a defined airspace”, has been
removed from Annex 15 as the concept of RNP has been overtaken by the concept of PBN. The term RNP in Annex 15 is now solely used in context of navigation specifications that require performance monitoring and alerting. E.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on board performance monitoring and alerting that are detailed in the PBN Manual (Doc 9613).

**NOTAM.** A notice to airmen 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,

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.

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

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

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

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

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

**Portrayal.** Presentation of information to humans (ISO 19117*).

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

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

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

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

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

**Prohibited area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.
**Quality.** Degree to which a set of inherent characteristics fulfils requirements (ISO 9000*).

*Note 1:* - The term “quality’ can be used with adjectives such as poor, good or excellent.

*Note 2:* - “Inherent”, as opposed to “assigned”, means existing in something, especially as a permanent characteristic.

**Quality assurance.** - Part of quality management focused on providing confidence that fulfil 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 expression that is stated, generally implied or obligatory (ISO 9000*).

*Note 1:* - “Generally implied” means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

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

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

*Note 4:* - Requirements can be generated by different interested parties.
**Restricted area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

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

**SNOWTAM.** A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

**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.

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

**Traceability.** Ability to trace the history, application or location of that which is under consideration (ISO 9000*).

*Note:* - When considering product, traceability can relate to:

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

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

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

*Note 1:* - The term “verified” is used to designate the corresponding status.

*Note 2:* - Confirmation can comprise activities such as:

— performing alternative calculations;
— comparing a new design specification with a similar proven design specification;
— undertaking tests and demonstrations; and
— reviewing documents prior to issue.

**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.

* ISO Standard

8601 — Data elements and interchange formats — Information interchange — Representation of dates and times

9000 — Quality Management Systems — Fundamentals and Vocabulary

19101 — Geographic information — Reference model

19104 — Geographic information — Terminology

19108 — Geographic information — Temporal schema

19109 — Geographic information — Rules for application schema

19110 — Geographic information — Feature cataloguing schema

19115 — Geographic information — Metadata

19117 — Geographic information — Portrayal

19131 — Geographic information — Data product specification

1.14 **Common Reference System for Air Navigation**

1.14.1 **Horizontal Reference System**

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

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

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

1.14.1.2 As per Annex-15 it is recommended that in precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth’s crust should be modelled and estimated. To reflect the temporal effect, an epoch should be included with any set of absolute station coordinates.

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

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

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

1.14.1.3 Geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original fieldwork could not be validated to the order of accuracy as specified in the requirements of Appendix 1 (CAR Section 9, Series ‘E’ Part II and CAR Section 4, Series ‘B’ Part I) are identified by an asterisk.

1.14.2 Vertical Reference System

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

Note 1: - The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

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

1.14.2.2 The Earth Gravitational Model – 1996 (EGM-96), containing long wavelength gravity field data to degree and order 360 is used in India as the global gravity model.

1.14.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation specified in CAR Section 4, Series ‘B’ Part I, Annex 14, Volumes I and II, on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).

Note: - Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at
1.14.2.4 Geoid undulation is not yet published in India.

1.14.3 Temporal Reference System

1.14.3.1 Gregorian calendar and coordinated Universal Time (UTC) is used as the Temporal Reference System for all AIS publications. When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

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

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

Note 3: See Attachment D of Annex 5 for guidance material relating to UTC.

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

1.15 General Specifications

1.15.1 The material to be provided by and exchanged between States is published as an aeronautical information product (i.e. Aeronautical Information Publication (AIP), including amendment service, AIP Supplements, NOTAM, pre-flight information bulletins (PIB), Aeronautical Information Circulars (AIC), checklists and list of valid NOTAM). Each element of aeronautical information products for distribution shall be in English.

1.15.2 Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the Latin alphabet.
1.15.3 Units of Measurement used in the origination, processing and distribution of aeronautical data and aeronautical information shall conform to the tables contained in AIP India GEN.2.1 (Refer CAR Section 1, Series ‘B’ Part I - Units of Measurement to be used in Air and Ground Operations).

1.15.4 ICAO abbreviations contained in Doc 8400 shall be used for publishing and distribution of aeronautical information/data.

1.15.5 Each Prohibited area, Restricted area or Danger area established in India, has been given an identification and full details have been promulgated in Section ENR 5.1 of AIP India.

1.15.5.1 The identification assigned to each area is used to identify the area in all subsequent notifications pertaining to that area.

1.15.5.2 The identification assigned to each area is composed of a group of three letters and figures, as follows:

   a) The first letter “V” – the letter assigned by ICAO to identify India the State/region) for purpose of location indicator.

   b) The second letter will identify any of the four regions of India, i.e., A, E, I, O.

   c) The third letter will be either “P” for prohibited area, “R” for restricted area or “D” for danger area, as appropriate.

   d) A group of numbers (this should not be duplicated in any other region in the country), e.g. VID 109 indicates a danger area located in Delhi Region.

1.15.5.3 If any identification number is cancelled, it shall not be re-used for a period of at least one year to avoid confusion.
CHAPTER 2 : RESPONSIBILITIES AND FUNCTIONS

2.1 Purpose of an Aeronautical Information Service (AIS)

2.1.1 Needs of the operator

The operator of any type of aircraft, be it small private aircraft or large transport aircraft, must have available a variety of information concerning the air navigation facilities and services that may be expected to be used. For example, the operator must know the regulations concerning entry into and transit of the airspace of each State in which operations will be carried out, as well as what aerodromes, heliports, navigation aids, meteorological services, communication services and air traffic services are available and the procedures and regulations associated with them. The operator must also be informed, often on very short notice, of any change affecting the operation of these facilities and services and must know of any airspace restrictions or hazards likely to affect flights. While this information can nearly always be provided before take-off, it must in some instances be provided during flight.

2.1.2 Need for uniformity

In accordance with Article 37 of the Convention, Annex 15 is designed to promote uniformity in the collection and distribution of aeronautical information, in the interest of safety, efficiency and economy of civil aviation.

2.1.3 Scope and type of information

The information handled by an AIS may vary widely in terms of the duration of its applicability. For example, information related to airports and its facilities may remain valid for many years while changes in the availability of those facilities (for instance, due to construction or repair) will only be valid for a relatively short period of time. Information may be valid for as short a time as days or hours.

The urgency attached to information may also vary, as well as the extent of its applicability in terms of the number of operators or types of operations affected by it. Information may be lengthy or concise or include graphics.
Therefore, aeronautical information is handled differently depending on its urgency, operational significance, scope, volume and the length of time it will remain valid and relevant to users.

2.1.4 Liaison with related services

In order to fulfil efficiently the dual role of collecting and distributing information from and to all concerned, AIS must also establish and maintain a direct and continuous liaison with related services, as follows:

a) the AIS in other States from which it is necessary to receive information to meet operational requirements within the State for pre-flight information;

b) technical services within the State that are directly concerned with the provision and maintenance of the various air navigation facilities, services and procedures — this, in turn, is necessary to ensure timely distribution of all significant information both within the State and to other States as required;

c) military services within the State, as necessary, to receive and distribute information concerning navigation warnings (military exercises, etc.) or any special military facilities or procedures available to or affecting civil aviation;

d) air traffic services within the State, to ensure immediate transmission of all required information to services for air traffic control and for in-flight information purposes;

e) all aircraft operating agencies conducting operations in or through the State, to ensure that pre-flight information requirements are adequately met; and

f) any other services that may either be a source of information of interest to civil aviation or have a legitimate reason for requiring information about civil aviation.

2.2 Responsibilities and functions

Annex 15 specifies that each Contracting State must provide AIS for the collection and distribution of aeronautical information for use by all types of aircraft operations. Annex 15 also specifies that the State concerned remains responsible for the aeronautical information published. The philosophy underlying Annex 15, which stems from Article 28 of the Convention on International Civil Aviation, is
that each State is responsible for making available to civil aviation interests any and all information which is pertinent to and required for the operation of aircraft engaged in international civil aviation within its territory, as well as in areas outside its territory in which the State has air traffic control or other responsibilities.

2.2.1 In India Aeronautical information service is provided by Airports Authority of India, except Aeronautical Information Circular (AIC), which is issued by DGCA. Provision of Standard and Recommended Practices of Annex-15 are adequately complied.

2.2.1.1 AAI provides aeronautical information/data for the entire Indian Territory as well as oceanic areas over Bay of Bengal, Indian Ocean and Arabian Sea, for which responsibility for providing Air Traffic Service has been accorded by ICAO. It shall be ensured that the aeronautical data and aeronautical information provided is complete, timely and of the required quality. AAI shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the aeronautical information service in relation to the timely and complete provision of aeronautical data and aeronautical information.

2.2.1.2 The service is provided for 24-hour.

2.2.2 Aeronautical information is obtained from the following sources for the provision of pre-flight information and in-flight information:

a) from the aeronautical information services of other States;

b) from other sources (such as observations made by Air Crew) that may be available for in-flight information.

Note: - Aeronautical data and aeronautical information obtained under 2.2.2 a) shall, when distributed, be clearly identified as having the authority of the State of Origin.

Note: - Aeronautical data and aeronautical information obtained under 2.1.2 b) shall, if possible, be verified before distribution e.g. VOR not holding and if not verified shall, when distributed, be clearly identified as such e.g. birds/wind shear reported by (flight No.) at (time)

2.2.3 Other documents such as AIP India, AIC, AIP supplements and charts are also available for pre-flight briefing.
2.2.4 Aeronautical information/data necessary for the safety, regularity and efficiency of air navigation, is made available promptly to aeronautical information services of other States via AFTN.

2.2.5 Aeronautical information/data is distributed in standard formats for the operational requirements of:

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 ATM Operational Concept (Doc 9854)

2.2.6 AIS Section of CHQ, Rajiv Gandhi Bhawan, New Delhi and NOF Centres located at Chennai, Delhi, Kolkata and Mumbai are responsible to receive/originate, collate or assemble, edit, format, publish/store and distribute aeronautical information/data concerning the entire Indian Territory as well as oceanic airspace for which India is responsible for the provision of Air Traffic Services. Aeronautical information is published as an Integrated Aeronautical Information Package except Aeronautical Information Circulars (AICs), which are published and promulgated by DGCA.

2.3 Exchange of aeronautical data and aeronautical information

2.3.1 Although the AIS operated by each State is primarily responsible for the provision of information regarding the facilities and services located within its territory, the exchange of similar information with AIS of other States enables the provision of the pre-flight information service needed by international operations which may traverse those States and information required by related air traffic service units for aircraft in flight. It will be apparent that the amount and scope of the information handled by an AIS will vary considerably from State to State.

2.3.2 AAI has established four international NOTAM offices (NOF) located at Chennai, Delhi, Kolkata and Mumbai. Each NOF is responsible for issue/cancellation of NOTAM for all the aerodromes located in the FIR, in which it is located. Additionally, each NOF exchanges A-Series NOTAM with a number of international NOTAM offices. The international NOTAM offices, with which each
Indian NOF exchanges NOTAM, are defined and listed in Appendix 6. However, B-series NOTAM are exchanged with adjacent FIR only.

2.3.3 Adequate arrangements have been made to satisfy operational requirements for the issuance and receipt of NOTAM, by connecting all NOF centres and AIS Section of AAI, CHQ with Aeronautical Fixed Telecommunication Network (AFTN).

2.3.4 Airports Authority of India has designated the AIS Section at CHQ and four International Offices at Delhi, Mumbai, Kolkata and Chennai as the offices to which all elements of aeronautical information products provided by other States shall be addressed.

2.3.5 One copy of each of the following aeronautical information products that have been requested by the AIS of a Contracting State shall be made available and provided in the mutually agreed form(s), without charge:
   a) Aeronautical Information Publication (eAIP), including Amendments
   b) AIP Supplements;
   c) NOTAM, and
   d) aeronautical charts.

2.3.6 One copy of each of the elements of the aeronautical information products is made available by AAI to other ICAO Contracting States from whom the same is received without charge.

2.3.7 At present, there is no written bilateral agreement to exchange (more than one copy of) the elements of the aeronautical information products or other air navigation documents with other ICAO Contracting States.

2.4 Origin of aeronautical information

2.4.1 An AIS does not normally originate the information it processes and ultimately issues. The “raw data” must be provided by those responsible for the operation of the various air navigation facilities and services. Therefore, its ability to perform this important function will be highly dependent upon the adequacy, accuracy and timely provision of the required raw data by each of the services associated with aircraft operations.
2.5 Copyright

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

2.5.2 Any aeronautical information product which has been granted copyright protection by the originating State and provided to another State in accordance with 2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.

2.5.3 States may decide to apply copyright to their AIS products to ensure that aeronautical information/data released for use through a “second generation” information/data provider comes from an authorized source and has the appropriate quality system protection.

2.5.4 The application of copyright does not affect the requirement for States to ensure the free exchange of aeronautical information/data between States in accordance with Articles 28 c) and 37 of the Convention.

2.6 Cost Recovery

2.6.1 Although Annex 15 provides for the exchange of aeronautical information/data without charge between ICAO Contracting States, there may be occasions where other States or commercial or private entities seek to procure aeronautical information/data and other air navigation documents. In such cases, an AIS may wish to enter into a separate agreement with the party concerned regarding the conditions and costs, if any, that will be applied to the provision of that information/data.

2.6.2 Operators may choose to procure their aeronautical information/data either from the AIS of the State concerned or from a commercial vendor. There are, however, considerable costs associated with the provision of aeronautical information/data: first, the overhead costs associated with the ongoing operation of the AIS; next, the costs associated with collecting, verifying, compiling and collating the information/data; and finally, the costs associated with the publication and distribution of the information/data. States may decide to recover these costs by
charging users for the aeronautical information/data provided. It is recommended that these costs be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in Doc 9082 — ICAO’s Policies on Charges for Airports and Air Navigation Services.

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

2.6.3 AIP India and AIP Supplements are priced publications, cost of printing and production is only charged on a cost-recovery basis.
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CHAPTER 3: AERONAUTICAL INFORMATION MANAGEMENT

3.1 Introduction

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

3.2 Data quality specifications

3.2.1 Data Accuracy

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

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

3.2.2 Data Resolution

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

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

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

3.2.3 Data Integrity

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

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

3.2.3.2 Corruption of aeronautical data integrity can lead to jeopardizing the safety of the aircraft operations.
3.2.3.3 Based on the applicable integrity classifications, the validation and verification procedures shall:

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

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

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

Note 1: - Error producing faults in the entire process may be mitigated by additional data quality assurance techniques as may be required. These could include application tests for critical data (for example, by flight check); the use of security, logic, semantic, comparison, and redundancy checks; digital error detection; and the qualification of human resources and process tools such as hardware and software.

Note 2: - Distribution to the next intended user will differ in the delivery method applied which may either be:

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

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

Note 3: - Different delivery methods and data media may require different procedures to ensure the required data quality.

3.2.4 Data traceability

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

3.2.5.1 Timeliness 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.

3.2.6 **Data completeness**

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

3.2.7 **Data format**

3.2.7.1 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.

3.2.8 **Data protection**

3.2.8.1 Aeronautical data and data sets shall be protected in accordance with data error detection, security, and authentication techniques.

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

3.2.8.2 Protection of Electronic Aeronautical Data while stored or in transit, shall be totally monitored by the Cyclic Redundancy Check (CRC). To achieve protection of the integrity level of critical and essential aeronautical data, a 32 or 24 bit CRC algorithm shall be applied.

3.2.8.3 Materials to be issued as part of the AIS product, shall be thoroughly checked and coordinated by the originator before it is submitted to the AIS Section, in order to ensure that all necessary information has been included and it is correct in detail prior to distribution. A validation and verification procedure shall be established which will ensure that requirements (accuracy, resolution, integrity) and traceability of aeronautical data are met.

3.2.8.4 Compliance with the quality system shall be demonstrated by an audit. If any non-conformity is identified, action shall be initiated to determine its cause and correct
it. All such non-conformities observed during audit and the remedial actions taken shall be recorded.

3.3 **Aeronautical data and aeronautical information verification and validation**

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

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

*Note 1:* - *Guidance material on liaison with other related services is contained in Doc 8126.*

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

3.4 **Use of automation**

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

a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and

b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

3.5 **Quality Management System**

3.5.1 The users’ dependence on the quality of certain aeronautical information/data is evident from Annex 15 which, when describing critical data, states: “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”.

3.5.2 Since corrupt or erroneous aeronautical information/data can potentially affect the safety of air navigation because of the direct dependence upon it by both airborne and ground-based systems, it is imperative that each State ensure that users (aviation industry, air traffic services, etc.) receive timely and quality aeronautical information/data for the period of its intended use.

3.5.3 To achieve this, and to demonstrate to users the required information/data quality, States must establish a quality system and put in place quality management procedures at all stages (receiving and/or originating, collating or assembling, editing, formatting, publishing, storing and distributing) of the aeronautical information/data process. The execution of such quality management systems shall be made demonstrable for each function stage.

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

*The quality management system established in accordance with 2.5.3 should follow the ISO 9000 series of quality assurance standards and be certified by an accredited certification body.*

*Note 1:* - *Quality management may be provided by a single quality management system or serial quality management systems.*

*Note 2:* - *Letters of agreement concerning data quality between originator and distributor and between distributor and next intended user may be used to manage the aeronautical information data chain.*

3.5.4 It has to be ensured that personnel assigned to enforce the quality system shall possess the skills and knowledge required for each function. The personnel engaged for the quality system shall undergo an appropriately designed training programme to acquire the skills and competencies required to perform specific assigned functions. A system of initial and periodic assessments shall be established and appropriate records shall be maintained, so that the qualifications of the persons can
be confirmed. Periodic assessments of personnel shall be used as a means to detect and correct shortcomings, if any.

3.5.5 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data 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.

3.5.6 The objective of the quality system is to ensure and build-up the confidence that distributed aeronautical information/data meets the requirements for accuracy, resolution and integrity of the data. The system shall also provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates will be met.

3.5.7 Proper record of all data received for publication and distribution shall be maintained so that the aeronautical data can be traced to its origin to correct any data anomalies or errors detected during the maintenance/production phases or while in operational use.

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

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

3.5.10 The AIS Section at CHQ is ISO 9001:2015 Certified for conforming to the requirements of “Publication of AIP (Aeronautical Information Publication), AIP Amendment Service, Supplement to AIP & Origination of ‘G Series’ NOTAM”.

3.6 Human Factors Considerations

3.6.1 The organization of the aeronautical information services as well as the design, contents, processing and distribution of aeronautical data and aeronautical information shall take into consideration Human Factors principles which facilitate their optimum utilization.
3.6.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

3.6.3 Some human errors of general nature can be predicted in advance. The human – machine interface mainly consists of human (liveware) – software and human (liveware) – hardware links. Most of the aeronautical information/data is conveyed from the human to the machine by means of input devices such as keyboard and mouse. Human error is possible while entering any given aeronautical information/data into the system. Visual error or misreading can be caused by alpha numeric characters or coordinates which look similar to each other, lines of data which can be mistaken for each other, blocks of data which look alike.

3.6.4 To overcome such human errors, a system of checking, verification and supervision over the entry of aeronautical information/data needs to be exercised at every stage of production and distribution of the complete integrated aeronautical information package.

Note: - Guidance material on Human Factors concepts can be found in the Human Factors Training Manual (Doc 9683).
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CHAPTER 4 : SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

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

4.2 Scope of aeronautical data and aeronautical information

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

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

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

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

4.2.2 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.
Note: - Specifications concerning the accuracy and integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

4.3 Metadata

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

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

Note: - Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).
CHAPTER 5 : AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

5.1 Aeronautical information is provided by Airports Authority of India in the form of aeronautical information products and associated services.

5.2 Aeronautical information is provided in a standardized presentation that includes the Aeronautical Information Publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

Note: - In India the Aeronautical Information Circulars (AIC) are issued by Director General of Civil Aviation, India.

5.3 Aeronautical Information Publication (AIP)

5.3.1 The AIP India is issued in electronic form only as eAIP India.

5.3.2 The eAIP India constitutes the basic information source for permanent information and long duration temporary changes.

5.3.3 Refer Appendix 1 for contents of eAIP India.

5.4 AIP Supplement

5.4.1 Temporary changes of long duration (3 months or longer) and information of short duration which contains extensive text and/or graphics is published as AIP Supplement.

5.4.2 AIP Supplement pages are of yellow colour to make it conspicuous.

5.4.3 Each AIP Supplement is allocated a serial number which is consecutive and based on the calendar year (e.g. 02/2018).

5.4.4 The AIP Supplements issued as AIRAC are indicated as ‘AIRAC AIP Supplements’ and those not issued as AIRAC are indicated as ‘AIP Supplements’.

5.4.5 A Checklist of valid AIP Supplements is issued every month. The checklist is issued through the medium of the monthly printed plain language list of valid NOTAM.

5.4.6 Temporary changes anticipated to last less than three months are considered to be information of short duration, which is distributed by NOTAM. When this period is exceeded and expected to last for an additional three months or more, an AIP
Supplement is issued replacing the NOTAM. Each AIP Supplement issued in replacement of a NOTAM includes a reference to the serial number of the NOTAM.

5.4.7 AIP, AIP Amendments and AIP Supplements are distributed to all the operational field stations of AAI and to the subscribers of AIS Products.

5.4.8 AIP Amendments and AIP supplements are made available by the most expeditious means.

5.4.9 ICAO Standard format is used for the information published in eAIP, amendment service and AIP Supplement

5.5 Aeronautical Information Circulars

5.5.1 In India the responsibility to issue and disseminate Aeronautical Information Circulars (AICs) has been entrusted to Director General of Civil Aviation (DGCA) under Rule 133A of the Aircraft Rules, 1937. This job is executed by a separate section called the Aeronautical Information Service (AIS) section under the Directorate of Regulations & Information.

5.5.2 Any correspondence may be done at the following address:
The Director General of Civil Aviation
Technical Center, opposite Safdarjung Airport,
Aurbindo Marg, New Delhi – 110003
INDIA
Email: dri@dgca.nic.in

5.5.3 Origination

5.5.3.1 An AIC is originated whenever it is necessary to promulgate aeronautical information which does not qualify:

a) for inclusion in an AIP; or

b) for the origination of a NOTAM.

5.5.3.2 An AIC is originated whenever it is desirable to promulgate:

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

b) information of a purely explanatory or advisory nature liable to affect flight safety;
c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

This shall include:

1) forecasts of important changes in the air navigation procedures, services and facilities provided; (e.g. new layout of control sectors or implementation plan for a radar network);

2) forecasts of implementation of new navigational systems (VOR, DME, etc.);

3) significant information arising from aircraft accident/incident investigation that has a bearing on flight safety;

4) information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;

5) advice on medical matters of special interest to pilots;

6) warnings to pilots concerning the avoidance of physical hazards;

7) effect of certain weather phenomena on aircraft operations;

8) information on new hazards affecting aircraft handling techniques;

9) regulations relating to the carriage of restricted articles by air;

10) reference to the requirements of, and publication of changes in, national legislation;

11) aircrew licensing arrangements;

12) training of aviation personnel;

13) application of, or exemption from, requirements in national legislation;

14) advice on the use and maintenance of specific types of equipment;

15) actual or planned availability of new or revised editions of aeronautical charts;

16) carriage of radio/communication equipment;

17) explanatory information relating to noise abatement;
18) selected airworthiness directives;
19) changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format;
20) advance information on the snow plan;
21) other information of a similar nature.

5.5.4 General Specifications

5.5.4.1 AIC are issued in printed form, and in addition are also placed on the DGCA website http://www.dgca.nic.in

5.5.4.2 The selected AIC are given international distribution.

5.5.4.3 Each AIC is allocated a serial number which is consecutive and based on the calendar year.

5.5.5 Annual Review and Checklist

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

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

5.5.6 Distribution

5.5.6.1 AIC selected for international distribution are given the same distribution as that for the AIP.

5.6 Aeronautical charts

5.6.1 The aeronautical charts listed below either form part of the AIP or are provided separately to recipients of the AIP:

a) Aerodrome/Heliport Chart — ICAO;
b) Aerodrome Ground Movement Chart — ICAO;
c) Aerodrome Obstacle Chart — ICAO Type A;
d) Aerodrome Obstacle Chart — ICAO Type B (when available);
5.6.2 The World Aeronautical Chart — ICAO 1:1 000 000 are provided by the Survey of India in soft copy through their website and in hard copy through their offices. The information on the availability of World Aeronautical Chart by Survey of India is published in GEN 3.2 of AIP India.

5.7 NOTAM

5.7.1 Origination

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

*Note:* - Information of short duration containing extensive text and/or graphics is published as an AIP Supplement. NOTAM are therefore intended to supplement AIP and serve as a fast medium for distributing information whenever it is necessary to give due warning of any change or occurrence, at short notice.

5.7.1.2 Operationally significant changes concerning circumstances listed in Chapter 6, Para 6.2, are issued under the Aeronautical Information Regulation and Control (AIRAC) system.

5.7.1.3 The basic purpose of NOTAM is the distribution of information in advance of the event to which it relates, except in the case of unserviceability that cannot be foreseen. Thus, to realize its purpose a NOTAM must be received by the addressee in sufficient time for any required action to be taken.
5.7.1.4 A NOTAM shall be originated and issued concerning the following information:

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

b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, COM, MET, SAR, etc.);

c) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication service. This includes; interruption or return to operation, change of frequencies, change in notified hours or 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 electronic aid to air navigation, and air-ground communication services;

d) establishment, withdrawal or significant changes made to visual aids;

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

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

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

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

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

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

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

l) presence of hazards which affect air navigation (including obstacle, military exercises, displays, races and major parachuting events outside promulgated sites);
m) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;

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

o) 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;

p) allocation, cancellation or change of location indicators;

q) significant changes in the level of protection normally available at an aerodrome/heliport for rescue and firefighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated; (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 18);

r) 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;

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

t) forecasts of solar cosmic radiation, where provided;

u) 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;

v) 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;

w) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of United Nations, together with procedures and/or limitations which affect air navigation; and
x) Implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

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

5.7.1.6 The following information shall not be notified by NOTAM:

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

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

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

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

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

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

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

h) parachuting when in uncontrolled airspace under VFR, when controlled, at promulgated sites or within danger or prohibited areas;

i) other information of a similar temporary nature.

5.7.2 Duration of NOTAM

5.7.2.1 Although not explicitly specified in Annex 15, NOTAM should not remain in force for more than three months. If the circumstances to be notified are expected to exceed three months, an AIP Supplement must be published. When a temporary change in AIP information issued by NOTAM unexpectedly exceeds the three-month period, a new or replacement NOTAM may be issued, but only in those cases where a condition is expected to last for a further period of a maximum of one to
two months. If it is expected that the condition will last for a longer period of time, an AIP Supplement must be issued.

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

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

*Note.* – Whenever possible, at least 24 hours’ advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.

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

5.7.5 **General Specifications**

5.7.5.1 Except as provided in case of SNOWTAM and ASHTAM, each NOTAM shall contain the information in the order shown in the NOTAM Format. (Appendix 5).

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

5.7.5.3 When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language.

*Note: - The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the PANS-ABC (Doc 8400).*

5.7.5.4 Information concerning snow, slush, ice and standing water on aerodrome/heliport pavements shall, when reported by means of SNOWTAM, contain the information in the order shown in the SNOWTAM Format in Appendix 2 of this manual.

5.7.5.5 Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash clouds shall, when reported by means of an
ASHTAM contain the information in the order shown in the ASHTAM Format in Appendix 3 of this manual.

5.7.6 The NOTAM originator shall allocate to each NOTAM a series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year. The four-digit number shall be consecutive and based on the calendar year, e.g. A0050/18. Letters A to Z, with the exception of S and T, may be used to identify a NOTAM series. AAI issues NOTAM in A, B, C, D & G series.

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

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

5.7.9 One of the following message identifiers is to be inserted as appropriate:

a) NOTAMN if it concerns a NOTAM containing a new information.

b) NOTAMR if it concerns a NOTAM replacing a previous NOTAM followed by the series and number/year of the NOTAM replaced. i.e. A0125/18 NOTAMR A0123/18.

c) NOTAMC if it concerns a NOTAM cancelling a previous NOTAM, followed by the series and number/year of the cancelled NOTAM, e.g. A0460/18 NOTAMC A0456/18.

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

Note: - Guidance concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in the Aeronautical Information Services Manual (Doc 8126).

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

5.7.12 Each NOTAM shall be transmitted as a single telecommunication message.
5.7.5.13 A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.

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

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

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

5.7.5.15 A checklist of valid NOTAM shall be issued as a NOTAM over the Aeronautical Fixed Service (AFS) at intervals of not more than one month using the NOTAM Format specified in Appendix C-1. One NOTAM shall be issued for each series.

*Note:* - *Omitting a NOTAM from the checklist does not serve to cancel a NOTAM.*

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

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

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

**5.7.6 General Instructions for origination and cancellation of NOTAM**

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

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

5.7.6.3 The AFS shall, whenever practicable, be employed for NOTAM distribution.

5.7.6.4 When a NOTAM exchanged as specified in 5.7.6.3 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.

5.7.6.5 The originator shall select the NOTAM that are to be given international Distribution
5.7.6.6 Selective distribution lists should be used when practicable.

5.7.6.7 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. The international exchange of ASHTAM, and NOTAM is used for distribution of information on volcanic activity it shall include volcanic ash advisory centres and the centres designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long-range operations.

*Note*: - Arrangements may be made for direct exchange of SNOWTAM between aerodromes/heliports.

5.7.6.8 These exchanges of NOTAM between international NOTAM offices shall, as far as practicable, be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights. A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Appendix 4 shall be used whenever possible, subject to the requirements of 5.7.9.2.

5.7.6.9 Request for issuance of NOTAM by various agencies at an airport, such as Met department, Fire Services, Engineering Wing, Refuelling Companies, etc. shall be routed through ATS In-charge/ATS units.

5.7.6.10 Request for issuance of NOTAM by airport, not connected on AFTN, shall be sent by FAX.

5.7.6.11 Request for issue of NOTAM for uncontrolled/functional aerodromes shall be taken as follows:

- a) The un-controlled station should request the major station under which it is designated / controlled / situated.

- b) The major station, under whose operational control the un-controlled station is situated, should request Regional NOF/AIS for NOTAM action giving the details.

- c) The Regional NOF centre/AIS shall take NOTAM under appropriate series (e.g. C Series).
d) A copy of the NOTAM shall be issued to G.M. (Ops) of the Region.

5.7.6.12 The words “request for NOTAM action” must precede in the text of the message sent for origination of a NOTAM.

5.7.6.13 The message shall be sent in writing and shall be duly signed by In-charge of the aviation agency making the request for origination of a NOTAM.

5.7.6.14 Before promulgation of a NOTAM, the text in the NOTAM Format shall be checked with the original request to detect any discrepancy or mistake.

5.7.6.15 Factual/typing/printing errors, if any, noticed in AIP/AIP supplement shall be brought to the notice of the AIS section of the CHQ for rectification.

5.7.6.16 The aviation agency who made the request for origination of a NOTAM shall be responsible to ensure that the request for cancellation of NOTAM is made when the facility becomes serviceable or the condition no longer exists.

5.7.6.17 When establishing or withdrawing facilities, AIS section of the CHQ shall be informed for proper amendment of the relevant section/pages of AIP India, if appropriate.

5.7.6.18 The originator shall select the NOTAM that are to be given international distribution.

5.7.6.19 Selective distribution lists should be used when practicable.

5.7.6.20 When a NOTAM exchanged as specified in 5.3.3 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.

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

5.7.7 Priorities

5.7.7.1 The priority normally accorded to messages sent over the AFS is GG. Under exceptional circumstances and when justified by a requirement or special handling, a NOTAM may be given the higher DD priority.

5.7.8 Cross-reference to AIP/AIP Supplement
5.7.8.1 When a NOTAM contains information that renders necessary an AIP amendment or AIP Supplement the text must include an appropriate cross-reference to the affected AIP or AIP Supplement and an annotation must be made accordingly, even when the information is of a temporary nature. This informs the user of the AIP or AIP Supplement that there is information outstanding against a particular entry.

5.7.8.2 When a NOTAM contains temporary information of short duration that does not render necessary the consultation of an AIP Amendment or AIP Supplement to have the full information, AIP references must not be annotated in the NOTAM. This informs the user of the NOTAM that the text of the NOTAM is conveying the totality of the information.

5.7.9 Instructions for the completion of the NOTAM Format

5.7.9.1 General

5.7.9.1.1 The NOTAM Format (Appendix 5) aims at standardizing the presentation of the different types of information promulgated by NOTAM in order to facilitate understanding of the message by the addressee.

5.7.9.1.2 The NOTAM Format consists of two parts;

   a) the part of interest to the communication service, handling the AFS message, i.e. the part containing the priority indicator, addresses, date & time of filing and the originator’s indicator.

   b) the part containing the NOTAM information.

5.7.9.1.3 The qualifier line (Item Q) and all identifiers (Item 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.

5.7.9.2 NOTAM numbering

5.7.9.2.1 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. A0023/18). Each series must start on 1 January with number 0001.
5.7.9.3 Qualifiers (Item Q)

5.7.9.3.1 Item Q) is divided into eight fields, each separated by a stroke. For an easier automatic production of the PIB, all fields of Item Q) must be given a value; default values will be used where appropriate. The definition of each field is as follows:

5.7.9.3.2 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) must 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 must not be used.) The ICAO location indicators of the FIRs concerned must 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 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.

5.7.9.3.3 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. For combinations of second and third and fourth and fifth letters, insert the ICAO NOTAM codes listed in 5.4 or insert one of the following combinations, as appropriate:
a) If the subject is not listed in the NOTAM Code list 5.4, insert “XX” as the second and third letters (e.g. QXXAK);

b) If the condition of the subject is not listed in the NOTAM Code list 5.4, insert “XX” as the fourth and fifth letters (e.g. QFAXX);

c) When a NOTAM containing operationally significant information is issued and when it is used to announce existence of AIRAC AIP 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) One of the following fourth and fifth letters of the NOTAM Code must 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

5.7.9.3.4 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.

5.7.9.3.5 PURPOSE

   N = NOTAM selected for the immediate attention of aircraft operator

   B = NOTAM selected for PIB entry
O = NOTAM concerning flight operations

M = Miscellaneous NOTAM; not subject for a briefing, but it is available on request

K = NOTAM is a checklist

Note: Depending on the NOTAM subject and content, the qualifier field PURPOSE may contain the following qualifiers: K, B, BO, NBO or M.

5.7.9.3.6 SCOPE

A = Aerodrome

E = En-route

W = Nav Warning

K = NOTAM is a checklist

Note: Depending on the NOTAM subject and content, the qualifier field SCOPE may contain combined qualifiers. If the subject is qualified AE, the aerodrome location indicator must be reported in Item A).

5.7.9.3.7 LOWER/UPPER – LOWER and UPPER limits shall only be expressed in flight levels (FL) and shall express the actual vertical limits of the area of influence without the addition of buffers. In the case of navigation warnings and airspace restrictions, values entered shall be consistent with those provided under Items F) and G).

5.7.9.3.7.1 If the subject does not contain specific height information, insert “000” for LOWER and “999” for UPPER as default values.

5.7.9.3.8 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 (e.g. Coordinates of the aerodrome reference point for NOTAM with Scope A). If the NOTAM affects the entire FIR/UIR or more than one FIR, enter the default value “999” for radius.

5.7.9.4 Item A)
5.7.9.4.1 Insert the location indicator as contained in ICAO Doc 7910 of the aerodrome or FIR in which the facility, airspace, or condition being reported on is located.

5.7.9.4.1.1 Only one aerodrome may be indicated. If more than one aerodrome is involved, separate NOTAM must be issued. More than one FIR 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. When an ICAO location indicator is not available, it is imperative that Item E) be completed in order to identify the location/facility/service concerned.

5.7.9.4.2 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).

5.7.9.5 Item B)

5.7.9.5.1 Item B) must contain the beginning of the occurrence or activity or, in the case of a facility/service which becomes unusable, the date-time at which the NOTAM is filed.

5.7.9.5.2 For date-time group use a ten-figure group, giving year, month, day, hours and minutes in UTC (e.g. 0310241230, meaning 24 October 2003 at 1230 UTC). Abbreviations such as “WIE” or “WEF” must not be used. The start of a day shall be indicated by “0000”.

5.7.9.5.3 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.

5.7.9.6 Item C)

5.7.9.6.1 Item C) must contain the end of the occurrence or activity.

5.7.9.6.2 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 “PREM” is inserted instead.
5.7.9.6.3 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).

5.7.9.7 Item D)

5.7.9.7.1 Item D) must contain the specified schedule or period(s) during which an occurrence takes place or a hazard exists. This item is optional and need be completed only as and when required.

5.7.9.7.2 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 Item 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.

5.7.9.8 Item E)

5.7.9.8.1 Item E), also called NOTAM text, must contain the information on the hazard, status of operation or condition of the facilities reported on.

5.7.9.8.2 Use decoded NOTAM Code, complemented where necessary by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and 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.

5.7.9.9 Item F) and G)

5.7.9.9.1 These items are normally applicable to navigation warnings or airspace restrictions, but can be used for any other applicable subjects, and are usually part of the PIB entry. Insert both lower and upper limits of activities or restrictions, clearly indicating the same reference datum and unit of measurement in both fields.

5.7.10 The NOTAM Code and Abbreviations

5.7.10.1 Introduction

5.7.10.1.1 The NOTAM Code is provided to enable the coding of information regarding the establishment, condition or change of radio aids, aerodromes and lighting facilities,
dangers to aircraft, or search and rescue facilities. The NOTAM Code is a comprehensive description of information contained in NOTAM. It serves as an important criterion for storage and retrieval of information, as well as for deciding whether an item is of operational significance or not. It also establishes the relevance of the NOTAM to the various types of flight operations and determines whether it must therefore be part of a pre-flight information bulletin. In addition, it assists in specifying those items which are subject to immediate notification processes. The NOTAM Code also standardizes the presentation of the related plain-language text required at Item E) of the NOTAM Format as contained in 5.3. Thus, the NOTAM Code is the basis for determination of the qualifiers TRAFFIC, PURPOSE and SCOPE used in Q (Qualifiers) line and the related text to appear in Item E) of the NOTAM Format.

5.7.10.2 Procedures

5.7.10.2.1 The textual format and contents of NOTAM are governed by 5.2 and 5.3. NOTAM shall be distributed via the AFS.

5.7.10.3 Composition

5.7.10.3.1 General

5.7.10.3.1.1 All NOTAM Code groups contain a total of five (5) letters. The first letter of the code group is always the letter Q to indicate that it is a code abbreviation for use in the composition of NOTAM. The letter Q has been chosen to avoid conflict with any assigned radio call sign.

5.7.10.3.1.2 The second and third letters identify the subject reported upon and the fourth and fifth letters denote its status of operation. The code identifying the subject or denoting its status of operation is, whenever possible, self-evident. Where more than one subject could be identified by the same self-evident code, the most important subject is chosen.

5.7.10.3.1.3 If the subject of the NOTAM is not listed in the NOTAM Code, insert “XX” as the second and third letters.

5.7.10.3.1.4 If the condition of the subject is not listed in the NOTAM Code, insert “XX as the fourth and fifth letters.
5.7.10.3.1.5 When a NOTAM is issued containing a checklist of valid NOTAM, use KKKK as the second, third, fourth and fifth letters. When a NOTAM containing operationally significant information is issued in accordance with AIRAC – Chapter 6 of the manual and when it is used to announce the existence of AIRAC AIP Supplements (trigger NOTAM), insert “TT” as the fourth and fifth letters.

5.7.10.4 Classification by subject (second and third letters)

5.7.10.4.1 Facilities, services and other information which require coding have been classified by subject into sections and subsections. The second letter of the code group, which may be any letter of the alphabet except Q, indicates the subject subsections as follows:

AGA (Aerodromes)

$. . . . LIGHTING facilities --L
$. . . . MOVEMENT and landing area --M
$. . . . FACILITIES and services --F

COM (Communications)

$. . . . COMMUNICATION and SURVEILLANCE facilities --C
$. . . . INSTRUMENT and microwave landing systems --I
$. . . . GNSS services --G
$. . . . terminal and en-route NAVIGATION facilities --N

ATM (Air Traffic Management)

$. . . . AIRSPACE organization --A
$. . . . air traffic and VOLMET SERVICES --S
$. . . . air traffic PROCEDURES --P

Navigation Warnings

$. . . . airspace RESTRICTIONS --R
$. . . . WARNINGS --W

Other information

$. . . . OTHER information --O
5.7.10.5 Classification by status (fourth and fifth letters)

5.7.10.5.1 The fourth letter of the code group, which may be any letter of the alphabet except Q, indicates status subsections as follows:

A    AVAILABILITY
C    CHANGES
H    HAZARD conditions
L    LIMITATIONS
XX   Other

5.7.10.5.2 The following fourth and fifth letters of the NOTAM Code should be used in NOTAM cancellations:

AK:    RESUMED NORMAL OPERATION
AL:    OPERATIVE (OR REOPERATIVE) SUBJECT TO PREVIOUSLY PUBLISHED LIMITATIONS/CONDITIONS
AO:    OPERATIONAL
CC:    COMPLETED
CN:    CANCELLED
HV:    WORK COMPLETED
XX:    PLAIN LANGUAGE

5.7.10.6 Significations/uniform abbreviated phraseology

5.7.10.6.1 In order to facilitate the dissemination of NOTAM by reducing the transmission time over telecommunication channels, eliminate translation and provide a suitable pre-flight information bulletin entry, the approved uniform abbreviated phraseology assigned to each signification of a two-letter combination in the NOTAM Code – Decode part is to be used in preference to significations wherever possible.

5.7.10.7 Text in parentheses

5.7.10.7.1 The information necessary to complete a signification/uniform abbreviated phraseology, as indicated between parentheses, shall be given as applicable.

5.7.10.8 Amplification of significations/ uniform abbreviated phraseology
5.7.10.8.1 The following is applicable to amplification of significations/uniform abbreviated phraseology:

a) amplifications relating to significations/uniform abbreviated phraseology of the second and third letters (subject of the NOTAM) must precede signification/uniform abbreviated phraseology of the NOTAM Code;

b) amplifications relating to significations/uniform abbreviated phraseology of the fourth and fifth letters (status of operation) must follow signification/uniform abbreviated phraseology of the NOTAM Code.

Examples (as applicable to Item E) of the NOTAM Format)

a) The touchdown zone lights of RWY 27 are not available due to power failure.

E) RWY 27 RTZL NOT AVBL DUE PWR FAILURE

b) The taxiway edge lights of taxiway B are obscured by snow.

E) TWY B EDGE LGT OBSCURED BY SN

c) On the strip of RWY 09/27 snow banks to a height of 15 ft. exist.

E) RWY 09/27 STRIP SN BANKS HGT 15 FT.

d) The minimum sector altitude in the sector 900 to 1800 inbound VOR ident DPN changed to 3600 ft. MSL.

E) 90 TO 180 DEG INBD VOR DPN MSA CHANGED 3600 FT MSL.

5.7.10.9 Use of NOTAM Code groups

5.7.10.9.1 Five-letter NOTAM Code groups are to be used in conjunction with the NOTAM Format. They also constitute the basis for determination of the qualifiers Traffic, Purpose and Scope. Both NOTAM Code groups and NOTAM qualifiers are to be inserted in Q (Qualifiers) line of the NOTAM Format.

5.7.10.9.2 Five-letter NOTAM Code groups are formed in the following manner:

FIRST LETTER

The letter Q (See 5.7.10.3.1.1)

SECOND AND THIRD LETTERS
The appropriate combination of two letters selected from the “Second and Third Letters” section of the NOTAM Code to identify the facility, service or danger to aircraft being reported upon.

FOURTH AND FIFTH LETTERS

The appropriate combination of two letters selected from the “Fourth and Fifth Letters” section of the NOTAM Code to denote the status of operation of the facility, service or danger to aircraft reported upon.

Examples

*Note:* - In the examples of NOTAM below, the letters Q to G inclusive, each followed by a closing parenthesis, identify an item in the NOTAM Format.

a) The distance measuring equipment (DME), at Delhi/IGI, will not be available from the 31st day of March 2004 at 2359 UTC until the 1st day of April 2004 at 0600 UTC.

NOTAM:

Q) VIDF/QNDAU/IV/BO/AE/…

A) VIDP B) 0403312359 C) 0404010600

E) DME NOT AVBL

Meaning of NOTAM:

Item Q):
- VIDF: ICAO location indicator identifying Delhi FIR in which the facility reported on is located;
- QNDAU: The letter “Q” identifies the five-letter code group as the NOTAM Code group. Second and third letters “ND” identifying “distance measuring equipment” and fourth and fifth letters “AU” denoting that the facility is “not available”;
- IV: Letters identifying that the information affects both IFR and VFR traffic;
- BO: Letters identifying that NOTAM is selected for pre-flight information bulletins entry and that it is operationally significant information for IFR flights;

- AE: Letters identifying that facility is serving a dual purpose as terminal and en-route aid.

Item A):

- VIDP: ICAO location indicator identifying Delhi/IGI, the location of the facility being reported on.

Item B):

- 0403312359: Date/time group beginning of period of validity in which the facility is not available.

Item C):

- 0404010600: Date/time group of the end of the period of validity in which the facility is not available.

Item E):

- DME NOT AVBL: Plain-language entry using ICAO abbreviations.

b) With immediate effect, the VHF omnidirectional radio range on frequency 112.5 MHz at Kolkata/NSCBI will be out of service until approximately the 13th day of November 2004 at 0900 UTC.

NOTAM:

Q) VECF/QNVAS/IV/BO/AE/…
A) VECC B) 0411020615 C) 0411130900 EST
E) 112.5 MHZ VOR U/S

Note: - In the above example, the amplification (i.e. VOR frequency 112.5 MHz) relating to the second and third letters precedes the NOTAM Code significations.

c) Runway 30 at Chennai airport is permanently closed for VFR operations.

NOTAM:
Q) VOMF/QMRLV/V/NB/A/…
A) VOMM B) 0410221430
C) PERM
E) RWY 30 CLSD TO VFR OPS

d) In the Montreal FIR, gun firing will take place on the 21st day of February 2004 from 0800 UTC until 1100 UTC within an area of 10 NM radius around the location 45037’ North, 74000’ West from the surface up to an altitude of 6 100m (20 000 ft) MSL.

NOTAM:
Q) CZUL/QWMLW/IV/BO/W/000/200/ 4537N07400W010
A) CZUL
B) 0402210800
C) 0402211100
E) GUN FRNG WILL TAKE PLACE RADIUS 10 NM AROUND 4537N07400W
F) SFC
G) 6100 M (20000 FT) MSL

5.7.11 The NOTAM Code - Decode

5.7.11.1 Second and Third Letters

<table>
<thead>
<tr>
<th>Code</th>
<th>Signification</th>
<th>Uniform abbreviated phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGA</td>
<td>Lighting facilities (L)</td>
<td>als</td>
</tr>
<tr>
<td>LA</td>
<td>Approach lighting system (specify runway and type)</td>
<td>als</td>
</tr>
<tr>
<td>LB</td>
<td>Aerodrome beacon</td>
<td>abn</td>
</tr>
<tr>
<td>LC</td>
<td>Runway center line lights (specify runway)</td>
<td>rcll</td>
</tr>
<tr>
<td>LD</td>
<td>Landing direction indicator lights</td>
<td>ldi lgt</td>
</tr>
<tr>
<td>LE</td>
<td>Runway edge lights (specify runway)</td>
<td>redl</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>LF</td>
<td>Sequenced flashing lights (specify runway)</td>
<td>sequenced flg lgt</td>
</tr>
<tr>
<td>LH</td>
<td>High intensity runway lights (specify runway)</td>
<td>high intst rwy lgt</td>
</tr>
<tr>
<td>LI</td>
<td>Runway end identifier lights (specify runway)</td>
<td>rwy end id lgt</td>
</tr>
<tr>
<td>LJ</td>
<td>Runway alignment indicator lights (specify runway)</td>
<td>rai lgt</td>
</tr>
<tr>
<td>LK</td>
<td>Category II components of approach lighting system (specify RWY)</td>
<td>Cat II components als</td>
</tr>
<tr>
<td>LL</td>
<td>Low intensity runway lights (specify runway)</td>
<td>low inst rwy lgt</td>
</tr>
<tr>
<td>LM</td>
<td>Medium intensity runway lights (specify runway)</td>
<td>medium intst rwy lgt</td>
</tr>
<tr>
<td>LP</td>
<td>Precision approach path indicator (specify runway)</td>
<td>papi</td>
</tr>
<tr>
<td>LR</td>
<td>All landing area lighting facilities</td>
<td>ldg area lgt fac</td>
</tr>
<tr>
<td>LS</td>
<td>Stopway lights (specify runway)</td>
<td>stwl</td>
</tr>
<tr>
<td>LT</td>
<td>Threshold lights (specify runway)</td>
<td>thr lgt</td>
</tr>
<tr>
<td>LU</td>
<td>Helicopter approach path indicator</td>
<td>hapi</td>
</tr>
<tr>
<td>LV</td>
<td>Visual approach slope indicator system (specify type and runway)</td>
<td>vasis</td>
</tr>
<tr>
<td>LW</td>
<td>Heliport lighting</td>
<td>heliport lgt</td>
</tr>
<tr>
<td>LX</td>
<td>Taxiway center line lights (specify taxiway)</td>
<td>twy cl lgt</td>
</tr>
<tr>
<td>LY</td>
<td>Taxiway edge lights (specify taxiway)</td>
<td>twy edge lgt</td>
</tr>
<tr>
<td>LZ</td>
<td>Runway touchdown zone lights (specify runway)</td>
<td>rtzl</td>
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</table>

**AGA**

**Movement and landing area (M)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA</td>
<td>Movement area</td>
<td>mov area</td>
</tr>
<tr>
<td>MB</td>
<td>Bearing strength (specify part of landing area or movement area)</td>
<td>bearing strength</td>
</tr>
<tr>
<td>MC</td>
<td>Clearway (specify runway)</td>
<td>cwy</td>
</tr>
<tr>
<td>MD</td>
<td>Declared distances (specify runway)</td>
<td>declared dist</td>
</tr>
<tr>
<td>MG</td>
<td>Taxiing guidance system</td>
<td>tgs</td>
</tr>
<tr>
<td>MH</td>
<td>Runway arresting gear (specify runway)</td>
<td>rag</td>
</tr>
<tr>
<td>MK</td>
<td>Parking area</td>
<td>prkg area</td>
</tr>
<tr>
<td>MM</td>
<td>Daylight markings (specify threshold, center line, etc.)</td>
<td>day markings</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>MN</td>
<td>Apron</td>
<td>apron</td>
</tr>
<tr>
<td>MP</td>
<td>Aircraft stands (specify)</td>
<td>acft stand</td>
</tr>
<tr>
<td>MR</td>
<td>Runway (specify runway)</td>
<td>rwy</td>
</tr>
<tr>
<td>MS</td>
<td>Stopway (specify runway)</td>
<td>swy</td>
</tr>
<tr>
<td>MT</td>
<td>Threshold (specify runway)</td>
<td>thr</td>
</tr>
<tr>
<td>MU</td>
<td>Runway turning bay (specify runway)</td>
<td>rwy turning bay</td>
</tr>
<tr>
<td>MW</td>
<td>Strip (specify runway)</td>
<td>strip</td>
</tr>
<tr>
<td>MX</td>
<td>Taxiway(s) (specify)</td>
<td>twy</td>
</tr>
</tbody>
</table>

**AGA**  
**Facilities and services (F)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA</td>
<td>Aerodrome</td>
<td>ad</td>
</tr>
<tr>
<td>FB</td>
<td>Friction measuring device (specify type)</td>
<td>friction measuring device</td>
</tr>
<tr>
<td>FC</td>
<td>Ceiling measurement equipment</td>
<td>ceiling measurement eqpt</td>
</tr>
<tr>
<td>FD</td>
<td>Docking system (specify AGNIS, BOLDS, etc.)</td>
<td>dckg system</td>
</tr>
<tr>
<td>FE</td>
<td>Oxygen (specify type)</td>
<td>oxygen</td>
</tr>
<tr>
<td>FF</td>
<td>Firefighting and rescue</td>
<td>fire and rescue</td>
</tr>
<tr>
<td>FG</td>
<td>Ground movement control</td>
<td>gnd mov ctl</td>
</tr>
<tr>
<td>FH</td>
<td>Helicopter alighting area/platform</td>
<td>hel alighting area</td>
</tr>
<tr>
<td>FJ</td>
<td>Oils (specify type)</td>
<td>oil</td>
</tr>
<tr>
<td>FL</td>
<td>Landing direction indicator</td>
<td>ldi</td>
</tr>
<tr>
<td>FM</td>
<td>Meteorological service (specify type)</td>
<td>met</td>
</tr>
<tr>
<td>FO</td>
<td>Fog dispersal system</td>
<td>fg dispersal</td>
</tr>
<tr>
<td>FP</td>
<td>Heliport</td>
<td>heliport</td>
</tr>
<tr>
<td>FS</td>
<td>Snow removal equipment</td>
<td>sn removal eqpt</td>
</tr>
<tr>
<td>FT</td>
<td>Transmissometer (specify runway and, where applicable, designator(s) of transmissometer(s))</td>
<td>transmissometer</td>
</tr>
<tr>
<td>FU</td>
<td>Fuel availability</td>
<td>fuel avbl</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>FW</td>
<td>Wind direction indicator</td>
<td></td>
</tr>
<tr>
<td>FZ</td>
<td>Customs</td>
<td></td>
</tr>
<tr>
<td><strong>COM</strong></td>
<td><strong>Communications and surveillance facilities (C)</strong></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>Air/ground facility (specify service and frequency)</td>
<td></td>
</tr>
<tr>
<td>CD</td>
<td>Controller-pilot data link communications and automatic dependent surveillance (specify application)</td>
<td></td>
</tr>
<tr>
<td>CE</td>
<td>En-route surveillance radar</td>
<td></td>
</tr>
<tr>
<td>CG</td>
<td>Ground controlled approach system</td>
<td></td>
</tr>
<tr>
<td>CL</td>
<td>Selective calling system</td>
<td></td>
</tr>
<tr>
<td>CM</td>
<td>Surface movement radar</td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>Precision approach radar (specify runway)</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Surveillance radar element of precision approach radar (specify wavelength)</td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>Secondary surveillance radar</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>Terminal area surveillance radar</td>
<td></td>
</tr>
<tr>
<td><strong>COM</strong></td>
<td><strong>GNSS services (G)</strong></td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td>GNSS airfield-specific operations (specify operation)</td>
<td></td>
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<td>GW</td>
<td>GNSS area-wide operations (specify operation)</td>
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<tr>
<td><strong>COM</strong></td>
<td><strong>Instrument and microwave landing system (I)</strong></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>Instrument landing system (specify runway)</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>DME associated with ILS</td>
<td></td>
</tr>
<tr>
<td>IG</td>
<td>Glide path (ILS) (specify runway)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Inner Marker (ILS) (specify runway)</td>
<td></td>
</tr>
<tr>
<td>IL</td>
<td>Localizer (ILS) (specify runway)</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>IM</td>
<td>Middle marker (ILS) (specify runway)</td>
<td>ils mm</td>
</tr>
<tr>
<td>IN</td>
<td>Localizer (not associated with ILS)</td>
<td>ilz</td>
</tr>
<tr>
<td>IO</td>
<td>Outer marker (ILS) (specify runway)</td>
<td>ils om</td>
</tr>
<tr>
<td>IS</td>
<td>ILS Category I (specify runway)</td>
<td>ils cat I</td>
</tr>
<tr>
<td>IT</td>
<td>ILS Category II (specify runway)</td>
<td>ils cat II</td>
</tr>
<tr>
<td>IU</td>
<td>ILS Category III (specify runway)</td>
<td>ils cat III</td>
</tr>
<tr>
<td>IW</td>
<td>Microwave landing system (specify runway)</td>
<td>mls</td>
</tr>
<tr>
<td>IX</td>
<td>Locator, outer (ILS) (specify runway)</td>
<td>ils lo</td>
</tr>
<tr>
<td>IY</td>
<td>Locator, middle (ILS) (specify runway)</td>
<td>ils lm</td>
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</tbody>
</table>

**COM**

*Terminal and en-route navigation facilities (N)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>All radio navigation facilities (except …)</td>
<td>all rdo nav fac</td>
</tr>
<tr>
<td>NB</td>
<td>Non-directional radio beacon</td>
<td>ndb</td>
</tr>
<tr>
<td>NC</td>
<td>DECCA</td>
<td>decca</td>
</tr>
<tr>
<td>ND</td>
<td>Distance measuring equipment</td>
<td>dme</td>
</tr>
<tr>
<td>NF</td>
<td>Fan marker</td>
<td>fan mkr</td>
</tr>
<tr>
<td>NL</td>
<td>Locator (specify identification)</td>
<td>l</td>
</tr>
<tr>
<td>NM</td>
<td>VOR/DME</td>
<td>vor/dme</td>
</tr>
<tr>
<td>NN</td>
<td>TACAN</td>
<td>tacan</td>
</tr>
<tr>
<td>NO</td>
<td>OMEGA</td>
<td>omega</td>
</tr>
<tr>
<td>NT</td>
<td>VORTAC</td>
<td>vortac</td>
</tr>
<tr>
<td>NV</td>
<td>VOR</td>
<td>vor</td>
</tr>
<tr>
<td>NX</td>
<td>Direction-finding station (specify type and frequency)</td>
<td>df</td>
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**ATM**

*Airspace organization (A)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Minimum altitude (specify en-route/crossing/safe)</td>
<td>mnm alt</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>AC</td>
<td>Control zone</td>
<td>ctr</td>
</tr>
<tr>
<td>AD</td>
<td>Air defence identification zone</td>
<td>adiz</td>
</tr>
<tr>
<td>AE</td>
<td>Control area</td>
<td>cta</td>
</tr>
<tr>
<td>AF</td>
<td>Flight information region</td>
<td>fir</td>
</tr>
<tr>
<td>AH</td>
<td>Upper control area</td>
<td>uta</td>
</tr>
<tr>
<td>AL</td>
<td>Minimum usable flight level</td>
<td>mnm usable fl</td>
</tr>
<tr>
<td>AN</td>
<td>Area navigation route</td>
<td>rmav rte</td>
</tr>
<tr>
<td>AO</td>
<td>Oceanic control area</td>
<td>oca</td>
</tr>
<tr>
<td>AP</td>
<td>Reporting point (specify name or coded designator)</td>
<td>rep</td>
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<tr>
<td>AR</td>
<td>ATS route (specify)</td>
<td>ats rte</td>
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<tr>
<td>AT</td>
<td>Terminal control area</td>
<td>tma</td>
</tr>
<tr>
<td>AU</td>
<td>Upper flight information region</td>
<td>uir</td>
</tr>
<tr>
<td>AV</td>
<td>Upper advisory area</td>
<td>uda</td>
</tr>
<tr>
<td>AX</td>
<td>Intersection</td>
<td>int</td>
</tr>
<tr>
<td>AZ</td>
<td>Aerodrome traffic zone</td>
<td>atz</td>
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**ATM**

**Air Traffic and VOLMET services (S)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>Automatic terminal information service</td>
<td>atis</td>
</tr>
<tr>
<td>SB</td>
<td>ATS reporting office</td>
<td>aro</td>
</tr>
<tr>
<td>SC</td>
<td>Area control center</td>
<td>acc</td>
</tr>
<tr>
<td>SE</td>
<td>Flight information service</td>
<td>fis</td>
</tr>
<tr>
<td>SF</td>
<td>Aerodrome flight information service</td>
<td>afis</td>
</tr>
<tr>
<td>SL</td>
<td>Flow control center</td>
<td>flow ctl centre</td>
</tr>
<tr>
<td>SO</td>
<td>Oceanic area control center</td>
<td>oac</td>
</tr>
<tr>
<td>SP</td>
<td>Approach control service</td>
<td>app</td>
</tr>
<tr>
<td>SS</td>
<td>Flight service station</td>
<td>fss</td>
</tr>
<tr>
<td>ST</td>
<td>Aerodrome control tower</td>
<td>twr</td>
</tr>
<tr>
<td>SU</td>
<td>Upper area control center</td>
<td>uac</td>
</tr>
<tr>
<td>SV</td>
<td>VOLMET broadcast</td>
<td>volmet</td>
</tr>
<tr>
<td>SY</td>
<td>Upper advisory service (specify)</td>
<td>upper advisory service</td>
</tr>
</tbody>
</table>

**ATM**

**Air traffic procedures (P)**

| PA  | Standard instrument arrival (specify route designator) | star     |
| PB  | Standard VFR arrival                                   | std vfr arr |
| PD  | Standard instrument departure (specify route designator) | sid       |
| PE  | Standard VFR departure                                 | std vfr dep |
| PF  | Flow control procedure                                 | flow ctrl proc |
| PH  | Holding procedure                                      | hldg proc |
| PI  | Instrument approach procedure (specify type of runway) | instr apch proc |
| PK  | VFR approach procedure                                 | vfr apch proc |
| PM  | Aerodrome operating minima (specify procedure and amended minimum) | opr minima |

| PO  | Obstacle clearance altitude (specify procedure)         | oca       |
| PP  | Obstacle clearance height (specify procedure)            | och       |
| PR  | Radio failure procedure                                 | rdo failure proc |
| PT  | Transition altitude                                     | ta        |
| PU  | Missed approach procedure (specify runway)               | missed apch proc |
| PX  | Minimum holding altitude (specify fix)                   | mnm hldg alt |
| PZ  | ADIZ procedure                                          | adiz proc |

**Navigation Warnings**

**Airspace restrictions (R)**

<p>| RA  | Airspace reservation (specify)                          | airspace reservation |
| RD  | Danger area (specify national prefix and number)         | .. d .. |
| RM  | Military operating area                                 | moa         |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO</td>
<td>Overflying of …. (specify)</td>
<td>overflying</td>
</tr>
<tr>
<td>RP</td>
<td>Prohibited area (specify national prefix and number)</td>
<td>.. p ..</td>
</tr>
<tr>
<td>RR</td>
<td>Restricted area (specify national prefix and number)</td>
<td>.. r ..</td>
</tr>
<tr>
<td>RT</td>
<td>Temporary restricted area (specify area)</td>
<td>tempo restricted area</td>
</tr>
</tbody>
</table>

**Navigation Warnings**

**Warnings (W)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA</td>
<td>Air display</td>
<td>air display</td>
</tr>
<tr>
<td>WB</td>
<td>Aerobatics</td>
<td>aerobatics</td>
</tr>
<tr>
<td>WC</td>
<td>Captive balloon or kite</td>
<td>captive balloon/kite</td>
</tr>
<tr>
<td>WD</td>
<td>Demolition of explosives</td>
<td>demolition of explosives</td>
</tr>
<tr>
<td>WE</td>
<td>Exercises (specify)</td>
<td>exer</td>
</tr>
<tr>
<td>WF</td>
<td>Air refueling</td>
<td>air refueling</td>
</tr>
<tr>
<td>WG</td>
<td>Glider flying</td>
<td>gld fly</td>
</tr>
<tr>
<td>WJ</td>
<td>Banner/target towing</td>
<td>banner/target towing</td>
</tr>
<tr>
<td>WL</td>
<td>Ascent of free balloon</td>
<td>ascent of free balloon</td>
</tr>
<tr>
<td>WM</td>
<td>Missile, gun or rocket firing</td>
<td>missile/gun/rocket/frng</td>
</tr>
<tr>
<td>WP</td>
<td>Parachute jumping exercise</td>
<td>pje</td>
</tr>
<tr>
<td>WR</td>
<td>Radioactive materials or toxic chemicals (specify)</td>
<td>radioactive materials/toxic chemicals</td>
</tr>
<tr>
<td>WS</td>
<td>Burning or blowing gas</td>
<td>burning/blowing gas</td>
</tr>
<tr>
<td>WT</td>
<td>Mass movement of aircraft</td>
<td>mass mov of acft</td>
</tr>
<tr>
<td>WV</td>
<td>Formation flight</td>
<td>formation flt</td>
</tr>
<tr>
<td>WW</td>
<td>significant volcanic activity</td>
<td>significant volcanic act</td>
</tr>
<tr>
<td>WZ</td>
<td>Model flying</td>
<td>model fly</td>
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</table>

**Other Information (O)**

<table>
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<tr>
<th>Code</th>
<th>Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA</td>
<td>Aeronautical information service</td>
<td>ais</td>
</tr>
<tr>
<td>OB</td>
<td>Obstacle (specify details)</td>
<td>obst</td>
</tr>
</tbody>
</table>
OE  Aircraft entry requirements  acft entry rqmnts
OL  Obstacle lights on …. (specify)  obst lgt
OR  Rescue coordination center  rcc

5.7.11.2  FOURTH AND FIFTH LETTERS

<table>
<thead>
<tr>
<th>Code</th>
<th>Signification</th>
<th>Uniform abbreviated phraseology</th>
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</thead>
<tbody>
<tr>
<td>AC</td>
<td>Withdrawn for maintenance</td>
<td>withdrawn maint</td>
</tr>
<tr>
<td>AD</td>
<td>Available for daylight operation</td>
<td>avbl day ops</td>
</tr>
<tr>
<td>AF</td>
<td>Flight checked and found reliable</td>
<td>fltck okay</td>
</tr>
<tr>
<td>AG</td>
<td>Operating but ground checked only, awaiting flight check</td>
<td>opr but gnd ck only, awaiting fltck</td>
</tr>
<tr>
<td>AH</td>
<td>Hours of service are now … (specify)</td>
<td>hr ser</td>
</tr>
<tr>
<td>AK</td>
<td>resumed normal operation</td>
<td>okay</td>
</tr>
<tr>
<td>AL</td>
<td>Operative (or re-operative) subject to previously published</td>
<td>opr subj</td>
</tr>
<tr>
<td></td>
<td>Limitations/conditions</td>
<td>previous cond</td>
</tr>
<tr>
<td>AM</td>
<td>Military operations only</td>
<td>mil ops only</td>
</tr>
<tr>
<td>AN</td>
<td>Available for night operation</td>
<td>avbl ngt ops</td>
</tr>
<tr>
<td>AO</td>
<td>Operational</td>
<td>opr</td>
</tr>
<tr>
<td>AP</td>
<td>Available, prior permission required</td>
<td>avbl, ppr</td>
</tr>
<tr>
<td>AR</td>
<td>Available on request</td>
<td>avbl o/r</td>
</tr>
<tr>
<td>AS</td>
<td>Unserviceable</td>
<td>u/s</td>
</tr>
<tr>
<td>AU</td>
<td>Not available (specify reason if appropriate)</td>
<td>not avbl</td>
</tr>
<tr>
<td>AW</td>
<td>Completely withdrawn</td>
<td>withdrawn</td>
</tr>
<tr>
<td>AX</td>
<td>Previously promulgated shutdown has been cancelled</td>
<td>shutdown cnl</td>
</tr>
</tbody>
</table>
Changes (C)

CA  Activated  act
CC  Completed  cmpl
CD  Deactivated  deactivated
CE  Erected  erected
CF  Operating frequency (ies) changed to  opr freq changed to
CG  Downgraded to  downgraded to
CH  Changed  changed
CI  Identification or radio call sign changed to  ident/rdo call sign changed to
CL  Realigned  realigned
CM  Displaced  displaced
CN  Cancelled  cnl
CO  Operating  opr
CP  Operating on reduced power  opr reduced pwr
CR  Temporarily replaced by  tempo rplcd by
CS  Installed  instl
CT  On test, do not use  on test, do not use

Hazard Conditions (H)

HA  Braking action is …
  1)  Poor
  2)  Medium/Poor
  3)  Medium
  4)  Medium/Good
  5)  Good  ba is…
HB  Friction coefficient is … (specify friction measuring device used)  friction coefficient is
HC  Covered by compacted snow to a depth of  cov compacted sn depth
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>Covered by dry snow to a depth of cov dry sn depth</td>
</tr>
<tr>
<td>HE</td>
<td>Covered by water to a depth of cov water depth</td>
</tr>
<tr>
<td>HF</td>
<td>Totally free of snow and ice free of sn and ice</td>
</tr>
<tr>
<td>HG</td>
<td>Grass cutting in progress grass cutting in pr</td>
</tr>
<tr>
<td>HH</td>
<td>Hazard due to (specify) hazard due</td>
</tr>
<tr>
<td>HI</td>
<td>Covered by ice cov ice</td>
</tr>
<tr>
<td>HJ</td>
<td>Launch planned … (specify balloon flight identification or project code name, launch site, planned period of launch(es) – date/time, expected climb direction, estimated time to pass 18 000 m (60 000 ft), or reaching cruise level if at or below 18 000 m (60 000 ft), together with estimated location) launch plan</td>
</tr>
<tr>
<td>HK</td>
<td>Bird migration in progress (specify direction) bird migration in pr</td>
</tr>
<tr>
<td>HL</td>
<td>Snow clearance completed sn clr cmpl</td>
</tr>
<tr>
<td>HM</td>
<td>Marked by marked by</td>
</tr>
<tr>
<td>HN</td>
<td>Covered by wet snow or slush to a depth of cov wet sn/slush depth</td>
</tr>
<tr>
<td>HO</td>
<td>Obscured by snow obscured by sn</td>
</tr>
<tr>
<td>HP</td>
<td>Snow clearance in progress sn clr inpr</td>
</tr>
<tr>
<td>HQ</td>
<td>Operation cancelled … (specify balloon flight identification or project code name) opr cnl</td>
</tr>
<tr>
<td>HR</td>
<td>Standing water standing water</td>
</tr>
<tr>
<td>HS</td>
<td>Sanding in progress sanding in pr</td>
</tr>
<tr>
<td>HT</td>
<td>Approach according to signal area only</td>
</tr>
<tr>
<td>HU</td>
<td>Launch in progress … (specify balloon flight identification or project code name, launch site, date/time of launch(es), estimated time passing 18 000 m (60 000 ft), or reaching cruising level if at or apch according signal below 18 000 m (60 000 ft), together with estimated location, estimated date/time of termination of the flight and planned location of ground contact, when applicable) launch inpr</td>
</tr>
<tr>
<td>HV</td>
<td>Work completed work cmpl</td>
</tr>
<tr>
<td>HW</td>
<td>Work in progress wip</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>HX</td>
<td>Concentration of birds</td>
</tr>
<tr>
<td>HY</td>
<td>Snow banks exist (specify height)</td>
</tr>
<tr>
<td>HZ</td>
<td>Covered by frozen ruts and ridges</td>
</tr>
<tr>
<td>L</td>
<td>Limitation (L)</td>
</tr>
<tr>
<td>LA</td>
<td>Operating on auxiliary power supply</td>
</tr>
<tr>
<td>LB</td>
<td>Reserved for aircraft based therein</td>
</tr>
<tr>
<td>LC</td>
<td>Closed</td>
</tr>
<tr>
<td>LD</td>
<td>Unsafe</td>
</tr>
<tr>
<td>LE</td>
<td>Operating without auxiliary power supply</td>
</tr>
<tr>
<td>LF</td>
<td>Interference from</td>
</tr>
<tr>
<td>LG</td>
<td>Operating without identification</td>
</tr>
<tr>
<td>LH</td>
<td>Unserviceable for aircraft heavier than</td>
</tr>
<tr>
<td>LI</td>
<td>Closed to IFR operations</td>
</tr>
<tr>
<td>LK</td>
<td>Operating as a fixed light</td>
</tr>
<tr>
<td>LL</td>
<td>Usable for length of … and width of …</td>
</tr>
<tr>
<td>LN</td>
<td>Closed to all night operation</td>
</tr>
<tr>
<td>LP</td>
<td>Prohibited to</td>
</tr>
<tr>
<td>LR</td>
<td>Aircraft restricted to runways and taxiways</td>
</tr>
<tr>
<td>LS</td>
<td>subject to interruption</td>
</tr>
<tr>
<td>LT</td>
<td>Limited to</td>
</tr>
<tr>
<td>LV</td>
<td>Closed to VFR operations</td>
</tr>
<tr>
<td>LW</td>
<td>Will take place</td>
</tr>
<tr>
<td>LX</td>
<td>Operating but caution advised due to</td>
</tr>
<tr>
<td></td>
<td>Other (XX)</td>
</tr>
<tr>
<td>XX</td>
<td>Plain language</td>
</tr>
</tbody>
</table>
5.7.12 Trigger NOTAM

5.7.12.1 The intent of this NOTAM is to serve as a reminder in the pre-flight information bulletin (PIB) by signalling the coming into effect of operationally significant permanent or temporary changes to the AIP, thus ensuring that users are aware of changes that may affect their flights. It also serves as a reminder to AIS officers responsible for updating AIP to insert a new AIP Amendment or AIP Supplement in the affected AIP on the amendment or supplement effective date. When an AIP Supplement is published in accordance with AIRAC procedures, a trigger NOTAM must be originated giving a brief description of the contents, the effective date/time and the serial number of the AIP Supplement. This NOTAM must come into force on the same date as the supplement to which it refers. The text of the trigger NOTAM is included in the PIB and shall remain valid for a period of fourteen days to ensure that pilots and operators are reminded that changes of operational significance will take place as of a given effective date.

5.7.12.2 Information concerning any circumstances listed in chapter 6, must be distributed using AIRAC procedures as an AIRAC AIP Supplement.

5.7.12.3 Trigger NOTAM are issued:

a) on the publication date of AIP Supplement (AIRAC or, in exceptional cases, non-AIRAC);

b) in the appropriate NOTAM series, according to the information it contains;

Note. – *Trigger NOTAM are never published in Series T which is reserved for NOTAM Processing Units in cases when basic operational information was not “triggered” by the issuing NOF.*

c) for a single location (FIR or aerodrome) only, but may include information on different subjects related to the location in order to reduce the number of NOTAM to be published;

Note: - In the case of multiple subjects, the qualifiers TRAFFIC, PURPOSE and SCOPE must be filled in according to the subject of highest operational importance.

5.7.12.4 Trigger NOTAM are issued in accordance with the same instructions as for any other NOTAM with the following exceptions:
Qualifiers (Item Q))

NOTAM CODE

The second and third letters (subject) must be selected from 5.4.4 & 5.4.9 and must never be XX. If there is no suitable selection, use FA for aerodromes and AF for FIR. In the case of multiple subjects for the same aerodrome or FIR, the second and third letters must be selected according to the subject of highest operational importance.

The fourth and fifth letters (condition) must always contain the letters TT. This exclusive TT condition must be used in trigger NOTAM regardless of the subject of NOTAM code.

Note: Condition “TT” may be used to retrieve specific trigger NOTAM from any issuing NOF and can also be used to include (or exclude) trigger NOTAM in/from PIB at a specific time before their effective date.

PURPOSE

As trigger NOTAM are issued only relative to information of operational significance, the qualifier PURPOSE must relate to BO.

SCOPE and TRAFFIC

In the case of multiple subjects for the same aerodrome or FIR, and even though only the subject of highest operational significance is listed in the NOTAM code, the qualifiers SCOPE and TRAFFIC must be selected to cover all subjects.

Items B) and C)

Trigger NOTAM must contain in Item B) the AIRAC effective date-time of the AIRAC AIP Amendment or AIRAC AIP Supplement. As trigger NOTAM must remain valid for a period of 14 days after the effective date of an amendment or supplement, Item C) must contain the AIRAC effective date-time plus 14 days.

Example:

B) 0603161000 (AIRAC effective date-time)

C) 0603301000 (AIRAC effective date-time + 14 days)
When the information published by an AIRAC AIP Supplement has a duration that is shorter than 14 days, Item C) of a trigger NOTAM must have the date and time when the information published in the AIP Supplement will expire.

A trigger NOTAM is generally self-cancelling at the date-time specified in Item C). In a case where the information contained in an AIRAC AIP Supplement becomes invalid before this date, the trigger NOTAM may be cancelled or replaced if the AIRAC AIP Supplement remains valid for a short period.

Item E)

The text in Item E) should not exceed 300 characters and must always start with the words “TRIGGER NOTAM” (followed, only in the case of an AIP Amendment, by the abbreviation PERM), a reference number of the published AIRAC AIP Amendment or AIRAC AIP Supplement concerned, the effective and end date of validity (or the effective date only in the case of PERM) and a brief description of its content.

Note: - PERM or end of validity is inserted in Item E) to stress that the information published by the referenced AIP Amendment or AIP Supplement is of a permanent nature or of planned duration respectively while the trigger NOTAM contains an end date as per Item C).

Example

Q) VIDF/QPDTT/IV/OB/E/000/2834N07706E999

A) VIDP

E) TRIGGER NOTAM – AIP SUP11/2018 NEW SID

5.7.12.5 Trigger NOTAM must be issued for all Supplements containing such information (AIRAC and non-AIRAC).

5.7.12.6 AIP Supplements become effective at the date stated in the supplement. Information to be published using AIRAC procedures does not always start on an AIRAC cycle date (major works, large air exercises, etc.). Consequently, both the AIP Supplement and the trigger NOTAM must contain the effective date/time of the start of the information.
5.7.12.7 AIP Supplements normally contain information of a temporary nature, the duration of the validity of which is known or unknown (“until approximately”). AIP Supplements of unknown duration must be replaced in due time by another supplement and a corresponding trigger NOTAMR, or must be replaced by a NOTAMC. The validity of trigger NOTAM relative to AIP Supplements of unknown duration must be described by a ten-digit date-time group followed by EST (cancellation or replacement required). The validity of trigger NOTAM relative to AIP Supplements of a known duration must be the entire duration of the supplement (i.e. Item B) contains the effective date/time and Item C) the end date of the supplement). The NOTAM stays in the PIB for the entire duration of the supplement.

Example:

Q) VOMF/QNMTT/IV/BO/AE/000/999
A) VOMD
B) 1807070001
C) 1807210001
E) TRIGGER NOTAM PERM. AIRAC AIP SUPP 20/2018 ON VOR/VOR DME PROCEDURE RWY 27 MADURAI AIRPORT)

5.7.12.8 Any change to an AIRAC AIP Supplement, especially in connection with a trigger NOTAM, must be published by the issuing NOF in a way that the information is always clear and without any ambiguities. Detailed procedures for such cases are not given here because of the great variety and complexity of the circumstances possible. However, special care should be taken that the begin date/time (Item B) and the end date/time (Item C) sufficiently cover the operational needs imposed for the display of the information in PIB.

5.7.12.9 Cancellation by NOTAM of AIP Supplements containing AIRAC information

5.7.12.9.1 For these AIP Supplements, an associated trigger NOTAM would have been issued and the procedures for cancellation/replacement of trigger NOTAM apply.
5.7.12.10 Cancellation by NOTAM of AIP Supplements containing non-AIRAC information

5.7.12.10.1 For these AIP Supplements, normally no trigger NOTAM would have been issued. In case of cancellation before the end of their validity, a NOTAN may be issued. Such NOTAM must always contain the PURPOSE qualifier “M” (Miscellaneous NOTAM) and must remain in force for 24 hours in order to allow recipients to remove the cancelled data from the AIP.

5.7.12.11 Replacement of NOTAM by an AIP Supplement

5.7.12.11.1 Publication of an AIP Supplement to replace and modify information of an existing NOTAM may occur at any time. A trigger NOTAM must be published against this AIP Supplement. The issuing NOF must ensure that the existing NOTAM is cancelled at the date/time of the trigger NOTAM. Depending on the case, this may be done with a NOTAMR or with a NOTAMC.

5.7.12.12 Cancellation/Replacement of trigger NOTAM

5.7.12.12.1 Basic cancellation rules for NOTAM apply. Trigger NOTAM relative to AIRAC AIP Amendments must be self-canceling 14 days after the effective date of the amendment. Trigger NOTAM relative to AIP Supplements must be cancelled according to the following:

a) If Item C) is a fixed date, the trigger NOTAM will be automatically cancelled on this date. Exceptionally, the end date specified in the AIP Supplement may be brought forward by NOTAM. In this case, at the date of cancellation (new end of validity), a trigger NOTAMR is issued that remains in force a maximum of 14 days. It can be in force less than 14 days if the originally published end of validity of the supplement is reached within this 14day period. In this case, the Item C) date of the trigger NOTAMR must be identical to the end of validity date of the supplement. The text in Item E) must clearly indicate that the planned end date has been brought forward.

Example:

A0034/03 NOTAMN
Q) ESMM/QFATT/IV/OB/A/000/999/5739N01217E005
A) ESGG B)0304170001 C)0309042400
E) TRIGGER NOTAM – AIRAC AIP SUP 14/2018 USE OF AERODROME RESTRICTED DUE TO MAJOR CONSTRUCTION WORK.

A0126/03 NOTAMR A0034/03

Q) ESMM/QFATT/IV/OB/A/000/999/5739N01217E005

A) ESGG B)0309040001 C)0310302400

E) REF AIRAC AIP SUP 14/03 WORK HAS BEEN COMPLETED. THE RESTRICTIONS PUBLISHED IN SUP 14/03 ARE NO LONGER IN FORCE.

b) If Item C) is an estimated date (EST), a trigger NOTAMR must be published to replace the existing trigger NOTAM at the appropriate time (i.e. before the Item C) time has been reached). Such trigger NOTAMR must follow the same rules for origination as explained above. Trigger NOTAM with an estimated end date must be cancelled by the publication of a normal NOTAMC at the appropriate time (i.e. the time at which the issuing NOF is informed that the situation described in the AIP Supplement has ended).

5.7.13 Instructions for the Completion of The SNOWTAM Format

5.7.13.1 General

5.7.13.1.1 A special series of NOTAM, named SNOWTAM is used to notify the presence or removal of hazardous conditions on the movement area due to snow, slush, ice or water associated with these conditions. When the SNOWTAM Format (Appendix 2) is used, the information must be given in the order shown in the format.

a) When reporting on two or three runways, repeat Items C to P inclusive.

b) Items together with their indicator must be dropped completely, where no information is to be included.

c) Metric units must be used and the unit of measurement not reported.

d) The maximum validity of SNOWTAM is 24 hours. New SNOWTAM must be issued whenever there is a significant change in conditions. The following changes relating to runway conditions are considered as significant:
1) a change in the coefficient of friction of about 0.05;

2) changes in depth of deposit greater than the following: 20 mm for dry snow, 10 mm for wet snow, 3 mm for slush;

3) a change in the available length or width of a runway of 10 per cent or more;

4) any change in the type of deposit or extent of coverage which requires recategorization in Items F or T of the SNOWTAM;

5) when critical snow banks exist on one or both sides of the runway, any change in the height or distance from centre line;

6) any change in the conspicuity of runway lighting caused by obscuring of the lights;

7) any other conditions known to be significant according to experience or local circumstances

e) The abbreviated heading “TTAAiii 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);

iii = SNOWTAM serial number in a four-figure 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 to SNOWTAM 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 SNOWTAM No. 149 from Zurich, measurement/observation of 07 October at 0620 UTC:

SWLS0149 LSZH 10070620

5.7.13.2 Item A – Aerodrome location indicator (four-letter location indicator).

5.7.13.3 Item B – eight-figure date/time group – giving time of observation as month, day, hour and minute in UTC; this item must always be completed.

5.7.13.4 Item C – Lower runway designator number.

5.7.13.5 Item D – Cleared runway length in metres, if less than published length (see Item T on reporting on part of runway not cleared).

5.7.13.6 Item E – Cleared runway width in metres, if less than published width; if offset left or right of centre line, add “L” or “R”, as viewed from the threshold having the lower runway designation number.

5.7.13.7 Item F – Deposit over total runway length as explained in SNOWTAM Format. Suitable combinations of these numbers may be used to indicate varying conditions over runway segments. If more than one deposit is present on the same portion of the runway, they should be reported in sequence from the top to the bottom. Drifts, depths of deposit appreciably greater than the average values or other significant characteristics of the deposits may be reported under Item T in plain language.

5.7.13.8 Item G – Mean depth in millimetres deposit for each third of total runway length, or “XX” if not measurable or operationally not significant; the assessment to be made to an accuracy of 20 mm for dry snow, 10 mm for wet snow and 3 mm for slush.

5.7.13.9 Item H – Friction measurements on each third of the runway and friction measuring device. Measured or calculated coefficient (two digits) or, if not available, estimated surface friction (single digit) in the order from the threshold having the lower runway designation number. Insert a code 9 when surface conditions or available friction measuring device do not permit a reliable surface friction measurement to be made. Use the following abbreviations to indicate the type of friction measuring device used:
BRD  Brakemeter-Dynamometer
GRT  Grip tester
MUM  Mumeter
RFT  Runway friction tester
SFH  Surface friction tester (high-pressure tire)
SFL  Surface friction tester (low-pressure tire)
SKH  Skiddometer (high-pressure tire)
SKL  Skiddometer (low-pressure tire)
TAP  Tapley meter

If other equipment is used, specify in plain language.

5.7.13.10 Item J - Critical snowbanks. If present insert height in centimeters and distance from edge of runway in metres followed by left (“L”) or right (“R”) side or both sides (“LR”), as viewed from the threshold having the lower runway designation number.

5.7.13.11 Item K – If runway lights are obscured, insert “YES” followed by “L”, “R” or both “LR”, as viewed from the threshold having the lower runway designation number.

5.7.13.12 Item L – When further clearance will be undertaken, enter length and width of runway or “TOTAL” if runway will be cleared to full dimensions.

5.7.13.13 Item M – Enter the anticipated time of completion in UTC.

5.7.13.14 Item N – The code for Item F may be used to describe taxiway conditions; enter “NO” if no taxiways serving the associated runway are available.

5.7.13.15 Item P – If applicable, enter “YES” followed by the lateral distance in metres.

5.7.13.16 Item R – The code for Item F may be used to describe apron conditions; enter “NO” if the apron is unusable.

5.7.13.17 Item S – Enter the anticipated time of next observation/measurement in UTC.

5.7.13.18 Item T – Describe in plain language any operationally significant information but always report on length of uncleared runway (Item D) and extent of runway...
contamination (Item F) for each third of the runway (if appropriate) in accordance with the following scale:

Runway contamination – 10% - if less than 10% of runway contaminated
Runway contamination – 25% - if 11- 25% of runway contaminated
Runway contamination – 50% - if 26- 50% of runway contaminated
Runway contamination – 100% - if 51-100% of runway contaminated.

5.7.13.19 Example of Completed SNOWTAM Format

GG EHAMZQZX EDDFZQZX EKCHZQZX
070645 LSZH NYX
SWLS0149 LSZH 11070620
(SNOWTAM 0149
A) LSZH B) 11070620 C) 02 D)... P)
C) 09 D)... P)
C) 12 D)... P)
R) NO S)11070920 T) DEICING)

5.7.13.20 Definitions of the various types of snow

5.7.13.20.1 Slush. Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

Note: - Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.

5.7.13.20.2 Snow (on the ground)

a) Dry snow. Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35.
b) Wet snow. Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.

c) Compacted snow. Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

5.7.14 Instructions for the Completion of the ASHTAM Format

5.7.14.1 General

5.7.14.1.1 A special series of NOTAM called ASHTAM, is used to notify an operationally significant change in volcanic activity, the location, date & time of volcanic eruption and/or horizontal and vertical extent of volcanic ash clouds including direction of movement, flight levels and routes or portions of route which could be affected. A special Format is prescribed for this purpose. When the ASHTAM Format (Appendix 3) is used, the information must be given in the order shown in the Format.

5.7.14.1.2 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 5.7.14.3.5.

5.7.14.1.3 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.

5.7.14.1.4 Issuance of an ASHTAM giving information on a volcanic eruption, in accordance with section 5.7.3, 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”.

5.7.14.1.5 The maximum period of validity of ASHTAM is 24 hours. New ASHTAM must be issued whenever there is a change in the level of alert.

5.7.14.2 Abbreviated heading

5.7.14.2.1 Following the usual AFTN communications header, the abbreviated heading “TT AAiiii CCCC MMYYGGgg (BBB)” is included to facilitate the automatic processing of ASHTAM messages in computer data banks. The explanation of these symbols is:

TT = 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);

iii = 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);

MMYYGGgg = date/time of report, whereby:

MM = month, e.g. January = 01, December = 12

YY = date 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 07th October at 0620 UTC:

VANZ0001 NZZO 10070620

5.7.14.3 Content of ASHTAM
5.7.14.3.1 Item A – Flight information region affected, plain-language equivalent of the location indicator given in the abbreviated heading, in this example “Auckland Oceanic FIR”.

5.7.14.3.2 Item B – Date and time (UTC) of first eruption.

5.7.14.3.3 Item C – name of volcano, and number of volcano as listed in the ICAO Manual of Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691), Appendix F, and on the World Map of Volcanoes and Principal Aeronautical Features). If an ASHTAM has to be created for a volcano not listed in ICAO Doc 9691, the “existence” of the volcano must be promulgated by NOTAM with Item C) containing the abbreviation PERM.

5.7.14.3.4 Item D – Latitude/Longitude of the volcano in whole degrees or radial and distance of volcano from NAVAID (as listed in the ICAO Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691), Appendix F, and on the World Map of Volcanoes and Principal Aeronautical Features).

5.7.14.3.5 Item E – Colour code for level of alert indicating volcanic activity, including any previous level of alert colour code as follows:

<table>
<thead>
<tr>
<th>Level of alert Colour code</th>
<th>Status of activity of volcano</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED ALERT</td>
<td>Volcanic eruption in progress. Ash plume/cloud reported above FL 250.</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>Volcano dangerous, eruption likely, with ash plume/cloud expected to rise above FL 250</td>
</tr>
<tr>
<td>ORANGE ALERT</td>
<td>Volcanic eruption in progress but ash plume/cloud not reaching nor expected to reach FL 250.</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>Volcano dangerous, eruption likely but ash plume/cloud not expected to reach FL 250.</td>
</tr>
<tr>
<td>YELLOW ALERT</td>
<td>Volcano known to be active from time to time and volcanic activity has recently increased significantly, volcano not currently considered dangerous but caution should be exercised.</td>
</tr>
</tbody>
</table>
or

(After an eruption, i.e. change in alert to yellow from red or orange.)

Volcanic activity has decreased significantly, volcano not currently considered dangerous but caution should be exercised.

GREEN ALERT Volcanic activity considered to have ceased and volcano reverted to its normal state.

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”.

5.7.14.3.6 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.

5.7.14.3.7 Item G – Indicate forecast direction of movement of the ash cloud at selected levels based on advice from the responsible meteorological watch office and/or volcanic ash advisory center.

5.7.14.3.8 Item H – Indicate air routes and portions of air routes and flight levels affected, or expected to become affected.

5.7.14.3.9 Item I – Indicate closure of airspace, air routes or portions of air routes, and availability of alternative routes.

5.7.14.3.610 Item J – Source of information, e.g. “special air-report” or “vulcanological agency”, etc. The source of information should always be indicated, whether an eruption has actually occurred or ash cloud reported, or not.

5.7.14.3.611 Item K – Include in plain language any operationally significant information additional to the foregoing.
5.7.15 Distribution

5.7.15.1 NOTAMs are originated and distributed by the International NOTAM Offices (NOF) located at Mumbai, Kolkata, Delhi and Chennai aerodromes. NOTAMs are distributed in five series identified by the letters A, B, C, D and G as follows:

a) **Series A**: contains information in respect of changes/unserviceability, etc. of aeronautical facility/procedures or hazards likely to last for more than 2 hours, in respect of locations of direct importance to international aircraft operations. Series A is given general international distribution.

b) **Series B**: contains information in respect of changes/unserviceability, etc. of aeronautical facility/procedures or hazards likely to last more than 30 minutes but less than 2 hours in respect of locations of direct importance to international aircraft operations. Series B is given limited international distribution to adjacent FIRs/stations only.

c) **Series C**: contains information in respect of changes/unserviceability, etc. of aeronautical facility/procedures or hazards in respect of locations used by domestic flights only. Series C is given national distribution only.

d) **Series D**: contains information in respect of changes/unserviceability, etc. of aeronautical facility/procedures or hazards in respect of locations of military controlled airfields utilized by civil flights. For the issuance of D Series NOTAM, a message in plain language is sent by Air Headquarters or an IAF station to the NOF centre concerned, with a prefix of letter “M” in the message number to intimate the changes/unserviceability, etc. of aeronautical facilities/procedures or hazards in respect of military airfields. The NOF centre then converts the plain language message into the standard NOTAM Format and issues and distributes the NOTAM in D Series.

e) **Series G**: contains significant aeronautical information of lasting character affecting aircraft operations. This G-series is issued only by International NOTAM Office, Delhi. G Series NOTAM are issued under the authority of AIS Section, AAI CHQ, RG Bhawan, New Delhi and given wide publicity by dissemination to all the recipients of NOTAM from all the four NOTAM Offices of AAI.
Note. – The NOTAM of each series are allocated a serial number by the respective NOTAM Offices, commencing with No.0001 preceded by the designated letter of the series A, B, C, D and G as the case may be at 0000UTC on 1st January every year.

5.7.15.2 A pre-determined distribution system for NOTAM transmitted on the AFS is used for international exchange of NOTAM. Selective distribution lists are used by the four NOF centres as per Appendix 6. Selective distribution lists have also been published in ICAO Doc 7383 – Aeronautical Information Services Provided by States.

5.8 Digital data sets

5.8.1 General

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

a) AIP data set;

b) terrain data sets;

c) obstacle data sets;

d) aerodrome mapping data sets; and

e) instrument flight procedure data sets.

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

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

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

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

5.8.2 AIP data set

5.8.2.1 An AIP data set should be provided covering the extent of information as provided in the AIP.

5.8.2.2 When it is not possible to provide a complete AIP data set, the data subset(s) that are available should be provided.
5.8.2.3 The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

5.8.3 Terrain and obstacle data sets

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

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

5.8.3.1 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 Annex 14, Volume I, Chapter 3, 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.
5.8.3.2 Where the terrain at a distance greater than 900 m (3000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 should be extended to a distance not exceeding 2000 m (6500 ft) from the runway threshold.

5.8.3.3 Terrain data sets

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

5.8.3.3.2 Terrain data shall be provided for Area 1.

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

a) Area 2a;

b) the take-off flight path area; and

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

5.8.3.3.4 For aerodromes regularly used by international civil aviation, additional terrain data should 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.

5.8.3.3.5 Arrangements should 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.

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

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

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

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

5.8.3.4 Obstacle data sets

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

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

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

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

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

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

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

c) penetrations of the aerodrome obstacle limitation surfaces.

Note: - Take-off flight path areas are specified in Annex 4, 3.8.2. Aerodrome obstacle limitation surfaces are specified in Annex 14, Volume I, Chapter 4.
5.8.3.6 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.

5.8.3.7 Arrangements should 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.

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

5.8.3.9 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.
5.8.3.4.10 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established.

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

5.8.4 **Aerodrome mapping data sets**

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

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

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

5.8.5 **Instrument flight procedure data sets**

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

5.8.5.2 Instrument flight procedure data sets should be made available for aerodromes regularly used by international civil aviation.
CHAPTER 6 : AERONAUTICAL INFORMATION UPDATES

6.1 Introduction

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

6.1.2 Information concerning changes in facilities services or procedures in most cases requires amendments to be made to airline operations manuals or other documents produced by various aviation agencies. The organizations responsible for maintaining these publications up to date usually work to a pre-arranged production programme. If AIP supplements concerning such information were published indiscriminately with a variety of effective dates, it would be impossible to keep the manuals and other documents up to date. Alternatively, if a schedule of predetermined dates on which changes were to become effective were fixed throughout the year, it would be possible for a production programme to take account of or be based on these predetermined dates.

6.1.3 Since many of the changes to facilities, services and procedures can be anticipated and become effective in accordance with a predetermined schedule of effective dates, ICAO recommends use of a regulated system (AIRAC) designed to ensure, unless operational considerations make it impracticable, that:

a) information concerning circumstances listed in 6.2 will be issued as AIRAC AIP Supplements. These supplements must be identified by the acronym “AIRAC” and distributed at least 42 days in advance of the effective date for usual changes and 56 days in advance for major changes with the objective of reaching recipients at least 28 days in advance for usual changes and 42 days in advance for major changes;

b) the AIRAC effective dates must be in accordance with the predetermined internationally agreed schedule of effective dates based on an interval of 28 days;

c) information so notified must not be changed further for at least another 28 days after the indicated effective date, unless the circumstance notified is of temporary nature and would not persist for the full period.

Note: Guidance material on the procedures applicable to the AIRAC system is contained in the Aeronautical Information Services Manual (Doc 8126).
6.1.4 Essentially, implementation dates other than AIRAC effective dates must not be used for pre-planned, operationally significant changes requiring cartographic work and/or updating of navigation data bases.

6.1.5 The processing cycle for airborne navigation databases requires the database to be delivered at least seven days before the effective date. At least eight days are necessary to prepare the data in the database; therefore, the navigation data houses generally exercise a cut-off 20 days prior to the effective date in order to ensure that the subsequent milestones are met. Data supplied after the 20-day cut-off will generally not be included in the database for the next cycle.

![Processing cycle for airborne navigation databases](image)

6.16 In addition to the use of a predetermined schedule of effective AIRAC dates, Coordinated Universal Time (UTC) must also be used to indicate the time when the AIRAC information will become effective. When an effective time other than 0000 UTC is used, the effective time must be included explicitly with the AIRAC information.

6.2 Information to be notified by AIRAC

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

a) Limits (horizontal and vertical), regulations and procedures applicable to:
   1) flight information regions;
   2) control areas;
   3) control zones;
4) advisory areas;
5) ATS routes;
6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and ADIZ;
7) permanent areas or routes or portions thereof where the possibility of interception exists.

b) Positions, frequencies, call signs, known irregularities and maintenance periods of radio navigation aids and communication and surveillance facilities.

c) Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures.

d) Transition levels, transition altitudes and minimum sector altitudes.

e) Meteorological facilities (including broadcasts) and procedures.

f) Runways and stopways.

h) Aerodrome ground operating procedures (including low visibility procedures).

i) Approach and runway lighting.

j) Aerodrome operating minima if published by a State.

6.2.2 The regulated system (AIRAC) should 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: aerodromes, facilities and services.

c) Customs, immigration and health services.

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

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

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

a) The establishment of, and pre-mediated changes to:

b) New aerodromes for international IFR operations.

c) New runways for IFR operations at international aerodromes.

d) Design and structure of the air traffic services route network.

e) Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change).

f) Circumstances listed in 6.2.1 if the entire State or any significant position thereof is affected or if cross-border coordination is required.

6.3 Schedule of AIRAC effective dates

6.3.1 The schedule of predetermined internationally agreed AIRAC effective dates for the years 2018 to 2023 are as follows:

<table>
<thead>
<tr>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Jan</td>
<td>3 Jan</td>
<td>2 Jan</td>
<td>28 Jan</td>
<td>27 Jan</td>
<td>26 Jan</td>
</tr>
<tr>
<td>1 Feb</td>
<td>31 Jan</td>
<td>30 Jan</td>
<td>25 Feb</td>
<td>24 Feb</td>
<td>23 Feb</td>
</tr>
<tr>
<td>1 Mar</td>
<td>28 Feb</td>
<td>27 Feb</td>
<td>25 Mar</td>
<td>24 Mar</td>
<td>23 Mar</td>
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<tr>
<td>29 Mar</td>
<td>28 Mar</td>
<td>26 Mar</td>
<td>22 Apr</td>
<td>21 Apr</td>
<td>20 Apr</td>
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<td>26 Apr</td>
<td>25 Apr</td>
<td>23 Apr</td>
<td>20 May</td>
<td>19 May</td>
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<td>24 May</td>
<td>23 May</td>
<td>21 May</td>
<td>17 Jun</td>
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<td>15 Jun</td>
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<td>21 Jun</td>
<td>20 Jun</td>
<td>18 Jun</td>
<td>15 Jul</td>
<td>14 Jul</td>
<td>13 Jul</td>
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<tr>
<td>16 Aug</td>
<td>15 Aug</td>
<td>13 Aug</td>
<td>09 Sep</td>
<td>08 Sep</td>
<td>07 Sep</td>
</tr>
<tr>
<td>13 Sep</td>
<td>12 Sep</td>
<td>10 Sep</td>
<td>07 Oct</td>
<td>06 Oct</td>
<td>05 Oct</td>
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<tr>
<td>11 Oct</td>
<td>10 Oct</td>
<td>08 Oct</td>
<td>04 Nov</td>
<td>03 Nov</td>
<td>02 Nov</td>
</tr>
<tr>
<td>8 Nov</td>
<td>7 Nov</td>
<td>5 Nov</td>
<td>02 Dec</td>
<td>01 Dec</td>
<td>30 Nov</td>
</tr>
<tr>
<td>6 Dec</td>
<td>5 Dec</td>
<td>3 Dec</td>
<td>30 Dec</td>
<td>29 Dec</td>
<td>28 Dec</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31 Dec</td>
</tr>
</tbody>
</table>

6.3.2 AIP INDIA GEN 3.1 may also be consulted for AIRAC effective dates.
6.4 Significant dates

6.4.1 There are three significant dates associated with the AIRAC system:

a) the effective date;

b) the publication date; and

c) the latest date for raw material to reach the AIS.

6.4.2 There must be an interval of 42 days between the distribution date and the effective date. This allows for a period of up to 14 days’ distribution time, by the most expeditious means, in order for recipients to receive the information at least 28 days in advance of the effective date. In cases where major changes (i.e. extensive changes to procedure or services which will impact international air transport) are planned and more advance notice is desirable and practicable, a distribution date of 56 days, or even longer, in advance of the effective date should be used. Table 6-1 provides the details of significant dates associated with the AIRAC System for year 2018.

6.4.3 The aeronautical data for publication is received by AIS Section, from different originators like AAI Airports, private airports and different Directorates of AAI-CHQ. The data received is processed by AIS for its consistency and conformance with standards. The observed inconsistencies and shortcomings, if any, are notified to the originator for resolution. Early receipt will allow the AIS to process the data at a normal speed, whereas late receipt will normally mean that processing will be rushed, increasing the possibility of error. Therefore, to have lead time available to AIS Section it is required that the complete information is sent to AIS Section sufficiently in advance. Accordingly, a schedule of effective AIRAC dates and the corresponding last publication dates and the last dates by which the AIS Section, CHQ must receive the information for changes is circulated by AIS Section at CHQ every year. The schedule of dates for the year 2019 is shown as below:
List of AIRAC effective dates, publication dates and latest dates on which material has to reach the AIS for the year 2019

<table>
<thead>
<tr>
<th>Effective Date of Implementation</th>
<th>Latest Date for Publication of AIP Supplement (-42 Days)</th>
<th>Latest Date for Information to reach AIS from field stations (-21 days)</th>
<th>Latest Date for Publication of AIP Supplement (-56 Days)</th>
<th>Latest Date for Publication of AIP Supplement (-21 Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 JAN 2019</td>
<td>22 NOV 2018</td>
<td>01 NOV 2018</td>
<td>08 NOV 2018</td>
<td>18 OCT 2018</td>
</tr>
<tr>
<td>31 JAN 2019</td>
<td>20 DEC 2018</td>
<td>29 NOV 2018</td>
<td>06 DEC 2018</td>
<td>15 NOV 2018</td>
</tr>
<tr>
<td>28 FEB 2019</td>
<td>17 JAN 2019</td>
<td>27 DEC 2018</td>
<td>03 JAN 2019</td>
<td>13 DEC 2018</td>
</tr>
<tr>
<td>20 JUN 2019</td>
<td>09 MAY 2019</td>
<td>18 APR 2019</td>
<td>25 APR 2019</td>
<td>04 APR 2019</td>
</tr>
<tr>
<td>18 JUL 2019</td>
<td>06 JUN 2019</td>
<td>16 MAY 2019</td>
<td>23 MAY 2019</td>
<td>02 MAY 2019</td>
</tr>
<tr>
<td>12 SEP 2019</td>
<td>01 AUG 2019</td>
<td>11 JUL 2019</td>
<td>18 JUL 2019</td>
<td>27 JUN 2019</td>
</tr>
<tr>
<td>07 NOV 2019</td>
<td>26 SEP 2019</td>
<td>05 SEP 2019</td>
<td>12 SEP 2019</td>
<td>22 AUG 2019</td>
</tr>
<tr>
<td>05 DEC 2019</td>
<td>24 OCT 2019</td>
<td>03 OCT 2019</td>
<td>10 OCT 2019</td>
<td>19 SEP 2019</td>
</tr>
</tbody>
</table>

Table 6-1 Significant Dates Associated with the AIRAC System

6.4.4 When the AIS Section does not receive any information for publication on the next scheduled AIRAC effective date, a NIL Notification shall be originated and distributed by NOTAM (or other means) at least one cycle (28 days or more) before the AIRAC effective date concerned.
CHAPTER 7: PRE-FLIGHT AND POST-FLIGHT INFORMATION/DATA

7.1 Pre-flight information

7.1.1 Annex 15 specifies that pre-flight information must be made available at each aerodrome/heliport normally used for international operations as listed in the relevant ICAO regional plans and any aerodromes/heliports serving as alternates to these regular aerodromes/heliports. Accordingly, aeronautical information essential for the safety, regularity and efficiency of air navigation and relative to the route stages originating at the aerodrome/heliport shall be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.

7.2 Responsibility for execution

7.2.1 Aerodrome/heliport AIS units established for this purpose should be organized and administered on the basis of the amount and type of traffic normally expected to use the aerodrome/heliport and on the length and number of the air routes originating at the aerodrome/heliport. Such units should be staffed by qualified AIS personnel, since a complete and responsible briefing can only be provided by staff possessing the requisite knowledge in this field. It may be necessary, however, to delegate such responsibility to an air traffic services (ATS) unit or other operational service at an aerodrome/heliport where minimal traffic requires personnel to perform more than one task.

7.2.2 Aeronautical information provided for pre-flight planning purposes at the aerodromes/heliports referred to in 8.2.1 shall include relevant:

a) elements of the Integrated Aeronautical Information Package;

b) maps and charts.

Note: - The documentation listed in a) and b) may be limited to national publications and when practicable, those of immediately adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available between the aerodrome AIS unit and that library.
7.2.2.1 Additional current information relating to the aerodrome of departure shall be provided concerning the following:

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

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

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

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

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

f) presence of other temporary hazards;

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

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

i) failure, irregular operation and changes in the operational status of SSR, radio navigation services, VHF aero mobile channels, RVR observing system, and secondary power supply; and

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

7.2.2.2 A recapitulation of valid NOTAM of operational significance and other information of urgent character shall be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB).

Note: - Guidance on the preparation of PIB is contained in the Aeronautical Information Services Manual (Doc 8126).

7.3 Bulletin types

7.3.1 There are different types of bulletins which can be retrieved from the ASBS.
The bulletins are derived depending upon the two broad categories of bulletins, the “area” and “route” types. The common set of NOTAM qualifiers enables the system to provide this range of bulletins. From the foregoing it can be seen that NOTAM are the principal source of information which affect the contents of PIB and data can be structured to meet the needs of any user(s), based on specific operational requirements.

Depending on the requirements of users, PIB can be made available in the form of:

a) Bulletin based on the Flight number.
b) Bulletin based on the Destination.
c) Bulletin based on the Aerodrome /Station.
d) Bulletin based on the FIR.
e) Immediate automatic notification of items of urgent operational significance; and
f) Administrative bulletins.

7.3.2 The bulletins should be provided using a standard format and sequence of information. PIB should only contain information of operational significance that differs from that published in the AIP, and should be tailored to meet both operational and administrative users’ needs.

7.3.3 Flight number type Bulletin

The user can retrieve the bulletin based Flight number under this bulletin type. The airlines are required to update the changes in information pertaining the flight numbers along with the changes in the alternate aerodrome from time to time to AIS.

7.3.4 Destination type Bulletin

The user is enabled to retrieve bulletin by entering the Destination and Alternate aerodrome information.

7.3.5 FIR

The user can retrieve bulletin on FIR of their choice under this option. In an automated system the above types of bulletins can be tailor made by choosing the option depending upon the need of the user:

a) All PIB information;
b) Aerodrome facility PIB information;
c) Com Facility PIB information;
d) Option to include Navigational warnings

7.3.6 Station type bulletins

7.3.6.1 Essentially, aerodrome type bulletins should contain information on selected aerodromes/heliports as may be necessary. Depending on user requirements, such bulletins can contain data on aerodromes/heliports within one or more FIR, for specified sectors or for destination and alternate aerodromes/heliports only. These requirements should be established through agreement between the AIS authority and the operator(s) concerned.

7.3.7 Cardex Bulletin.

The ASBS provides the option to select the bulletin based on the date of issue.

In Normal window the ASBS prepare the bulletin based on NOTAM issued in last 15 days. For bulletin based on NOTAMs which were issued beyond last 15 days, the ASBS gives an option to select “CARDEX”.

7.3.8 Immediate automatic notification of items of urgent operational significance

7.3.8.1 Items of urgent operational significance, which are listed separately in the NOTAM Selection Criteria, must be brought to the attention of operators concerned even after the pre-flight briefing stage.

7.3.9 Administrative bulletins

7.3.9.1 The following administrative bulletins must be provided:

a) checklists of all current NOTAM by State/FIR/aerodrome/heliport; and
b) all NOTAM input since a specified date-time group.

(This procedure greatly facilitates briefings.)

7.3.10 Bulletin update

7.3.10.1 The updating of PIB should be covered by:

a) the system products listed under immediate automatic notification of items of urgent operational significance and Administrative bulletins above; or
7.3.10.2 The above-mentioned bulletin types would make obsolete the requirement for specific update bulletins which have been found to require complex time reference procedures.

7.3.11 Bulletin format

7.3.11.1 The bulletin output must have the following characteristics:

a) NOTAM text in significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language; and

b) NOTAM number to the right of text.

7.3.11.2 Bulletins must be prepared in the following sequence:

a) a heading (identity of origination, area covered and for whom prepared);

b) en-route information;

c) aerodrome/heliport information; and

d) navigation warnings.

7.3.11.2.1 Within each of subparagraphs b) to d) above, the information should be presented in the order of subsections of the AIP. These may also be used as subheadings, if so desired, but are not essential as the subject should be clear from Item E) of the NOTAM.

7.4 Automated Pre Flight aeronautical information systems

7.4.1 Automated pre-flight information systems shall be used to make aeronautical information / data available to operations personnel, including flight crew members for self-briefing, flight planning and flight information service purposes, the information/data made available shall comply with the provision of 8.1.2 and 8.1.3.

7.4.2 Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the AIS by telephone or other suitable telecommunications means. The human/machine
interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.

7.4.3 Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:

a) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;

b) permit access to the system by operations personnel including flight crew members, aeronautical personnel concerned and other aeronautical users through suitable telecommunications means;

c) ensure provision, in paper copy form, of the aeronautical data and aeronautical information accessed, as required;

d) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven user interface or other appropriate mechanism as agreed between the civil aviation authority and operator concerned; and

e) provide for rapid response to a user request for information.

Note: - ICAO abbreviations and codes and location indicators are given respectively in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400) and Location Indicators (Doc 7910).

7.4.4 Automated pre-flight information systems providing for a harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical information in accordance with 8.2.8 and meteorological information in accordance with 9.5.1 of Annex 3 – Metrological Service for International Air Navigation, should be established by an agreement between AAI and the India Metrological Department(IMD)

7.4.5 AAI shall remain responsible for the quality and timeliness of the aeronautical information/data provided by means of such a system.

7.4.6 The IMD remains responsible for the quality of the meteorological information provided by means of such system in accordance with 9.5.1 of Annex 3.
7.5 Facilitation of self-briefing

7.5.1 The main objective of an aerodrome/heliport AIS unit is to make available to pilots the aeronautical information required for a flight. Often, a pilot may not have sufficient time to spend in the AIS unit and it is therefore important that information be presented in a manner that will facilitate self-briefing. Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the aeronautical information service by telephone or other suitable telecommunications means. The human/machine interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.

7.5.2 In order to provide this type of service, the main factors to be considered are:

a) the layout of the briefing room;

b) the format of the pre-flight information bulletins (PIB or “bulletins”);

c) the wall displays; and

d) the access to basic information.

7.5.3 In addition to providing a self-briefing service, verbal briefings, when required, should also be available during the operational hours of the aerodrome/heliport.

7.6 Verbal Briefing

7.6.1 Verbal briefing should be adjusted to the pilot’s requirements depending upon familiarity with the route. A checklist may be used by the briefing officer to ensure that the briefing is as comprehensive as necessary; the completeness of a briefing should not be dependent upon the unaided memory of the briefing officer. The items to be included in such a checklist will vary according to the local situation. A list of items upon which the checklist may be based is given in Figure 7-1. If there is any reason to doubt published information, e.g. on aerodromes/heliports or aerodrome/heliport facilities, the briefing officer should not hesitate to telephone the appropriate authority for the latest information.

7.6.2 To facilitate SAR action, the briefing officer must ensure that the exact location of the intended landing places of the flight which is being briefed is known, particularly in the case of light aircraft not equipped with a two-way radio. When it
is impracticable to obtain information for the complete flight planned route, or when it is more expeditious for information concerning part of the route to be provided by or through another unit, the briefing officer must ensure that the pilot knows where to obtain information for the next route segment. It may be necessary, in exceptional cases, to supplement the normal bulletins and verbal briefing with additional written material specially prepared for a pilot totally unfamiliar with the route to be flown.

7.6.3 Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:

a) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;

b) permit access to the system by operations personnel including flight crew members, aeronautical personnel concerned and other aeronautical users through suitable telecommunications means;

c) ensure provision, in paper copy form, of the aeronautical data and aeronautical information accessed, as required;

d) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven user interface or other appropriate mechanism as agreed between AAI and operator concerned; and

e) provide for rapid response to a user request for information.

Note: - ICAO abbreviations and codes and location indicators are given respectively in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400) and Location Indicators (Doc 7910).

7.7 Post-flight information

7.7.1 Purpose of post-flight information

7.7.1.1 The purpose of post-flight information is to ensure that inadequacies of facilities essential to the safety of flight operations, and the presence of birds on or around the airport constituting a potential hazard to aircraft operations, observed by a pilot during the flight, are reported without delay to the authority responsible for those
facilities. Annex 6, Part I, Chapter 4, 4.1.2 and Part III, Section II, Chapter 2, 2.1.2 places on the operator the responsibility for reporting any inadequacy. Annex 15 requires States to ensure that arrangements are made at aerodromes/heliports to receive this information and to make it available to the AIS “for such distribution as the circumstances necessitate”.

7.7.2 Collection and distribution of post-flight information

7.7.2.1 In most cases malfunctioning/ unserviceability of facilities or the presence of birds is reported by the Pilot on the ATC frequency on which he is in contact. ATS unit concerned, then must pass this information to the WSO/senior most Officer (in the shift) and to the AIS unit for further dissemination. WSO/ senior most Officer in the shift shall in turn pass-on the information to the department/unit responsible for the facility or the services and also make log entry.

7.7.2.2 It is possible, in some cases that a Pilot may wish to confirm his observations in writing. The Pilot may be informed to send his report to the ARO for further required action in a prescribed format published by AAI which is available with DCO/SSO. The report must subsequently be made available to AIS for such distribution as necessary.

7.8 Location of an AIS Unit

7.8.1 Aerodrome/heliport AIS units should be situated close to other aerodrome/heliport flight services and to airline flight operations offices to facilitate pre-flight functions by flight crews with maximum efficiency and without their being compelled to cover undue distances. Ideally, all such services, namely meteorological briefing, flight clearance and the collection of fees and charges (if any), should be established in a group of soundproof offices located on the ground floor of the terminal building, preferably near the apron.

7.9 Layout of an AIS Unit

7.9.1 The space available, the extent of the coverage zone and the demand for pre-flight information services (which reflects the type and volume of traffic using the aerodrome/heliport) will determine layout of AIS Unit. However, some principles are considered to be generally applicable, namely:
a) briefing material relating to major facilities, ATS schemes and navigation warnings should also be displayed on maps and charts to the greatest extent possible;

b) elements of the Integrated Aeronautical Information Package should be readily available for examination with a minimum amount of contact with briefing personnel;

c) suitable space and work tables should be available for the study of documentary material, and for the plotting and planning of flight operations; and

d) the displays and other facilities in the briefing room should, as far as possible, be arranged in a logical sequence so that personnel using the facilities may proceed with a minimum of time and effort. (This would be facilitated by a separate entrance and exit.)

7.10 Wall displays

7.10.1 Wall displays normally should consist of the following, although the extent of the coverage zone, the availability of suitable charts and the size of the available wall area may necessitate some deviation:

a) two sets of charts of the coverage zone at small scale (1:1000000 to 1:3000000) showing:

1) the ATS system, aerodromes/heliports and radio aids to navigation;

2) areas over which the flight of aircraft is dangerous, restricted or prohibited;

Note: - The areas contained in navigation warning bulletins should be plotted on glass or transparent plastic sheeting and superimposed on this chart.

b) a 1:500 000 or larger scale chart of the State in which the aerodrome/heliport is located;

Note: - In larger States this may be limited to the flight information region (FIR) in which the aerodrome/heliport is located and adjacent FIR.
c) an outline chart of the coverage zone at small scale with an index to the area or route breakdown used in distributing briefing material. This chart should show the FIRs and items that would be mentioned in a briefing bulletin;

d) a large scale chart or series of charts of the aerodrome/heliport traffic area showing controlled areas, approach aids, and holding, approach and departure procedures (the scale should be as large as practicable);

e) an Aerodrome Obstacle Chart;

f) a large scale chart (approximately 1:3 000) of the aerodrome/heliport movement area and approaches (in so far as necessary to include all lighting aids) showing the location of all technical services and the normal taxiing routes to be followed from apron to take-off positions; and

g) a large scale diagram of the terminal area showing location of various offices and facilities of interest to visiting flight crews.

7.11 Updating of charts

7.11.1 Due to the frequent changes in the ATS system, the information about the current situation can best be indicated by the use of coloured tapes, pins, markers, etc., superimposed on a chart. Such a presentation can be amended from day to day and is much more intelligible to flight crews.

7.12 Bulletin trays and bulletin amendments

7.12.1 It will generally be found that the most convenient way of storing bulletins is to put them in trays. Each tray should be clearly marked with an indication of the type of bulletin (route, area, FIR, etc.). The tray should be deep enough to hold at least the number of bulletins anticipated to be required for a 24-hour period.

7.13 Access to basic documents

7.13.1 Basic documents (such as up-to-date AIP, AIP Supplements, AIC and ICAO documents) should be stored in such a way as to facilitate access to those wishing to refer to them. Whatever filing system a unit chooses to adopt for its reference library should be such that it is immediately identifiable to the intended user and thereby help to promote self-briefing.
7.14 Sale of aeronautical charts
7.14.1 At each aerodrome/heliport AIS unit arrangements could be made, where practicable, to have appropriate aeronautical charts available for sale. The quantity maintained on hand should be kept to the minimum consistent with the potential demand in order to avoid, as much as possible, the effect of obsolescence.

7.15 Coverage Zone
7.15.1 Geographic coverage
7.15.1.1 For each aerodrome/heliport AIS unit, the geographic area and/or the air routes for which aeronautical information is to be available must be determined and periodically reviewed as changes take place or are anticipated in the air traffic pattern.

7.15.1.2 The coverage zone must be sufficient to cater for at least the first route stage requirements of not only the national carriers of a State but also for those of the foreign airlines operating into or through its territory. This coverage must satisfy day-to-day requirements quickly and accurately while leaving sufficient margin to cater for new requirements without undue strain. Additionally, the possibility of charter flights to locations away from the routine traffic pattern must be kept in mind. The coverage zone for which information/data must be held can be obtained by a survey of the user requirements at each of the aerodromes/heliports, within a State, used for international air operations.

7.15.1.3 In general, the coverage zone should be limited to the FIR within which the aerodrome/heliport is located, the FIR(s) adjacent thereto and all air route stages (i.e. a route or portion of a route flown without an intermediate landing) originating at the aerodrome/heliport and extending beyond the FIR(s) mentioned.

7.15.2 Anticipation of traffic requirements
7.15.2.1 The existing traffic pattern is easily determined from operators, while useful indications of future trends may be gleaned from careful study of the reports of regional air navigation meetings, bilateral agreements and statements from operators. The aim should be to anticipate traffic requirements rather than be overtaken by them.

7.15.3 Depth of information
7.15.3.1 Having determined the geographical area of coverage, it is then necessary to take account of the depth of information required within that area. The immediately adjacent areas will be those most used by short-range traffic, whether it is commercial or private flying. For these areas it will be necessary to request the maximum amount of information relating to the State as a whole and in particular to every aerodrome/heliport available for use by international traffic. Quite frequently it may be necessary to request similar information in respect of aerodromes/heliports which, though not designated as airports of entry, may be used by charter or private aircraft which have cleared customs elsewhere. Thus, in determining the extent to which pre-flight information services are to be provided, States should ascertain that the requirements for “first sector briefing” (point of departure to point of first intended landing) are fully met.

7.15.4 Detailed Information to be Held for Each Coverage Zone

7.15.4.1 The aeronautical information documents to be available at an aerodrome/heliport AIS unit for pre-flight planning purposes are to be established on the basis of the unit’s coverage zone as explained in 8.4. The documentation provided must include relevant elements of the Integrated Aeronautical Information Package. In cases where a complete library of aeronautical information is available at a central location and direct communications exist between it and the aerodrome/heliport AIS unit, such material can be limited to national publications and, where practicable, those of immediately adjacent States. The following, more detailed list is intended as a guide to the types of information that should be readily available for each coverage zone:

a) air routes;

b) regulations concerning entry into and transit of civil aircraft on international flights;

c) aerodromes/heliports available to international aviation;

d) air navigation aids and mobile communication facilities;

e) meteorological facilities;

f) rules of the air and ATS procedures;

g) controlled and restricted airspace;
h) hazards to air navigation;
i) search and rescue facilities;
j) survival information;
k) appropriate maps and charts;
l) a recapitulation of current NOTAM, and other information of an urgent character not contained in NOTAM, on aerodrome/heliport conditions, including the serviceability and operational status of visual ground aids, non-visual aids, and the manoeuvring area, e.g.:

1) construction or maintenance work on or immediately adjacent to the manoeuvring area;
2) rough portions of any part of the manoeuvring area, whether marked or not, e.g. broken parts of the surface of runways and taxiways;
3) presence and depth of snow, ice or water on runways and taxiways, including their effect on surface friction;
4) snow drifted or piled on or adjacent to runways or taxiways;
5) parked aircraft or other objects on or immediately adjacent to taxiways;
6) presence of other temporary hazards;
7) presence of birds constituting a potential hazard to aircraft operations;
8) failure or irregular operation of part or all of the aerodrome/heliport lighting system including approach, threshold, runway, taxiway, obstacle and manoeuvring area lights and aerodrome/heliport power supply;
9) failure, irregular operation and changes in the operational status of ILS (including markers), MLS, Basic GNSS, SBAS, GBAS, SRE, PAR, DME, SSR, VOR, NDB, VHF aero mobile channels, RVR observing system, and secondary power supply; and
10) presence and operation of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with any associated procedures and/or limitations applied thereto.

7.15.5 The recapitulation of current NOTAM and other information of urgent character must be made available to flight crews in the form of plain-language PIB.

7.16 All of the foregoing information should be contained in the various elements of the Integrated Aeronautical Information Package providing these documents are available for all States in the coverage zone. If such documentation is not available, the AIS should take steps to obtain adequate information, preferably through the aviation authority of the State concerned or, if necessary, from other sources, such as commercial airlines, airline service organizations and military services. Information from other sources must be verified, if possible, before distribution and if not verified, must, when distributed, be clearly identified as such.

7.17 NOTAM should be classified and filed systematically and in a manner that facilitates selection for publication of PIB.

7.18 Aeronautical charts, selected from the following list to meet local requirements, should be maintained for reference purposes:

a) World Aeronautical Charts ICAO 1:1 000 000 or aeronautical charts of similar scale for areas where ICAO charts are not available;

b) available chart series of a scale larger than 1:1 000 000, e.g. 1:500 000 and 1:250 000 scale;

c) small scale Planning Chart(s), preferably covering the entire coverage zone on one or two sheets;

d) one or more series of 1:2 000 000 or smaller scale Plotting Charts;

e) any available charts for use with electronic aids to navigation;

f) Approach and Aerodrome/Heliport Charts for all aerodromes/heliports normally used for international operations; and

g) En-route Charts.

*Note: Charts referred to in f) and g) are normally contained in Aeronautical Information Publications.*
1. **Regulations and procedures**
   a) Basic publications and recent amendments and supplements
   b) Procedures applicable to airspace to be used
   c) ATS procedures
   d) Altimeter setting

2. **Meteorological information**
   a) Availability of MET facilities, forecasts and weather reports
   b) Provision of relevant available meteorological information where there is no meteorological office at the aerodrome/heliport, including weather information reported by en-route aircraft

3. **Route and destination information**
   a) Suggestions concerning available routes
   b) Tracks, distances, general topography and terrain features and information required to maintain safe levels en route
   c) Availability and serviceability state of aerodromes/heliports and aerodrome/heliport facilities
   d) Availability and serviceability state of navigation aids
   e) SAR procedures and facilities and functions of the SAR organization

4. **Communication facilities and procedures**
   a) Availability and serviceability of air/ground communication facilities
   b) Procedures
   c) Radio frequencies and hours of operation
   d) Communication facilities available to aircraft not equipped with radio for forwarding movement reports

5. **Hazards to air navigation**

6. **Any other essential information** (including that requested by a pilot which might not be available locally but which can be obtained from the appropriate source)

**Figure 7-1. Briefing checklist**
COMMUNICATIONS DEBRIEFING REPORT

AIRPORTS AUTHORITY OF INDIA

<table>
<thead>
<tr>
<th>दिनांक / Date</th>
<th>उड़ान नं. / Flight No.</th>
<th>विमान कोल-साइं / Aircraft Call -Sign.</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>कमांडर का नाम</th>
<th>प्रथम अधिकारी का नाम</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commander's Name</td>
<td>First Officer's Name</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>समय /Time</th>
<th>भू-स्टेशन</th>
<th>स्टेशन से दूरी नॉटिकल मील</th>
<th>उड़ाई फीट</th>
<th>अब्दुल्लियः</th>
</tr>
</thead>
<tbody>
<tr>
<td>रू.टी.सी./ U.T.C.</td>
<td>Ground Station</td>
<td>From Station</td>
<td>Altitude (Ft.)</td>
<td>Remarks</td>
</tr>
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CHAPTER 8 : TELECOMMUNICATION REQUIREMENTS

8.1 All AAI International NOTAM Offices are connected to the Aeronautical Fixed Service (AFS).

8.1.1 The connections shall provide for printed communications.

8.2 Each International NOTAM Office has been connected, through the AFS, to the following points within the territory for which it provides service;

a) area control centres/flight information centres;

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

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

Note: - Guidance material on non-time critical types of aeronautical information and relevant aspects of the public Internet is provided in the Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).
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CHAPTER 9 : DISSEMINATION OF SAFETY CRITICAL INFORMATION

9.1 General

9.1.1 The air transport industry plays a major role in the global economy. With air traffic projected to increase significantly in the future, aviation safety planning at the international, regional and national levels is essential to manage growth in a safe, efficient and environmentally responsible manner.

9.1.2 Civil aviation is inherently safety critical hence information pertaining to aircraft operations is safety critical in nature. To ensure safety, regularity and efficiency of civil aviation, safety critical information must conform to prescribed standards and quality including correctness, timeliness, accuracy, resolution and integrity. Non conformity to the prescribed standards would result in an unsafe condition that could cause loss or serious damage to the end item or major components, loss of control, or serious injury to personnel.

9.1.3 To foster safety in the aviation operational environment, the supply and speedy dissemination of safety-critical information, is essential. The importance of the regular amendment and updating of safety critical information cannot be overemphasized.

9.2 Safety Critical Information

9.2.1 Safety-critical-systems are those systems whose failure could result in loss of life, significant property damage or damage to the environment.

9.2.2 Safety critical information is used to process safety data and organize or analyze them in a given context so as to make it useful for safety management purposes.

9.2.3 Examples of information which may be considered as Safety Critical for immediate dissemination to concerned stakeholder can be:

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

b) withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, COM, MET, SAR, etc.).
c) withdrawal of electronic and other aids to air navigation and aerodromes/heliports.
d) withdrawal or significant changes made to visual aids;
e) interruption of or return to operation of major components of aerodrome lighting systems;
f) occurrence of major defects or impediments in the manoeuvring area;
g) major changes to search and rescue facilities and services available;
h) withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
i) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
j) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);
k) erecting, or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
l) significant changes in the level of protection normally available at an aerodrome/heliport for rescue and firefighting purposes.
m) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice or water on the movement area;
n) an operationally significant change in volcanic activity, along with flight levels and routes or portions of routes which could be affected;
o) 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;
p) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.
q) conflict zone etc. which may endanger aircraft operations.
9.2.4 It is responsibility of Airports Authority of India as an ANSP to ensure that safety critical information is disseminated in an effective and efficient manner to all stakeholders.

9.3 Dissemination of safety critical information

9.3.1 Normally safety critical information is disseminated through AIP, AIP Supplements, NOTAM, AIC and PIB. However, other means of communications viz. Radio Telephony, HFRT, CPDLC, AFTN and ATIS may also be used to disseminate safety critical information.

9.3.2 In case of failure of non-availability of safety critical elements of any facilities used in the provision of air navigation services, such information shall be made available to the concerned stakeholders by fastest means viz. Radio Telephony or telephones.

9.3.3 At high density airports use of general broadcast through ATIS may be considered. HFRT/CPDLC/AFTN wherever available may also be used.

9.3.4 ATS in-charge may also consider creating a group addresses in Email/SMS/WhatsApp for airlines and AOC members for immediate dissemination of safety critical information.

9.4 Risks arising from conflict zones

9.4.1 To address risks to civil aviation arising from conflict zones, ICAO has developed the Conflict Zone Information Repository which enables ICAO Member States to disseminate information on risks to civil aviation arising from conflict zones. ICAO works in collaboration with States to develop risk advice and best practices for conducting and sharing risk assessments for civil aircraft operations over or near conflict zones. Additional information can be found on the ICAO website at: http://www.icao.int/czir/Pages/default.aspx.

9.5 Monitoring of timely dissemination of safety critical information

9.5.1 ATS in-charge shall monitor the action taken by ATCOs for prompt dissemination and safety critical information to concerned stakeholders and periodically sensitize them so that systems are updated and the procedures are followed by all.
APPENDIX 1: CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)

A1.1 Contents of eAIP (Electronic Aeronautical Information Publication) India

A1.1.1 eAIP India is published in three parts. Part 1 – General (GEN), Part 2 – Enroute (ENR) and Part 3 – Aerodromes (AD).

A1.1.2 The eAIP India is based on AIXM 5.1 format that allows for digital data exchange.

A1.1.3 The information content of the eAIP and the structure of chapters, sections and sub-sections follows the content and structure of the paper AIP.

A1.1.4 The eAIP India includes files that allow for printing a paper AIP.

A1.1.5 The eAIP India is distributed to the subscribers on a physical medium (CD/DVD) and online on the internet through AIM website (https://aim-india.aai.aero)

A1.1.6 The eAIP India is self-contained and includes a table of contents.

A1.1.7 Each page of eAIP India is dated. The date consists of day, month (by name) and year.

A1.1.8 Each page of eAIP India contains identity of the issuing authority, i.e., Airports Authority of India.

A1.1.9 All changes to the eAIP or new information is identified by a change bar (a thick black vertical line).

A1.1.10 The spelling of place names conforms to local usage.

A1.1.11 Hours of operation of various facilities and services should be given in terms of coordinated universal time (UTC) or by use of one of the following abbreviations:

- HJ – Sunrise to sunset
- HN – Sunset to sunrise
- HO – Service available to meet operational requirements
- HS – Service available during hours of scheduled operations
- HX – No specific working hours
- H24 – Continuous day and night service.
A1.1.12 Permanent changes to the AIP are published as AIP Amendments. AIP Amendments are issued whenever new information necessitates a permanent change or addition to the information already contained in the AIP.

A1.1.13 The eAIP is amended by GM (AIS) under the authority of Executive Director (ATM) and/or Member (ANS).

A1.1.14 Each AIP Amendment is allocated a serial number, which shall be consecutive, along with the year of publication.

A1.1.15 When an AIP Amendment is issued, it includes reference to the serial number of the AIP Supplements and NOTAMs which have been incorporated into the Amendment.

A1.1.16 When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed by the monthly plain-language list of valid NOTAM required by NOTAM checklist.

A1.1.17 The contents of each part of eAIP India are detailed as follows:

**Part 1 – GENERAL (GEN)**

**GEN 0.1 Preface**

Brief description of the Aeronautical Information Publication (AIP) has been published in this subsection including:

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

**GEN 0.2 Record of AIP Amendments**

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

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

**GEN 0.3 Record of AIP Supplements**

A table to keep a record of issued AIP Supplements is included in this subsection with the following columns:

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 complete checklist of AIP pages has been published in this subsection, containing:

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

This checklist is amended/updated every time when an AIP amendment is issued.

**GEN 0.5 List of hand amendments to the AIP**

A table is provided to keep a list of current hand amendments to the AIP containing the following columns:

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) is published under this heading.
Note: - Subsections may be listed alphabetically

GEN 1. NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 Designated authorities

The addresses of designated authorities in India concerned with the facilitation of international air navigation such as civil aviation, meteorology, customs, immigration, health, enroute and aerodrome/heliport charges, agricultural quarantine and aircraft accident investigation are published in this subsection. Following details for each authority are included:

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

The applicable regulations and requirements for advance notification and applications for permission concerning entry, transit and departure of aircraft on international flights pertaining to India are published in this subsection.

GEN 1.3 Entry, transit and departure of passengers and crew

The applicable regulations for customs, immigration, and quarantine pertaining to India are published in this subsection. Requirements for advance notification and applications for permission concerning entry, transit and departure of non-immigrant passengers and crew are also included.

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 are published in this subsection.
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

1) A brief description of aircraft instruments, equipment (including communication, & navigation and surveillance equipment) and flight documents, to be carried by aircraft in India are published in this subsection, including special requirements, e.g. Carriage of Airborne Collision Avoidance System (ACAS), as laid down in DGCA’s Civil Aviation Requirements (CAR) Section 2 –Airworthiness, Series “I”.

2) All aeroplanes shall be equipped with Emergency Locator Transmitter (ELT), signaling devices and lifesaving equipment (including means of sustaining life) as laid-down in DGCA’s CAR Section 2, Series “I”, Part II – Aircraft Equipment and Instruments, for flights over designated land areas.

GEN 1.6 Summary of national regulations and international agreements/conventions

This subsection contains a list of titles and references and, where applicable, brief summaries of national regulations affecting air navigation, together with a list of international agreements/conventions ratified by India.

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

The primary purpose of reporting differences is to promote safety and efficiency in air navigation by ensuring that governmental and other agencies, including operators, concerned with international civil aviation are made aware of all national rules and practices in so far as they differ from those prescribed in the ICAO Annexes, Procedures for Air Navigation Services and Regional Supplementary Procedures.

All significant differences notified to ICAO must also be included in the AIP in a form that will enable a user to differentiate easily between the national rules and
practices of a State and the related ICAO provisions. They comprise differences from:

a) Any of the International Standards;

b) Recommended Practices that are important for the safety of air navigation or, in the case of facilitation, for the speedy handling and clearance through customs, immigration, etc. of aircraft and the loads they carry;

c) Procedures for Air Navigation Services (PANS) that are important for the safety of air navigation; and

d) Regional Supplementary Procedures (SUPPS) that are important for the safety of air navigation.

A list of significant differences between national regulations and practices followed in India and related ICAO provisions are contained in this subsection, including:

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

2) Difference in full text.

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

GEN 2. TABLES AND CODES

GEN 2.1 Measuring system, aircraft markings and holidays

GEN 2.1.1 Units of measurement

A description of units of measurement used, including table of units of measurement has been published in this subsection.

GEN 2.1.2 Temporal reference system

The Gregorian calendar and coordinated universal time (UTC) is used as the temporal reference system in all AIS publications of AAI.

In the Gregorian calendar, which is in general use, common years have 365 days and leap years 366 days divided into 12 sequential months.
GEN 2.1.3 Horizontal reference system

World geodetic system – 1984 (WSG84) is used as the horizontal (geodetic) reference system for publication of all aeronautical information/data by AAI. Consequently, all published geographical coordinates (indicating latitude and longitude) are expressed in terms of the WGS-84 geodetic reference datum.

GEN 2.1.4 Vertical reference system

The Earth Gravitational model – 1996 (EGM-96), containing long wavelength gravity field data to degree and order 360, is used by AAI as the global gravity model.

GEN 2.1.5 Aircraft nationality and registration marks

Indication of aircraft nationality and registration marks adopted by India have been published in this subsection.

GEN 2.1.6 Public holidays

There are three national public holidays which are fixed & observed on the same dates every year. These are published on page 2.1-2 of AIP India.

There are another 14 public holidays, dates of which vary every year. The list of these holidays is published as an AIP Supplement in January every year.

Postal and banking facilities are not available on public holidays, except for limited hours at designated branches.

GEN 2.2 Abbreviations used in AIS publications

A list of alphabetically arranged abbreviations and their respective significations used by India in its AIP and in the distribution of aeronautical information/data have been published in this subsection, 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 has been published in this subsection.
GEN 2.4 Location Indicators

A list of alphabetically arranged location indicators assigned to the locations of aeronautical fixed stations in India to be used for encoding and decoding purposes has been published in this subsection. An asterisk mark is placed at locations not connected to the Aeronautical Fixed Service (AFS).

GEN 2.5 List of radio navigation aids

This subsection contains a list of radio navigation aids arranged alphabetically, including:

1) Identifier;
2) Name of the station;
3) type of facility/aid; and
4) indication whether aid serves enroute (E), aerodrome (A) or dual (AE) purposes.

GEN 2.6 Conversion tables

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
4) other conversions as appropriate are given in this subsection.

GEN 2.7 Sunrise/sunset tables

Information on the time of sunrise and sunset including a brief description of criteria used for determination of the times given in the sunrise/sunset tables are given in this subsection. An alphabetical list of selected stations/locations for which sunrise/sunset tables are given is included in the subsection. Following details for each station/location, for which sunrise/sunset time are given, are included:

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

GEN 3. SERVICES

GEN 3.1 Aeronautical information services

GEN 3.1.1 Responsible service

Description of the Aeronautical Information Service (AIS) provided by AAI is included in this subsection. Description includes the following details:

1) Location of AIS Hqrs. and four NOF Centres & their
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.
9) an indication if service is not H24.

GEN 3.1.2 Area of responsibility

The area of responsibility for the aeronautical information service provided by AAI is included in this subsection.

GEN 3.1.3 Aeronautical publications

A brief description of the elements of the Integrated Aeronautical Information Package provided by AAI is published in this subsection, which includes the following:
1) AIP and related amendment service;
2) AIP Supplements;
3) AIC (issued by DGCA);
4) NOTAM and pre-flight information bulletins (PIB);
5) checklists and lists of valid NOTAM; and
6) how they may be obtained.

**GEN 3.1.4 AIRAC system**

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

**GEN 3.1.5 Pre-flight information service at aerodromes**

A list of aerodromes at which pre-flight information is routinely available is published in this subsection, including an indication of relevant:

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

**GEN 3.1.6 Electronic terrain and obstacle data**

This section includes details of how electronic terrain and obstacle data may be obtained, containing:

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

GEN 3.2  Aeronautical charts

GEN 3.2.1  Responsible service(s)

This section includes 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.

AAI publishes a wide range of aeronautical charts. The charts are developed by the Cartography Section of the Directorate of Air Traffic Management located at the Corporate Hqrs. at Rajiv Gandhi Bhawan, Safdarjung Airport, New Delhi – 110003.

The charts are produced in accordance with the provisions contained in ICAO Annex 4 – Aeronautical Charts and DOC-8697. Differences, if any, from these provisions are detailed in the AIP at Section GEN 1.7.

GEN 3.2.2  Maintenance of charts

The aeronautical charts are revised and amended regularly and corrections to them are promulgated by NOTAMs, AIP Supplements and AIP Amendments, etc.

GEN 3.2.3  Purchase arrangements

This section includes details of how charts may be obtained, containing:

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

The charts published by AAI are available for sale at the office mentioned below;

Aeronautical Information Service,
Airports Authority of India,
Rajiv Gandhi Bhawan, Safdarjung Airport,
NEW DELHI – 110003.

**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 is published in this subsection.

**GEN 3.2.5 List of aeronautical charts available**

A list of aeronautical charts available is published in this subsection, including:

1) title of series;
2) scale of series;
3) name and number of each chart or each sheet in a series;
4) price per sheet.
5) date of latest revision.

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

World Aeronautical Charts are published by Survey of India in the WAC 1:1 000 000 scale and can be obtained from;

The Director,
Map Archive & Dissemination Centre,
Hathibarkala Estate, New Cantt Road,
DEHRA DUN, PIN - 248 001,
GEN 3.2.7 Topographical charts

This section includes details of how topographical charts may be obtained, containing:

1) name of 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.

Wide variety of topographical charts are published by Survey of India, Dehradun. Some of them are restricted. Survey of India may be contacted on the above quoted address for details of charts published.

GEN 3.2.8 Corrections to charts not contained in the AIP

Information on the correction to aeronautical charts, which are not contained in the AIP India, can be obtained from General Manager (Cartography) of AAI, CHQ, RG Bhawan, Safdarjung Airport, New Delhi – 110003. Telephone & Telefax No. 011-24654157.

GEN 3.3 Air traffic services

GEN 3.3.1 Responsible service

AAI is responsible for the provision of Air traffic services within the area indicated in para

The following details are published in this sub section:

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 are listed; and
9) an indication if service is not H24.

**GEN 3.3.2 Area of responsibility**

Area of responsibility for which air traffic services are provided by AAI is indicated in this sub section.

**GEN 3.3.3 Types of services**

A brief description of main types of air traffic services provided are published in this sub section.

**GEN 3.3.4 Coordination between the operator and ATS**

General conditions under which coordination between the operator and air traffic services is effected is published in this sub section.

**GEN 3.3.5 Minimum flight altitude**

The criteria used to determine minimum flight altitudes is published in this sub section.

**GEN 3.3.6 ATS units address list**

A list of air traffic services units and their addresses are published in this sub section, containing:

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

GEN 3.4 Communication Services

GEN 3.4.1 Responsible service

Airports Authority of India is responsible for the overall provision and administration of the aeronautical, telecommunication, navigation and surveillance (CNS) facilities in India. The following details are published in (AIP) this subsection:

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

A brief description of area of responsibility for which CNS services are provided by AAI is published in this subsection of AIP.

GEN 3.4.3 Types of service

A brief description of the main types of service and facilities provided by AAI is included in this subsection, which includes:

1) radio navigation services;
2) voice and/or data link services;
3) broadcasting service;
4) language used is English; and
5) an indication of where detailed information can be obtained is also published in this subsection with some graphical diagrams.

**GEN 3.4.4 Requirements and conditions**

Brief description concerning the requirements and conditions under which the communication service is available is included in this subsection.

**GEN 3.4.5 Miscellaneous**

Any additional information (e.g. selected radio broadcasting stations, telecommunications diagram) is included in this subsection.

**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.

The meteorological services for civil aviation are provided by the India Meteorological Department (IMD), Department of Science & Technology, Govt. of India.

**GEN 3.5.2 Area of Responsibility**
A brief description of area and/or air routes for which meteorological service is provided, is published in this subsection of AIP.

**GEN 3.5.3 Meteorological observations and reports**

A detailed description of the meteorological observations and reports provided for international air navigation is published in this subsection of AIP, which includes the following:

1) name of the station and the ICAO location indicator;

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

3) type 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 (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**

A 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 is published in this subsection.

**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 is published in this subsection.

**GEN 3.5.6 Aircraft reports**

Requirements of the IMD for the making and transmission of aircraft reports is published in this subsection.
GEN 3.5.7 VOLMET service

A description of VOLMET service provided from Mumbai and Kolkata and/or D-VOLMET service is published in this subsection, which includes the following details:

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

GEN 3.5.8 SIGMET and AIRMET service

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

1) name of the meteorological watch office and ICAO location indicator;
2) hours of service;
3) flight information region(s) or control area(s) served;
4) SIGMET validity periods;
5) specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones);
6) procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);
7) the air traffic services unit(s) provided with SIGMET and AIRMET information; and
8) additional information (e.g. concerning any limitation of service).
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, is published in this subsection of AIP (Table 3.5.3), which includes the following:

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

In India the aeronautical search and rescue (SAR) service is organized by AAI in accordance with ICAO Annex 12 – Search & Rescue and International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual – Doc 9731 with the assistance of the Ministry of Defence and other agencies, which have the responsibility for making the necessary facilities available. While Coast Guard is responsible to organize Search and Rescue within Maritime Search & Rescue
regions. Complete postal and telegraphic address of Airports Authority of India is given in GEN 1.1.

Differences, if any, with the above quoted ICAO documents are listed at GEN 1.7.

**GEN 3.6.2 Area of responsibility**

AAI is responsible for coordination with the agencies responsible for organising SAR services within aeronautical SRR for aircraft in distress. While Coast Guard is responsible for organizing SAR services within maritime SRR for aircraft, ships, vessels and fishing boats. AAI RCC shall inform Coast Guard MRCC in case of aircraft in distress for information and assistance.

**GEN 3.6.3 Types of service**

A brief description of types of services and facilities provided including details of rescue coordination centres is given on pages GEN 3.6-2 to GEN 3.6-7.

**Satellite Aided Search & Rescue**

India is a participant in the COSPAS/SARSAT system through Indian Space Research Organization, Bangalore. Under Satellite aided search & rescue programme, two Local User Terminals (LUT) have been established at Bangalore and Lucknow, respectively. The Mission Control Center (MCC) is located at Bangalore and is connected with the RCCs at Mumbai, Delhi, Kolkata and Chennai through AFS network.

**GEN 3.6.4 SAR agreements**

At present, India has SAR agreement with BHUTAN.

**GEN 3.6.5 Conditions of availability**

Requests for the entry of aircraft, equipment and personnel from other States to engage in search for aircraft in Distress and rescue survivors of crashed aircraft should be transmitted to the Director General of Civil Aviation. Instructions as to the control which will be exercised on entry of such aircraft and/ or personnel will be given by the Rescue Coordination Centre of the relevant FIR. The postal and telegraphic address of Director General of Civil Aviation is given on page GEN 1.1.

**GEN 3.6.6 Procedures and signals used**
A brief description of the procedures and signals employed by rescue aircraft and a table showing the signals to be used by survivors, are published in this subsection.

**GEN 4. CHARGES FOR AERODROMES AND AIR NAVIGATION SERVICES**

**GEN 4.1 Aerodrome charges**

A brief description of type of charges which may be applicable at aerodromes/heliports available for international use, is published in this sub-section including following details:

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

**GEN 4.2 Air Navigation services charges**

A brief description of charges which may be applicable to Air Navigation services provided for international use is published in this sub-section including following details:

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

_Note:- Airport/heliport Users must check from AAI website (www.airportsindia.org.in or www.aai.aero or www.aim-india.aai.aero) for changes, if any, to aerodrome/heliport and air navigation services charges._
PART 2 – EN-ROUTE (ENR)

ENR 0.6 Table of contents to Part 2

A list of sections and subsections contained in Part 2 – En-route (ENR) is published under this heading.

ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.1 General rules

General rules applicable in India in the provision of Air Traffic Services are published under this heading in AIP India.

ENR 1.2 Visual flight rules

Visual flight rules applicable in India are published under this heading in AIP India.

ENR 1.3 Instrument flight rules

Instrument flight rules applicable in India are published under this heading in AIP India.

ENR 1.4 ATS airspace classification and description

ENR 1.4.1 ATS airspace classification

The descriptions of classification of ATS airspaces in India are published under this heading in AIP India.

ENR 1.4.2 ATS airspace description

Other ATS airspace descriptions as applicable, including general textual descriptions are published under this heading in AIP India.

ENR 1.5 Holding, approach and departure procedures

ENR 1.5.1 General

The holding and approach procedure are based on criteria contained in ICAO Doc 8168 Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS).

ENR 1.5.2 Arriving flights

Procedures for arriving flights (conventional or area navigation or both) which are common to flights into or within the same type of airspace as applicable in India are published under this heading.
ENR 1.5.3 Departing flights

Procedures for departing flights (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport as applicable in India are published under this heading.

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 as applicable in India are published under this heading.

ENR 1.6 ATS surveillance services and procedures

ENR 1.6.1 Primary radar

Description of primary radar services and procedures, including:

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

ENR 1.6.2 Secondary surveillance radar (SSR)

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

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

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

ENR 1.6.3 Automatic dependent surveillance — broadcast (ADS-B)
Description of automatic dependent surveillance — broadcast (ADS-B) operating procedures, including:

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

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

ENR 1.6.4 Other relevant information and procedures

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

ENR 1.7 Altimeter setting procedures

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

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

A description of basic altimeter setting procedures is given in this sub-section of the AIP India, in line with procedures contained in DOC 4444-ATM/501 Chapter 4, Section 4.10. The altimeter setting procedures in use in Mumbai, Kolkata, Delhi and Chennai FIRs.

A transition altitude has been specified for each aerodrome. No transition altitude is less than 4000 ft. (1200 mtrs.). Transition altitude for all aerodromes are given in the table in ENR 1.7-4. Transition altitudes are also indicated in the instrument approach charts.
System of cruising level and the table of quadrantal and semi-circular system of cruising level as applicable in India are also given.

Position Reporting Procedure in India is also added in this section.

**ENR 1.8 Regional supplementary procedures**

Regional supplementary procedures are applied in accordance with ICAO Doc 7030-Regional Supplementary Procedures.

**ENR 1.9 Air traffic flow management and airspace management**

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

1) ATFM structure, service area, service provided, location of unit(s) and hours of operation;

2) types of flow messages and descriptions of the formats; and

3) procedures applicable for departing flights, containing:

   a) service responsible for provision of information on applied ATFM measures;

   b) flight plan requirements; and

   c) slot allocations.

4) information on overall responsibility regarding airspace management within FIR(s), details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation) and general operating procedures.

**ENR 1.10 Flight planning**

The procedures for submission of flight plans applicable in India for the following types of flights are given in this sub-section:

a) Scheduled flights

b) Non-scheduled flights

c) Local/Training flights
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**

A complete statement of identification and interception procedures and visual signals to be used in case of interception of an aircraft is given in this section. All applicable ICAO provisions are applied without any differences. ADIZ as established in India has been described.

**ENR 1.13 Unlawful interference**

Appropriate procedures to be applied in case of unlawful interference are published in this subsection.

**ENR 1.14 Air traffic incidents**

A description of air traffic incidents reporting system is published in this subsection, which includes:

1) definition of air traffic incidents;
2) use of the “Air Traffic Incident Reporting Form”;
3) reporting procedures (including in-flight procedures); and
4) purpose of reporting and handling of the form.
Note: - “Air Traffic Incident Report Form” (PANS ATM, Doc 4444, Appendix 4) may be referred.

ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, TMA and CTA

A detailed description of flight information regions (FIR) and control areas (CTA) (including specific CTA such as TMA) established in India are published in this subsection with the following details:

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

2) identification of unit providing the service;

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

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

5) remarks.

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

A description of designated areas over which the carriage of an emergency locator transmitter (ELT) is required and where aircraft shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.
Note: - Other types of airspace around civil aerodromes/heliports such as control zones and aerodrome traffic zones are described in the relevant aerodrome or heliport section.

ENR 2.2 Other regulated airspace

A detailed description of Control Zones and Aerodrome Traffic Zones are also published in this subsection in AIP India

ENR 3. ATS ROUTES

A detailed description of ATS routes established in India, both for international and domestic flights, are included in this section,

ENR 3.1 Lower ATS routes

Detailed description of lower ATS routes, including:

1) route designator, designation of the navigation 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, and any navigation specification(s) limitations.
Note: - In relation to Annex 11, Appendix 1, and for flight planning purposes, the defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.2 Upper ATS routes

Detailed description of upper ATS routes, including:

1) route designator, designation of the navigation 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, and any navigation specification(s) limitations.

Note: - In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.3 Area navigation routes

Detailed description of PBN (RNAV and RNP) routes, including:

1) route designator, designation of the navigation 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, and any navigation specification(s) limitations.

Note: - In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.4 Helicopter routes

Detailed description of helicopter routes, including:

1) route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical
coordinates in degrees, minutes and seconds of all significant points defining the route including “compulsory” or “on-request” reporting points;

2) tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;

3) upper and lower limits and airspace classification;

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

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

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

Note: - In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

**ENR 3.5 Other routes**

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

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

**ENR 3.6 En-route holding**

A description of en-route holding procedures containing the following details is published in this subsection:

1) holding identification (if any) and holding fix (navigation aid) or waypoint with geographical coordinates in degrees, minutes and seconds.

2) inbound track.

3) direction of the procedure turn.
4) maximum indicated airspeed;
5) minimum and maximum holding level.
6) time/distance outbound; and
7) indication of the controlling unit and its operating frequency.

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

ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 Radio navigation aids – en-route

A list of stations providing radio navigation services established for en-route purposes are published in this subsection. The list of stations is arranged alphabetically. Following details are included:

1) name of the station and magnetic variation to the nearest degree and for VOR, station declination to the nearest degree used for technical line-up of the aid;
2) identification
3) frequency/channel for each element;
4) hours of operation;
5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting antenna;
6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft); and
7) remarks.

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

ENR 4.2 Special navigation systems

Description of stations associated with special navigation systems (DECCA, LORAN, etc.), including:
1) name of station or chain;
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 must be indicated in the remarks column. Facility coverage must be indicated in the remarks column.

**ENR 4.3 Global navigation satellite system (GNSS)**

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

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

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

**ENR 4.4 Name-code designators for significant points**

An alphabetically arranged list of name-code designators (five-letter pronounceable “name-code”) established for significant points at positions not marked by the site of radio navigation aids have been published, including:

1) name-code designator;
2) geographical coordinates in degrees, minutes and seconds of the position; and

3) reference to ATS routes where the point is located.

4) remarks, including supplementary definition of positions where required.

**ENR 4.5 Aeronautical ground lights – en-route**

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

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**

Full description of prohibited, restricted and danger areas established have been published in this subsection.

Following details have been included:

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

2) upper and lower limits; and

3) remarks including time of activity.

Type of restriction or nature of hazard and risk of interception in the event of penetration must be indicated in the remarks column.
ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ)

Description, of established military training areas and military exercises taking place at regular intervals, and established air defence identification zone (ADIZ), including:

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

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

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

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

ENR 5.3.1 Other activities of a dangerous nature

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;
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3) advisory measures;
4) authority responsible for the provision of information; and
5) remarks.

Activities of a dangerous nature and potential hazards are notified by class A NOTAMs.

**ENR 5.4 Air Navigation obstacles**

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

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

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

**ENR 5.5 Aerial sporting and recreational activities**

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

1) designation and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;
2) vertical limits;
3) operator/user telephone number; and
4) remarks, including time of activity.
Note: - This paragraph may be subdivided into different sections for each different category of activity, giving the indicated details in each case.

Aerial sporting and recreational activities are notified by class A NOTAMs.

ENR 5.6 Bird migration and areas with sensitive fauna

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

ENR 6. EN-ROUTE CHARTS

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

This chart is produced for the entire Indian FIR. The aeronautical data includes all aerodrome, prohibited, restricted & dangerous areas and Air Traffic Services system in detail. This chart is produced by the Cartography Section of AAI.

PART 3 – AERODROMES (AD)

AD 0.6 Table of contents to Part 3

A list of sections and subsections contained in Part 3 – Aerodromes (AD) is published under this heading.

AD 1. AERODROMES/HELIPORTS – INTRODUCTION

AD 1.1 Aerodrome/heliport availability and conditions of use

1) All civil aerodromes under the management of Airports Authority of India are open for public use within published operational hours. Current NOTAMs may be consulted for latest operational hours.

2) The services & facilities are provided at AAI aerodromes based on the standards and recommended practices of Annex-14, Volume 1 and all other applicable ICAO Annexes and documents.

The differences with the Annexes and documents have been published in the subsection GEN-1.7 of AIP India.

3) Military aerodromes are not available for public use unless prior permission has been obtained in accordance with established procedures.
AD 1.1.1 General conditions

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

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

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

AD 1.1.2 Use of military air bases

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

AD 1.1.3 Low visibility procedures (LVP)

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

AD 1.1.4 Aerodrome operating minima

Details of aerodrome operating minima applied by the State.

AD 1.1.5 Other information

If applicable, other information of a similar nature.

AD 1.2 Rescue and 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 is published in this sub-section.

Adequate rescue and firefighting vehicles, equipment and personnel have been provided at all aerodromes available for use by commercial transport. An indication of rescue and firefighting categories available at various aerodromes are published in sub-section AD 2.6 of each aerodrome.

AD 1.2.2 Snow plan
Brief description of general snow plan considerations for aerodromes and 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 subparagraph may be subdivided accordingly.

**AD 1.3 Index to aerodromes and heliports**

A list of operational aerodromes has been published under this heading, which includes the following:

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

**AD 1.4 Grouping of aerodromes**

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

**AD 1.5 Status of certification of aerodromes**

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

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

**AD 2 AERODROMES**

Various headings of the ICAO format under which the information has been listed are as follows:

**Note:** - **** is to be replaced by the relevant ICAO location indicator of each aerodrome.

**** AD 2.1 Aerodrome location indicator and name

The ICAO location indicator assigned to the aerodrome and the name of aerodrome has been given under this heading.

**** AD 2.2 Aerodrome geographical and administrative data

The aerodrome geographical and administrative data including the following details have been included in this subsection.

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 aerodromes serve;
3) aerodrome elevation to the nearest metre (foot), and reference temperature;
4) geoid undulation at the aerodrome elevation position to the nearest metre or foot;
   Remarks: Geoid undulation has not been published so far.
5) magnetic variation to the nearest degree, date of information and annual change;
6) name of aerodrome operator, address, telephone & telefax numbers e-mail address, AFS address and, if available, website address;
7) types of traffic permitted to use the aerodrome (IFR/VFR); and
8) remarks.

**** AD 2.3 Operational hours
Detailed description of the hours of operation of services at the aerodrome, including:

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

**** AD 2.4 Handling services and facilities

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

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

**** AD 2.5 Passenger facilities
Brief description of 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 the aerodrome;
2) restaurant(s) at or in the vicinity of the aerodrome;
3) transportation possibilities;
4) medical facilities;
5) bank and post office at or in the vicinity of the 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 must be provided under this subsection.

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

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

1) use of aircraft stand identification signs, taxiway guide lines and visual docking/parking guidance system at aircraft stands;
2) runway and taxiway markings and lights;
3) stop bars (if any); and
4) remarks.

****AD 2.10  Aerodrome obstacles

Detailed description of obstacles, including:

Obstacles in aerodrome area:

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 and foot;
e) obstacle marking, and type and colour of obstacle lighting (if any);
f) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6.
g) NIL indication, if appropriate.

**** AD 2.11 Meteorological information provided

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

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

**** AD 2.12 Runway physical characteristics

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

1) designations;
2) true bearings to one-hundredth of a degree;
3) dimension 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) dimension of stopway (if any) to the nearest metre or foot;

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

10) dimensions of strips;

11) dimensions of runway end safety areas;

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

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

14) remarks.

**** AD 2.13 Declared distances

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

1) runway designator;

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

4) accelerate-stop distance available;

5) landing distance available; and

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

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

**** AD 2.14 Approach and runway lighting

Detailed description of approach and runway lighting, including:

1) runway designator;

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

3) runway threshold lights, colour and wing bars;

4) type of visual approach slope indicator system;

5) length of runway touchdown zone lights;

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

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

8) colour of runway end lights and wing bars; 9) length and colour of stopway lights; and

10) remarks.

**** AD 2.15 Other lighting 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 switchover 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, second and hundredths of seconds and where appropriate geoid undulation of the geometric centre of touch-down and liftoff (TLOF) or of each threshold of final approach and take-off (FATO) area;
   - for non-precision approaches, to the nearest metre or foot; and
   - for precision approaches, to the nearest tenth of a metre or tenth of a foot;

2) TLOF and/or FATO area elevation:
   - for non-precision approaches, to the nearest metre or foot; and
   - for precision approaches, to the nearest tenth of a metre or tenth of a foot;

3) TLOF and FATO area dimensions to the nearest metre or foot, surface type, bearing strength and marking;

4) true bearings to one-hundredth of a degree of FATO;

5) declared distances available, to the nearest metre or foot;

6) approach and FATO lighting; and

7) remarks.

Note: Helicopter landing areas have not been established at AAI airports at present.

**** 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; and
6) hours of applicability; and
7) remarks.

**** AD 2.18 Air traffic services communication facilities

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

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

**** AD 2.19 Radio navigation and landing aids

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; and

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

8) remarks.

When the same aid is used for both en-route and aerodrome purposes, a description must also be given in section ENR 4. If the GBAS serves more than one aerodrome, description of the aid must be provided under each aerodrome. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority must be indicated in the remarks column. Facility coverage must be indicated in the remarks column.

**** AD 2.20 Local aerodrome regulations

Detailed description of regulations applicable to the use of the aerodrome including the acceptability of training flights non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures may be given here.

**** AD 2.21 Noise abatement procedures

Detailed description of Noise abatement procedures, if established at the aerodrome may be listed here.

**** AD 2.22 Flight procedures

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome. When established, detailed description of the low visibility procedures at the aerodrome, including:

1) runway(s) and associated equipment authorized for use under low visibility procedures;
2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;
3) description of ground marking/lighting for use under low visibility procedures; and
4) remarks.

**** AD 2.23 Additional information

Additional information at the aerodrome, such as an indication of bird concentrations at the aerodrome, together with an indication of significant daily movement between resting and feeding areas, to the extent practicable may be published here.

**** AD 2.24 Charts related to an aerodrome

The following charts related to an aerodrome may be included in the following order as appropriate: -

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 Terrain and Obstacle Chart — ICAO (Electronic);
6) Precision Approach Terrain Chart – ICAO (precision approach Cat II and III runways);
7) Area Chart – ICAO (departure and transit routes);
8) Area Chart – ICAO (arrival and transit routes);
9) Standard Departure Chart – Instrument – (SID) ICAO;
10) Standard Arrival Chart – Instrument – (STAR) ICAO;
11) ATC Surveillance Minimum Altitude Chart — ICAO;
12) Instrument Approach Chart – ICAO (for each runway and procedure type);
13) Visual Approach Chart – ICAO; and
If some of the charts are not produced, a statement to this effect is given in section GEN 3.2, Aeronautical charts.

AD 3. HELIPORTS

Presently AD 3 is not published in AIP India
## APPENDIX 2: SNOWTAM FORMAT

<table>
<thead>
<tr>
<th>(COM heading)</th>
<th>(PRIORITY INDICATOR)</th>
<th>(addresses)</th>
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<td>(ORIGINATOR'S INDICATOR)</td>
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<tr>
<td>(Abbreviated heading)</td>
<td>(SWAA* SERIAL NUMBER)</td>
<td>(LOCATION INDICATOR)</td>
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**SNOWTAM** (Serial number)

| (AERODROME LOCATION INDICATOR) | A) |
| (DATE-TIME OF OBSERVATION (Time of completion of measurement in UTC)) | B) |
| (RUNWAY DESIGNATORS) | C) |
| (Cleared Runway Length, If Less Than Published Length (m)) | D) |
| (Cleared Runway Width, If Less Than Published Width (m; If Offset Left or Right of Centre Line Add “L” or “R”) | E) |

(Deposits Over Total Runway Length)

(Observe on each third of the runway, starting from threshold having the lower runway designation number)

- NIL — CLEAR AND DRY
- 1 — DAMP
- 2 — WET or water patches
- 3 — RIME OR FROST COVERED (depth normally less than 1 mm)
- 4 — DRY SNOW
- 5 — WET SNOW
- 6 — SLUSH
- 7 — ICE
- 8 — COMPACTED OR ROLLED SNOW
- 9 — FROZEN RUTS OR RIDGES

(Mean Depth (mm) for Each Third of Total Runway Length)

| (Friction Measurements on Each Third of Runway and Friction Measuring Device Measured or Calculated Coefficient or Estimated Surface) | H) |

**FRICTION**

| 0.40 and above | GOOD | — | 5 |
| 0.39 to 0.36 | MEDIUM/GOOD | — | 4 |
| 0.35 to 0.30 | MEDIUM | — | 3 |
| 0.29 to 0.26 | MEDIUM/POOR | — | 2 |
| 0.25 and below | POOR | — | 1 |
| 9 — unreliable | UNRELIABLE | — | 9 |

(When quoting a measured coefficient, use the observed two figures, followed by the abbreviation of the friction measuring device used. When quoting an estimate, use single digit)

(Critical Snowbanks (If present, insert height (cm)/distance from the edge of runway (m) followed by “L”, “R” or “LR” if applicable))

(RUNWAY LIGHTS (If obscured, insert “YES” followed by “L”, “R” or both “LR” if applicable))

(Further Clearance (If planned, insert length (m)/width (m) to be cleared or if to full dimensions, insert “TOTAL”))

(Further Clearance Expected To Be Completed By . . . (UTC))

| (Taxiway (If no appropriate taxiway is available, insert “NO”)) | N) |
| (Taxiway Snowbanks (If more than 60 cm, insert “YES” followed by distance apart, m)) | P) |
| (APRON (If unusable insert “NO”)) | R) |
| (NEXT PLANNED OBSERVATION/MEASUREMENT IS FOR) (Month/day/hour in UTC) | S) |
| (Plain-Language Remarks (Including contaminant coverage and other operationally significant information, e.g., sanding, de-icing)) | T) |

2. Information on other runways, repeat from C to P.
3. Words in brackets ( ) not to be transmitted.
## APPENDIX 3: ASHTAM FORMAT

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<th>(Abbreviated heading)</th>
<th>(VA** SERIAL NUMBER)</th>
<th>(LOCATION INDICATOR)</th>
<th>DATE-TIME OF ISSUANCE</th>
<th>(OPTIONAL GROUP)</th>
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### (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)²

- 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 *Handbook on the International Airways Volcano Watch (IAWV)* (Doc 9766).
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.
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APPENDIX 4: PREDETERMINED DISTRIBUTION SYSTEM
FOR NOTAM

A4.1 The predetermined distribution system provides for incoming NOTAM (including SNOWTAM and ASHTAM) to be channelled through the AFS direct to designated addressees predetermined by the receiving country concerned while concurrently being routed to the international NOTAM office for checking and control purposes.

A4.2 The addressee indicators for those designated addressees are constituted as follows:

1) *First and second letters:*
   The first two letters of the location indicator for the AFS communication centre associated with the relevant international NOTAM office of the receiving country.

2) *Third and fourth letters:*
   The letters “ZZ” indicating a requirement for special distribution.

3) *Fifth letter:*
   The fifth letter differentiating between NOTAM (letter “N”), SNOWTAM (letter “S”), and ASHTAM (letter “V”).

4) *Sixth and seventh letters:*
   The sixth and seventh letters, each taken from the series A to Z and denoting the national and/or international distribution list(s) to be used by the receiving AFS centre.

   *Note: The fifth, sixth and seventh letters replace the three-letter designator YNY which, in the normal distribution system, denotes an international NOTAM office.*

5) *Eighth letter:*
   The eighth position letter shall be the filler letter “X” to complete the eight-letter addressee indicator.

A4.3 States are to inform the States from which they receive NOTAM of the sixth and seventh letters to be used under different circumstances to ensure proper routing.
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# APPENDIX 5: NOTAM FORMAT

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<th>Date and time of filing</th>
<th>Originator’s Indicator</th>
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<th>Message Series, Number and Identifier</th>
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<td>NOTAM containing new information</td>
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<tr>
<td>NOTAM replacing a previous NOTAM</td>
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<tr>
<td>NOTAM NOTAM cancelling a previous NOTAM</td>
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## Qualifiers

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<th>Scope</th>
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<th>Upper Limit</th>
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Identification of ICAO location indicator in which the facility, airspace or condition reported on is located:

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<th>Period of Validity</th>
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<tr>
<td>To (PERM or date-time group)</td>
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<tr>
<td>Time Schedule (if applicable)</td>
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</tbody>
</table>

Text of NOTAM; Plain-Language Entry (using ICAO Abbreviations):

| E) |

Lower Limit:

Upper Limit:

Signature:

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November 06, 2018  ED/ATM/2018/V1.0-AISM-MAIS  APP 5-1
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## APPENDIX 6: INTERNATIONAL NOTAM OFFICES WITH WHICH NOTAMS ARE EXCHANGED

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yemen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 7: AERONAUTICAL DATA PUBLICATION
RESOLUTION AND INTEGRITY CLASSIFICATION

Table A7-1. Latitude and longitude

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

Table A7-2. Elevations/Altitude/Height

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

Table A7-3. Declination and magnetic variation

<table>
<thead>
<tr>
<th>Declination/variation</th>
<th>Publication Resolution</th>
<th>Integrity classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF NAVAID station declination used for technical line-up</td>
<td>1 degree</td>
<td>essential</td>
</tr>
<tr>
<td>NDB NAVAID magnetic variation</td>
<td>1 degree</td>
<td>routine</td>
</tr>
<tr>
<td>Aerodrome/heliport magnetic variation</td>
<td>1 degree</td>
<td>essential</td>
</tr>
<tr>
<td>ILS localizer antenna magnetic variation</td>
<td>1 degree</td>
<td>essential</td>
</tr>
<tr>
<td>MLS azimuth antenna magnetic variation</td>
<td>1 degree</td>
<td>essential</td>
</tr>
</tbody>
</table>

Table A7-4. Bearing

<table>
<thead>
<tr>
<th>Bearing</th>
<th>Publication Resolution</th>
<th>Integrity classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway segments</td>
<td>1 degree</td>
<td>routine</td>
</tr>
<tr>
<td>Bearing used for the formation of an en-route and a terminal fix</td>
<td>1/10 degree</td>
<td>routine</td>
</tr>
<tr>
<td>Terminal arrival/departure route segments</td>
<td>1 degree</td>
<td>routine</td>
</tr>
<tr>
<td>Bearing used for the formation of an instrument approach procedure fix</td>
<td>1/100 degree</td>
<td>essential</td>
</tr>
<tr>
<td>ILS localizer alignment (True)</td>
<td>1/100 degree</td>
<td>essential</td>
</tr>
<tr>
<td>MLS zero azimuth alignment (True)</td>
<td>1/100 degree</td>
<td>essential</td>
</tr>
<tr>
<td>Runway and FATO bearing (True)</td>
<td>1/100 degree</td>
<td>routine</td>
</tr>
<tr>
<td>Length/Distance/Dimension</td>
<td>Publication Resolution</td>
<td>Integrity classification</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Airway segment length</td>
<td>1/10 km or 1/10 NM</td>
<td>routine</td>
</tr>
<tr>
<td>Distance used for the formation of an en-route fix</td>
<td>1/10 km or 1/10 NM</td>
<td>routine</td>
</tr>
<tr>
<td>Terminal arrival/departure route segment length</td>
<td>1/100 km or 1/100 NM</td>
<td>essential</td>
</tr>
<tr>
<td>Distance used for the formation of a terminal and instrument approach procedure fix</td>
<td>1/100 km or 1/100 NM</td>
<td>essential</td>
</tr>
<tr>
<td>Runway and FATO length, TLOF dimensions</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Runway width</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>Displaced threshold distance</td>
<td>1 m or 1 ft</td>
<td>routine</td>
</tr>
<tr>
<td>Clearway length and width</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>Stopway length and width</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Landing distance available</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Take-off run available</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Take-off distance available</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Accelerate-stop distance available</td>
<td>1 m or 1 ft</td>
<td>critical</td>
</tr>
<tr>
<td>Runway shoulder width</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>Taxiway width</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>Taxiway shoulder width</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>ILS localizer antenna-runway end, distance</td>
<td>1 m or 1 ft</td>
<td>routine</td>
</tr>
<tr>
<td>ILS glide slope antenna-threshold, distance along centre line</td>
<td>1 m or 1 ft</td>
<td>routine</td>
</tr>
<tr>
<td>ILS marker-threshold distance</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>ILS DME antenna-threshold, distance along centre line</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
<tr>
<td>MLS azimuth antenna-runway end, distance</td>
<td>1 m or 1 ft</td>
<td>routine</td>
</tr>
<tr>
<td>MLS elevation antenna-threshold, distance along centre line</td>
<td>1 m or 1 ft</td>
<td>routine</td>
</tr>
<tr>
<td>MLS DME/P antenna-threshold, distance along centre line</td>
<td>1 m or 1 ft</td>
<td>essential</td>
</tr>
</tbody>
</table>