Appendix-I_(Draft) PANS-AIM Consolidated

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CHAPTER 1 (PANS-AIM)

NOTES ON THE PRESENTATION

The text of the draft is arranged to show new text highlighted with grey shading. Text to be developed is highlighted with yellow shading and a blue text without shading indicates a referenced document.

1. New text is highlighted with grey shading. New text to be inserted
2. Text to be developed with yellow shading. Text to be developed
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Note: where the wording of the originally referenced text has highly changed, a grey highlighting has been used to enable members review it to validate the wording.

1. Historical background

1.1 The *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM) are the result of the transition from the product based Aeronautical Information Services (AIS) to the data centric Aeronautical Information Management (AIM).

1.2 The first requirements in the field of Aeronautical Information were developed by the Air Navigation Committee as a result of recommendations of Regional Air Navigation Meetings, and were published by authority of the Council as Procedures for International Notices to Airmen PANS-NOTAM, PICAO Doc 2713) in January 1947.

1.3 In 1949, the Special NOTAM Meeting reviewed and proposed amendments to these procedures which were later issued as "Procedures for Air Navigation Services-Aeronautical Information Services (PANS-AIS) and which became applicable on 1 August 1951.

1.4 In 1952, the PANS-AIS were reviewed by the First Session of the Aeronautical Information Services Division which recommended their adoption as Standards and Recommended Practices. Following consideration by all Contracting States, these recommendations were reviewed by the Air Navigation Commission and the first set of Standards and Recommended Practices was adopted by the Council on 15 May 1953 as Annex 15 to the Convention.

1.5 Annex 15 has progressively evolved to serve the air navigation information needs. The events preceding the Eleventh Air Navigation Conference (AN-Conf/11) held in Montréal in September 2003 which endorsed the global air traffic management (ATM) operational concept re-defined the scope and functionality of AIS.

1.6 Aeronautical Information Service (AIS) was envisaged as one of the most valuable and important enabling services in (ATM) operational concept. The ATM concept, developed to be visionary in scope and not constrained by the level of technology available at the time, is based on a collaborative decision-making environment, the timely availability of high-quality and reliable electronic aeronautical, meteorological, airspace and flow management information would be necessary.

1.7 To satisfy new requirements arising from the Global ATM Operational Concept, aeronautical information services has to transition to a broader concept of aeronautical information management(AIM), with a different method of information provision and management given its data-centric nature as opposed to the product-centric nature of AIS.

1.8 The Aeronautical Information Management (AIM) Concept central element is the precise standardization of atomic data elements in terms of field names, field types and field definitions. This approach ensures that the definition of the data products is decoupled from the definition of the end-products. The end-user applications, which make use of the information transferred in the form of data sets, do not rely exclusively on the structure and format of the messages but are free to transform the data and combine it with other data to construct the final view appropriate for the end-user.

1.9 This edition titled Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM) contains detailed requirements for the collection, specification and provision of aeronautical data and aeronautical information. The edition reflects the work of the AIS-to-AIM SG established on 20th March 2008 by the Air Navigation Commission to assist the Secretariat with the development of SARPS and guidance material necessary to support AIM implementation. The title reflects the new provisions and procedures in the field of Aeronautical Information necessitated by the AIM concept.

2. Scope and purpose

2.1 *Procedures for Air Navigation Services — Aeronautical Information Management (*PANS-AIM) are complementary to the Standards and Recommended Practices contained in Annex 15 — *Aeronautical Information Services* and in Annex 4-*Aeronautical Charts.* They are supplemented when necessary by regional procedures contained in the *Regional Supplementary Procedures* (Doc 7030).

Note 1.— Although the provisions and procedures are mainly directed to AIM Authorities at state or regional level, Data Originators, data providers, accredited providers of AIM Information & data and consumers of AIM

Information & data should be familiar with the procedures contained in the following chapters of the document:
Chapters 4……
Note 2. — The objective of AIM is to ensure integrity of aeronautical data is maintained through the data process from survey/origination to distribution to the next intended user. The provisions and procedures in this document do not relieve the end users of aeronautical data and aeronautical information of their responsibility to ensure accuracy and integrity of aeronautical data and information received for end use meet their requirements

3. Status

3.1 The Procedures for Air Navigation Services (PANS) do not have the same status as the Standards and Recommended Practices. While the latter are *adopted* by Council in pursuance of Article 37 of the Convention on International Civil Aviation, subject to the full procedure of Article 90, the PANS are *approved* by the Council and recommended to Contracting States for worldwide application. (PANS-ATM-Status)

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

4. Implementation

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

5. Publication of differences

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

5.2 However, attention of States is drawn to the provision of Annex 15 related to the publication in their Aeronautical Information Publications of lists of significant differences between their procedures and the related ICAO procedures. (PANS-ATM)

6. Promulgation of information

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

7. Contents of the document

Table A. Amendments to the PANS-AIM

…

Chapter 1

DEFINITIONS

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

Copy all applicable definitions as defined in the relevant Annexes including those in AIXM dictionary if used herein!!

CHAPTER 3. AERONAUTICAL INFORMATION MANAGEMENT

3.1 Information management requirements

Management of aeronautical data and aeronautical information shall be carried out to include the following handling processes:

- Data originator identification

- Data collection

- Data analysis

- Data processing

- Product quality control

3.1.1 Data originator identification

3.1.1.1 Data originator identification should be carried out taking into account the scope of aeronautical data and aeronautical information to be collected.

Note. — Chapter 4 of PANS-AIM specifies the scope of aeronautical data and aeronautical information to be collected.

3.1.1.2 Each data element to be collected should be mapped to an identified data originator.

3.1.1.3 A record of data originators should be maintained.

3.1.2 Data collection

~~3.2.3.1 Aeronautical data collection methods shall ensure the integrity is maintained throughout the data collection process.~~

~~3.1.2.1 The data collection method applied for each data type shall be adequate to meet the integrity classification for such data.~~

~~*Note 1. — Aeronautical data integrity classification is covered in Chapter xx*~~

Digital data collection forms may be used to facilitate completeness of format of the data being collected.

Note 2. — Examples of standard digital data forms are contained in Chapter xx of Doc 8126

3.1.3 Data analysis

3.1.3.1 Analysis of aeronautical data and aeronautical information should be carried out taking into account two main criteria:

a) data and information life cycle;

b) data quality requirements.

3.1.3.1.1 Data and information life cycle

[Insert analysis based on Figure 4-2 of doc 8126 revised to reflect all product and services covered in chapter 6 of pans-aim]

3.1.3.1.2 Data quality requirements

3.5.4.3.1 Collected data shall be analysed for completeness and accuracy requirements.

Note 1. — Appendix A1of PANS-AIM contains aeronautical data attributes, metadata, and accuracy requirements.

3.1.3.2 Verification

~~Verification processes shall be performed to ensure that aeronautical data and aeronautical information conform to requirements for resolution, accuracy, and integrity.~~

Verification activities should include:

a) Comparison processes in which data and information are compared with an independant source;

b) Feedback processes in which data and information are compared between their input and output state;

c) Processing through multiple independent and different systems, comparing the output of each;

Note - This includes performing alternative calculations.

d) ~~Update~~ Processes in which data and information are ~~updated and~~ compared to the originator's ~~change~~ request;

Note - this includes reviewing documents prior to issue.

e) Comparison of a new design specification with a similar proven design specification;

f) Undertaking tests and demonstrations.

3.1.3.3 Validation

~~Validation processes shall be performed to ensure that aeronautical data and aeronautical information meets the needs of the intended user.~~

Validation activities should include :

a) Application processes in which data and information are tested under actual or simulated conditions;

b) Logical processes in which data and information are compared between two different outputs, and;

c) Semantic processes in which data and information are compared to an expected range or value.

3.1.4 Data processing

Note — Chapter 3 of Annex 15 para 3.6 specifies the requirements and the use of automation in aeronautical data and aeronautical information processing.

~~3.2.5.1 The aeronautical information model used for data processing shall encompass the aeronautical data and aeronautical information to be exchanged.~~

~~3.2.5.2 The aeronautical information mode should in addition:~~

~~a. Use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations and data types;~~

~~b) Include data value constraints and data verification rules;~~

~~c) Include provisions for metadata as specified in 3.4.2; and~~

~~d) Include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.~~

~~3.2.5.3 The aeronautical data exchange model used shall:~~

~~a) Apply a commonly used data encoding format;~~

~~b) Cover all the classes, attributes, data types and associations of the aeronautical information model detailed in 3.6.5; and~~

~~c) Provide an extension mechanism by which users can extend the properties of existing features and add new features which do not adversely affect global standardization.~~

~~*Note 1. — The intent of using a common data encoding format is to ensure interoperability of aeronautical data and information exchange between organizations involved in the processing chain.*~~

~~*Note 2. — Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), and JavaScript Object Notation (JSON).*~~

~~3.2.5.4 Automation system implemented for processing aeronautical data and aeronautical information should ensure traceability of the performed actions.~~

~~3.2.5.5 States shall ensure the effective dates of information in the database are the same as the AIRAC effective dates used for the provision of information in paper form.~~

3.1.5. Product quality control

3.1.5.1 When the same data is duplicated in different AI products, coherency checks shoul be undertaken.

3.1.5.2 Quality checks should be implemented to ensure compliance with product specifications contained in Chapter ~~6~~ 5 of PANS-AIM.

3.2.7. Distribution, exchange and delivery

3.2.7.1 Distribution,–exchange and delivery shall be implemented taking into consideration advance notification through AIRAC system.

3.2.7.2 Annex 15 chapter 9 recommends the use of the public Internet for exchange of non-time critical types of aeronautical information. States that permit use of the Internet should:

a) Accredit the entities (hereafter referred to as Internet aviation service providers (IASPs) that will provide an Internet-based provision/exchange of information; and

b) Ensure that they have adequate information technology and information security expertise for overseeing the accreditation process described hereafter.

3.2.7.3 For the purpose of accrediting/overseeing an IASP, States shall:

a) Publish and maintain a list of accredited IASPs with details of the service that has been accredited along with accreditation expiry dates;

b) Require an IASP to advise users of any limitations associated with the provision of its services. Also, the IASP shall state what the contingency or alternate service is. For example, in the case of an Internet system failure when filing a flight plan, the user shall call the air traffic services or flight service facility and submit the information by conventional means;

c) Require an IASP to reduce, though the use of well-designed user interfaces, the possibility of incorrect information accidentally being submitted, and to provide appropriate training for users; and

d) Re-accredit an IASP after an interval of at least three years or when the IASP makes major changes to its organization or infrastructure.

Note1.— Annex 15 specifies the distribution requirements for each product type

Note2.— ICAO Doc 9855 provides guidelines on the use of the public internet for aeronautical applications

[Other Digital data exchange REQUIREMENTS TO BE DEVELOPED]

3.3 Data and information security

Note.— ISO27001 is the international standard describing best practice for an Information Security Management System .

3.2 Aeronautical data and aeronautical information validation and verification

Guidance material on the aeronautical data quality requirements (accuracy, resolution, integrity, and traceability and protection requirements) may be found in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).

Supporting data quality material in respect of data accuracy, publication resolution, and integrit y 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).

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

3.3 Data quality specifications

Guidance material in respect to the processing of aeronautical data and aeronautical information is contained in RTCA Document DO-200A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76 — Standards for Processing Aeronautical Data.

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

3.4 Metadata

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

a) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;

b) the action performed; and

c) the date and time the action was performed.

The metadata to be collected should include the effective dates of information where applicable.

3.5 Data protection

The data protection mechanism for digital data sets shall offer, at the minimum, an equivalent level of protection as a 32-bit cyclic redundancy check (CRC).

Guidance on the use of a 32-bit CRC algorithm to implement a protection of aeronautical digital data sets is contained in the Aeronautical Information Services Manual (Doc 8126).

3.6 Use of automation

Recommendation.— *The aeronautical information model used should:*

a) use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations and data types;

b) include data value constraints and data verification rules;

c) include provisions for metadata as specified in 3.4.2; and

d) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.

Recommendation.— The aeronautical data exchange model used should:

a) apply a commonly used data encoding format;

b) cover all the classes, attributes, data types and associations of the aeronautical information model detailed in 3.6.5;

and

c) provide an extension mechanism by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.

Note 1.—The intent of using a commonly used data encoding format is to ensure interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.

Note 2.—Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), and JavaScript Object Notation (JSON).

Automation system implemented for processing aeronautical data and aeronautical information should ensure traceability of the performed actions.

3.7 Quality management system

Quality management may be provided by a single quality management system or a series of quality management systems.

Formal arrangements concerning data quality between originator and distributor and between distributor and next intended user may be used to manage the aeronautical information data chain.

International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme. An ISO 9000 certificate issued by an accredited certification body is considered an acceptable means of compliance. ".

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

In the framework of the quality management system, a user feedback system shall be defined and implemented. ~~with the objective of monitoring AIRAC adherence, post flight information management among others.~~

3.8 Safety management

3.8.1 Recommendation : Monitoring and measurement processes and procedures should be established in order to provide verification that safety performance complies with the established safety policy and objectives.

3.8.2 Safety management activities

3.8.2.1 Recommendation : Assessment and mitigation of hazards and safety risks relating to AIM changes include:

a) identifying potential and actual hazards as well as associated safety risks related to AIM processes, procedures, resources and systems changes;

b) assessing and classifying the safety risks for acceptability;

c) identifying and implementing mitigations to reduce safety risks to an acceptable level; and

d) evaluating the mitigation measures to determine effectiveness in reducing the associated safety risk.

3.8.2.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

Note.-
This may be accomplished through the design of systems. through operating procedures or throug h improvements in the operating environment.

3.8.2.3 Recommendation : Voluntary confidential reporting procedures should be implemented where appropriate.

Note 1.— A non-punitive environment is fundamental to voluntary reporting.

Note 2.— Each State is encouraged to facilitate and promote the voluntary reporting of events that could affect aviation safety by adjusting their applicable laws, regulations and policies.

3.8.2.4 Recommendation : As a minimum, the following safety documents should be developed and maintained:

a) The safety policy and objectives of the organization;

b) Responsibilities, authorities and accountabilities for safety related activities; and

c) Records of identified safety risks, safety assessments performed and mitigations implemented.

3.8.3 Relationship between safety management and quality management

Note - The objective of quality management is to satisfy the needs of the users of a product or a service, whether they are expressed or implied. Safety is one of the requirement relating to aeronautical information management and aeronautical information services and products.

Hence, safety management is that part of quality management that deals with the satisfaction of the users' requirement for safety.

Safety management activities can be embedded into a safety management system or exist as standalone activities. A safety management system can exist on its own or be part of a broader quality management system which will then deal with all the aspects of quality, including safety.

CHAPTER 4. COLLECTION of AERONAUTICAL DATA and AERONAUTICAL INFORMATION

Note.1— There are a number of Annexes and ICAO Documents which place responsibilities on States and other entities to provide aeronautical data and aeronautical information to meet the needs of the ATM system.

Note.2 — Chapter 4 of Annex 15 specifies the scope of the aeronautical data and aeronautical information to be collected.

4.1 GENERAL REQUIREMENTS

4.1 States shall ensure aeronautical data and aeronautical information are collected as specified herein

Note 1. — Specifications governing the determination of the aeronautical data attributes to be collected for each data entity are provided in Appendix A1.

Note 2. — Specifications governing the determination and reporting (accuracy of field work and data integrity) for each data type including other metadata requirements are provided in Appendix A3

4.2 AERODROMES/HELIPORTS

4.2.1 Administrative Information

1. Contact information and a description of the State's designated authority responsible for aerodromes and heliports.

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

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

4. The details of aerodrome operating minima applied by the State.

5. Runway friction measuring devices and runway friction level minima.

6. Rules governing the establishment of rescue and fire fighting services at aerodromes and heliports together with an indication of rescue and fire fighting categories established by the State.

7. A description of general snow plan considerations for aerodromes/heliports available for public use at which snow conditions are normally liable to occur.

8. A description of the criteria applied by the State in grouping aerodromes/heliports shall be provided for the production/distribution/provision of information purposes (e.g. international/national; primary/secondary; major/other; civil/military; etc.).

9. The status of certification of each aerodrome and heliport.

10. Name of aerodrome/heliport and ICAO location indicator allocated to the aerodrome/heliport.

11. Type of traffic permitted to use the aerodrome/heliport (international/national, IFR/VFR, scheduled/non-scheduled, private general aviation, military and other)

12. A description of regulations applicable to the traffic at use of the aerodrome including the acceptability of training flights, non-radio and micro light aircraft and similar, and to ground manoeuvring and parking

4.2.2 Geographical Data

1. Aerodrome/ Heliport reference point and its site;

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

3. Aerodrome/ Heliport elevation and reference temperature;

4. where appropriate, Geoid undulation at the aerodrome/ Heliport elevation position Magnetic variation date of information and annual change;

4.2.3 Services and Facilities

4.2.3.1 The hours of operation and location of services (aerodrome operator; customs and immigration; health and sanitation; AIS briefing office where available; ATS reporting office (ARO); MET briefing office, where available; air traffic service; fuelling, handling, security, de-icing)

4.2.3.2 Information on services and facilities to include:

1. Handling services and facilities available at the aerodrome/heliport to include cargo-handling facilities;, fuel and oil types; fuelling facilities and capacity; de-icing facilities; hangar space for visiting aircraft; repair facilities for visiting aircraft .

2. Passenger facilities available at the aerodrome/heliport (hotel(s) & restaurant(s) at or in the vicinity of aerodrome or a reference to other information sources such as a website; transportation possibilities; medical facilities; bank and post office at or in the vicinity of aerodrome; tourist office).

3. The rescue and fire fighting services and equipment available at the aerodrome/heliport aerodrome category for fire fighting; rescue equipment; capability for removal of disabled aircraft.

4. Equipment and operational priorities established for the clearance of aerodrome/heliport movement areas specifying type(s) of clearing equipment and clearance priorities

4.2.4 Charges

4.2.4.1 Information on the type of charges (Aerodrome/air navigation service charges etc) including methods of payment and exemptions/reductions where applicable.

4.2.6 Meteorological Information

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/ Heliport, and interval of issuance;

5. Information on how briefing and/or consultation is provided;

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

7. Charts and other information displayed or available for briefing or consultation;

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

9. The air traffic services unit(s) provided with meteorological information;

4.2.7 Runway Physical Characteristics

1. Designations;

2. True bearings

3. dimensions of runways

4. Strength of pavement (PCN and associated data) and surface of each runway and associated stop ways;

5. Geographical coordinates for each threshold and runway

6. Geoid undulation of each Thresholds

7. Slope of each runway and associated stop ways;

8. dimensions of stop way (if any)

9. dimensions of clearway (if any)

10. dimensions of strips;

11. the existence of an obstacle-free zone

12. Declared distances and if applicable, alternative reduced declared distances for each direction of each runway and where relevant for a heliport to include:

i. Runway designator;

ii. Take-off run available;

iii. Take-off distance available;

iv. Accelerate-stop distance available;

v. Landing distance available;

vi. Take-off distance and Rejected take-off distance available for heliport

vii. Runway entry or start point where alternative reduced declared distances have been declared.

4.2.8 Aprons, Taxiways and Checkpoints Physical characteristics

1. Designation, Surface and strength of aprons;
2. 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

4.2.9 Surface Movement Guidance and Control System and Markings

1. use of aircraft stand identification signs and taxiway guide lines
2. runway and taxiway markings ;
3. final approach and take-off markings;
4. Air taxiway markers and air transit route markers
5. visual docking/parking guidance system at aircraft stands;
6. runway and taxiway lights;
7. stop bars

4.2.10 Approach , Runway, FATO Lighting , Secondary Power Supply and other Lighting

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 stop way lights;

10. characteristics and location of FATO area lights;

11. characteristics and location of aiming point lights;

12. characteristics and location of TLOF lighting system

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

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

15. taxiway edge and taxiway centre line lights;

16. secondary power supply including switch-over time

4.2.11 Flight Procedures At Aerodrome/ Heliport.

4.2.15.1 The conditions and flight procedures (including radar and/or ADS-B procedures) established on the basis of airspace organization at the aerodrome/ Heliport.

4.2.12 Low Visibility Procedures

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.

4.2.13 Terrain Data

Note. — The description of terrain data collection surfaces and graphical illustrations is contained in Appendix A2.

4.2.13.1 At aerodromes regularly used by international civil aviation, terrain data shall be collected for:

a) Area 2a.

b) The take-off flight path area; and

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

4.2.13.2 At aerodromes regularly used by international civil aviation, the collection of terrain data that penetrates Areas 2b, 2c and 2d is recommended.

4.2.13.3 At aerodromes regularly used by international civil aviation, the collection of terrain data for Area 3 is recommend.

4.2.13.4 At aerodromes regularly used by international civil aviation, Area 4 terrain data shall be collected 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.

4.2.13.5 Arrangements should be made for the coordination in collecting Area 2 electronic terrain and obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle or terrain are correct.

4.2.13.6 At those aerodromes located near territorial boundaries, arrangements should be made among States concerned to share Area 2 electronic terrain and obstacle data.

4.2.13.7 Where additional terrain data are collected to meet other aeronautical requirements, the obstacle and terrain data sets should be expanded to include these additional data.

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

4.2.14 Obstacle Data

Note. — The description of obstacle data collection surfaces and graphical illustrations of Areas 1, 2a, 2b, 2c, 2d, 3 and 4 is contained in Appendix A2.

4.2.14.1 Obstacle data shall be collected for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

4.2.14.2 At aerodromes regularly used by international civil aviation, obstacle data shall be collected to include:

a. Obstacles that penetrate Area 2a obstacle data collection surface.

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 obstacle identification surfaces are specified in Annex 4, 3.8.2.Aerodrome obstacle limitation surfaces are specified in Annex 14, Volume 1, Chapter 4.

4.2.14.3 At aerodromes regularly used by international civil aviation, the collection of obstacle data that penetrates obstacle data collection surfaces Areas 2b, 2c and 2d is recommended.

4.2.14.4 At aerodromes regularly used by international civil aviation, the collection of obstacle data for Area 3 is recommend.

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

4.2.15 Radio Navigation and Landing Aids

4.2.21 Radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the aerodrome/heliport, including:

1. Type of aids, magnetic variation (for VOR, station declination used for technical line-up of the aid) to the nearest degree, and type of operation for ILS, MLS, basic GNSS, SBAS, and GBAS;

2. Identification, if required;

3. Frequency (s), as appropriate;

4. Hours of operation, as appropriate;

5. Geographical coordinates of the position of the transmitting antenna, as appropriate;

6. 6) elevation of the transmitting antenna of DME

4.2.16 Aerodrome Mapping Data

4.2.16 Annex 14 chapterThe collection of Aerodrome mapping data is recommended for the purpose of compiling aerodrome mapping information for aeronautical uses such as Surface navigation operations, training, charting, planning and the improvement of the user's situational awareness.

Note 1.— Accuracy and integrity requirements for aerodrome mapping data are contained in Appendix A3

Note 2. — Aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data are contained in RTCA Document DO-272C / European Organization for Civil Aviation Equipment (EUROCAE) Document ED-99C — User Requirements for Aerodrome Mapping Information. These constraints ensure the connectivity between features on a spatial and functional level in accordance with the connections observed in the real world.

4.3. AIRSPACE

4.3.1 ATS Airspace Structures

4.3.1 ATS airspace structures to include a description of flight information regions (FIR), upper flight information regions (UIR), and terminal control areas (TMA), control areas (CTA) and control zones (CTR);to include:

1. name, geographical coordinates of the FIR/UIR lateral limits TMA and 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 supplemented by indications for specific purposes.

4.3.2 Prohibited, Restricted and Danger Areas

4.3.2.1 A Description of prohibited, restricted and danger areas together with information regarding their establishment and activation and other activities that constitute a specific or obvious danger to aircraft operation to include:

1. Identification, name and geographical coordinates of the lateral limits

2. Upper and lower limits; and

3. Time of activity

4.3.3 Air Defence Identification Zone (ADIZ), Military Training And Exercises Areas:

4.3.3.1 A Descriptionof 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 Upper and lower limits and system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures; and

2. Time of activity

3. Risk of interception in the event of penetration of ADIZ.

4.3.4 ATS Airspace Organization

1. airspace designation and geographical coordinates of the lateral limits;

2. Vertical limits;

3. Airspace classification;

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

5. Transition altitude

6. hours of applicability

4.3.5 ATS Communication facilities.

1. Service designation;

2. Call sign;

3. Channel;

4. Logon address, as appropriate;

5. hours of operation;

4.4 ATS ROUTES

4.4.1 ATS routes (Lower, Upper, RNAV and Helicopter Routes) and Other Routes

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 of all significant points defining the route including “compulsory” or “on-request” reporting points;

2. Tracks or VOR radials, geodesic distance between defined end-points and distance 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, and airspace classification;

4. lateral limits and minimum obstacle clearance altitudes;

5. Direction of cruising levels; and

6. Indication of the controlling unit, its operating channel and, if applicable, its logon address

7. The navigation accuracy requirement for each PBN (RNAV or RNP) route segment.

8. In respect of waypoints defining a VOR/DME area navigation route, additionally:

    a. Station identification of the reference VOR/DME;

    b. Bearing and the distance 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.);

9. A description of other routes specifically designated routes which are compulsory within specified area

4.5 INSTRUMENT AND VISUAL FLIGHT PROCEDURES

Note.— The minimum information to be published for each type of instrument flight procedure is contained in Doc 8168 Vol II while the Specifications for instrument flight procedure charts are contained in Annex 4.

4.5.1 Aeronautical data and aeronautical information required to support charting and publication of instrument and visual flight procedures shall be collected to include:

1. Procedure designator;

2. Required navigation performance or basis for the approval applicable to the procedure where applicable;

3. Geodesic distance between each successive designated significant point;

4. speed limit at a significant point as applicable;

5. vertical path angle as applicable;

6. description of the path and the method of termination of each specified segment

7. Upper and lower altitude limit at a significant point, to the nearest higher 50 m or 100ft/flight level, as applicable;

8. All tracks, points, fixes and altitudes/heights (including turn altitudes/heights) required by the procedure;

9. All navigation facilities, fixes, waypoints, radials and DME distances used to define route segments;

10. Significant obstacles which penetrate the obstacle identification surfaces (OIS);

11. The position and height of close-in obstacles penetrating the OIS.

12. The highest obstacle in the departure area, and any significant obstacle outside that area controlling the design of the procedure;

13. A PDG where applicable;

14. Altitude/heights to be achieved at significant points

15. Navigation fix/way point data to include, fix/waypoint designator, type and geographic coordinates

16. Navigation route data to include published crossing altitudes, ARINC 424 coding as provided by the procedure designer, crossing altitudes, descend/climb gradient.

17. Holding construction data as provided by the procedure designer to include, holding fix, Aircraft Categories, Inbound Track (magnetic), turn direction, minimum Altitude, maximum altitude, maximum IAS timing.

4.6 NAVIGATION SYSTEMS (EN-ROUTE)

1. name of the station or chain

2. Magnetic variation for VOR, station declination used for technical line-up of the aid;

3. Identification;

4. frequency/channel for each element;

5. Type of service available (master signal, slave signal, color);

6. Hours of operation;

7. Geographical coordinates of the position of the transmitting antenna;

8. Elevation of the transmitting antenna of DME The name of the operating authority of the facility if different from the designated governmental agency

9. Facility coverage.

10. Global navigation satellite system (GNSS) to include;

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

ii. Frequency (is), as appropriate;

iii. Geographical coordinates in degrees, minutes and seconds of the nominal service area and coverage area

11. Aeronautical ground lights and other light beacons to include:

   i. name of the city or town or other identification of the beacon;

   ii. Type of beacon and intensity of the light in thousands of candelas;

   iii. Characteristics of the signal;

   iv. Operational hours

4.7 GEOGRAPHICAL INFORMATION

4.7.1 Horizontal reference system

1) name/designation of the reference system;

2) Identification of the projection;

3) Identification of the ellipsoid used;

4) Identification of the datum used;

5) Area of application;

4.7.2 Vertical reference system

1) name/designation of the reference system;

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

4.7.3 Declination/variation

4.7.3.1 The Declination/variation for VHF NAVAID used for technical line-up , NDB, VOR/DME stations, ILS localizer/ MLS antenna and the magnetic variation used in determining magnetic bearings, tracks and radials

4.7.4 Topographic information

4.7.4.1 Area 1 terrain data.

Note.1 — The description of terrain data collection surfaces and graphical illustrations is contained in Appendix A2.

4.7.4.2 Topographic information pertinent to the safe execution of an instrument and visual flight procedure, including the missed approach procedure, associated holding procedures and visual manoeuvring (circling) procedure shall be collected to include:

1. Shorelines of all open water areas, large lakes and rivers
2. bluffs, cliffs,
3. sand dunes
4. spot elevations
5. contours

Note — See PANS-AIM Chapter 6 for topographical representation.

4.7.5 Cultural Information

Cultural information pertinent to the safe execution of an instrument and visual flight procedure, including the missed approach procedure, associated holding procedures and visual manoeuvring (circling) procedure shall be collected to include:

1) cities,

2) towns,

3) roads,

4) railroads,

4.8. EN-ROUTE OBSTACLE DATA

4.8.1 Obstacles in Area 1 higher than 100 m above ground.

4.8.7 Obstacle data for each area shall conform to the applicable numerical requirements in Appendix 1

8. AIR NAVIGATION SERVICES

4.9.1 *Description of air navigation services((Aeronautical information services, Aeronautical charts, Air traffic services, Communication services, Meteorological services, Search and rescue) to include;*

1) service/unit name;

2) Postal address;

3) Telephone number;

4) Telefax number;

5) E-mail address;

6) AFS address;

7) Website address, if available;

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

9) Service hours of operation.

10) Area of responsibility

11) Types of services

4.9.2 Elements of the Integrated Aeronautical Information Package managed by the aeronautical information services including how they may be obtained.

4.9.3 The AIRAC system provided including present and near future AIRAC dates.

4.9.4 Pre-flight information service available at aerodromes/heliports to include

1) Elements of the Integrated Aeronautical Information Packages held;

2) Maps and charts held; and

3) General area of coverage of such data.

4.9.5 Aeronautical charts availability to include;

1) Title of series;

2) scale of series;

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

4) Maintenance (chart revision and amendment);

6. Purchase arrangement;

7. Information on availability of topographical charts

8. Corrections to aeronautical charts not contained in the AIP

4.9.6 Information on how electronic terrain and obstacle data may be obtained.

4.9.7 Types of air traffic services provided to include;

1). Conditions under which coordination between the operator and air traffic services is effected

2). Criteria used to determine minimum flight altitudes.

3). ATS units and their contact information

4.9.8 The meteorological observations and reports provided for international air navigation to include:

1) Name of the station and the ICAO location indicator;

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

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

4) specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear (e.g. anemometer at intersection of runways, transmissometer next to touchdown zone, etc.);

5) Hours of operation; and

6) Indication of aeronautical climatological information available.

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

8) Requirements of the meteorological authority for the making and transmission of aircraft reports

4.9.9 VOLMET and/or D-VOLMET service, including:

1) Name of transmitting station;

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

3) Frequency or frequencies used for broadcast;

4) Broadcasting period;

5) Hours of service;

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

7) Reports, forecasts and SIGMET information included.

4.9.10 Meteorological watch provided within flight information regions or control areas for which air traffic

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

1) Name of the meteorological watch office, ICAO location indicator;

2) Hours of service;

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

4) SIGMET validity periods;

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

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

7) The air traffic services unit(s) provided with SIGMET and AIRMET

4.9.11 Other available automated services for the provision of meteorological information.

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

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

14. Procedures and signals employed by rescue aircraft and also the signals to be used by survivors.

4.10 NATIONAL REGULATIONS, RULES AND PROCEDURES

4.10.1 The addresses of designated authorities concerned with the facilitation of international air navigation (civil aviation, meteorology, customs, immigration, health, en-route and aerodrome/heliport charges, agricultural quarantine and aircraft accident investigation) (from Annex 15 Appendix 1)

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.

4.10.2 Regulations and other requirements concerning entry, transit and departure of aircraft on international flights including;

1. Regulations applicable to all types of operations
2. Scheduled flight
3. Non-scheduled flights
4. Private flights
5. Public health measures applied to aircraft

4.10.3 Regulations and other requirements concerning entry, transit and departure of passangers and crew to include;

1. Customs requirements
2. Immigration requirements
3. Public health requirements

4. Regulations and other requirements concerning entry, transit and departure of cargo to include;

1. Customs requirements concerning cargo and other articles
2. Agricultural quarantine requirements

5. Aircraft instruments, equipment and flight documents, including:

1. Instruments, equipment (including aircraft communication and navigation equipment) and flight documents to be carried on aircraft.
2. Emergency locator transmitter (ELT), signalling devices and life-saving equipment

6. National regulations and agreements/conventions ratified by the State affecting air navigation.

7. Differences between national regulations and practices of the State and related ICAO provisions , including:

1) Provision concerned (Annex number, title, edition number and paragraph)
2) The complete text of the difference.

11. TEMPORAL REFERENCE SYSTEM

1. Calendar and time system employed
2. *Information on the time of sunrise and sunset and criteria/ formulae used for determination of the times given to include:*

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

4.11.3 Public holidays with indication of services being affected

12. CONVERSION/CONVERSION FORMULAE

4.12.1 Conversion/conversion formulae used by the state between:

1) Nautical miles and kilometres and vice versa;
2) Feet and metres and vice versa;
3) Decimal minutes of arc and seconds of arc and vice versa; and
4) Other conversions as appropriate.

APPENDIX A1: AERONAUTICAL DATA ATTRIBUTES AND METADATA

Table A4-1.Aerodrome Geographical Data

Entity	Attributes
Aerodrome/ Heliport reference point	Geographic coordinates in degrees, minutes and seconds
	Coordinate Datum

	Magnetic variation; date of information and annual change;
	Distance (km) from the city
	Direction (true bearing) from city
Aerodrome Elevation	Accuracy and accuracy units of measurement
	Vertical Datum
	geoid undulation
	Units of measurement for vertical distance.
Aerodrome Reference temperature.	Units of measurement

Table A4-2. Aerodrome dimensions

Entity	Attributes
Runway direction	designation number
	true bearing
	Length
	width
	UOM for length and width
	slope
	surface type,
	Type of RWY,
	Markings
	existence of an obstacle free zone
Runway Strength	Pavement type for ACN-PCN determination
	Subgrade strength category
	Maximum allowable tire pressure category
	Evaluation method
Declared distances	Take-off run available;
	Take-off distance available
	Accelerate-stop distance available;
	Landing distance available;
RWY Centreline LGT	Length,
	spacing,
	colour,
	INTST
RWY edge LGT	Length,
	spacing,
	colour,
	INTST
RWY End LGT	colour,
	WBAR
Threshold	Geographical coordinates of each threshold in degrees, minutes, seconds and hundredths of seconds.
	Coordinate Datum
Threshold Elevation	Accuracy and accuracy units of measurement
	Vertical Datum
	Geoid undulation
	Units of measurement for vertical dist.

Touchdown zone	Elevation(for precision approach runway
	Marking
	Length of runway touchdown zone lights
Elevation of the touchdown zone	Accuracy and accuracy units of measurement
	Vertical Datum
	Geoid undulation
	Units of measurement for vertical dist.
Strip	Length
	width
	UOM for length and width
	surface type
clearway	Length
	width
	UOM for length and width
	ground profile
stop way	Length
	width
	UOM for length and width
Runway End Safety Area(RESA)	Length
	width
	UOM for length and width
Taxiway	Designation
	Surface type
	strength
	width
	geographical coordinates of taxiway centre line points in degrees, minutes, seconds
	UOM for width
	markings
	taxiway guide lines
	lights
Standard taxi-routes	location
	Designation
Taxi-holding positions	
Apron	Designation
	Surface type
	strength
Aircraft stand	geographical coordinates of each aircraft stand in degrees, minutes, seconds
	aircraft stand identification signs,
	visual docking/parking guidance system
	stop bars
Checkpoints(altimeter, VOR, INS)	location
	elevation
	Location
	VOR radio frequency

	INS position in degrees, minutes, seconds

Table A4-3 Obstacle data

Entity	Attribute	Mandatory/Optional
Obstacle	Area of coverage	Mandatory
	Data originator identifier	Mandatory
	Data source identifier	Mandatory
	Obstacle identifier	Mandatory
	Horizontal accuracy	Mandatory
	Horizontal confidence level	Mandatory
	Horizontal position	Mandatory
	Horizontal resolution	Mandatory
	Horizontal extent	Mandatory
	Horizontal reference system	Mandatory
	Elevation	Elevation Mandatory
	Height	Optional
	Vertical accuracy	Mandatory
	Vertical confidence level	Mandatory
	Vertical resolution	Mandatory
	Vertical reference system	Mandatory
	Obstacle type	Mandatory
	Geometry type	Mandatory
	Integrity	Mandatory
	Date and time stamp	Mandatory
	Unit of measurement used	Mandatory
	Operations	Optional
	Effectivity	Optional

	Lighting	Mandatory
	Marking	Mandatory

Table A4-4. Terrain data

Entity	Attribute	Mandatory/Optional
Terrain	Area of coverage	Mandatory
	Data originator identifier	Mandatory
	Data source identifier	Mandatory
	Acquisition method	Mandatory
	Post spacing	Mandatory
	Horizontal reference system	Mandatory
	Horizontal resolution	Mandatory
	Horizontal accuracy	Mandatory
	Horizontal confidence level	Mandatory
	Horizontal position	Mandatory
	Elevation	Mandatory
	Elevation reference	Mandatory
	Vertical reference system	Mandatory
	Vertical resolution	Mandatory
	Vertical accuracy	Mandatory
	Vertical confidence level	Mandatory
	Surface type	Optional

	Recorded surface	Mandatory
	Penetration level	Optional
	Known variations	Optional
	Integrity	Mandatory
	Date and time stamp	Mandatory
	Unit of measurement used	Mandatory

Table A4-3. Radio Navigation and Landing Aids

Entity	Attributes
Radio Navigation and Landing Aids	Type of aid,
	MAG VAR and declination
	Type of supported OPS
	ID
	Frequency
	Hours of operation
	geographical coordinates of the Position of transmitting antenna in degrees, minutes, seconds
	elevation of the transmitting antenna of DME
	Area of operation: en-route and or aerodrome
	AD served by the ground-based augmentation system (GBAS)
	Name of GNSS element ,Frequency Coordinates, Nominal SVC area and Coverage area
	Special Navigation system ID or chain, Type of SVC, Frequency, Hours of operation, Coordinates and transmitting station

Table A4-4. Airspace data

Entity	Attribute

Table A4-4. Instrument and Visual Flight Procedures

Entity	Attribute

Table A4-5 OTHER METADATA REQUIREMENTS

Metadata Requirements

At a minimum, the metadata for data set specifications defined for IAIP, aerodrome mapping, electronic obstacle data and electronic terrain data sets where made available, shall include the following items:

a) amendments made to the data;

b) the persons or organizations that have interacted with the data and when;

c) details of any validation and verification of the data that has been performed;

d) effective start date and time of the data;

e) for geospatial data:

- the earth reference model used, and
- the coordinate system used;

f) for numerical data:

- the statistical accuracy of the measurement or calculation technique used,
- the resolution,
- the confidence levels in terms of accuracy, resolution and integrity

g) details of any functions applied if data has been subject to conversion/transformation; and

h) details of any limitations on the use of the data.

Note 1. — ISO standard 19115 specifies requirements for Geographic information — metadata

Note 2.— ISO standard 19131 specifies the requirements and outline for the data product specifications for Geographic information

Note 3. — Metadata elements applicable to aerodrome mapping data are contained in RTCA Document DO-291B and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-119B — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data.

APPENDIX A2: TERRAIN AND OBSTACLE DATA COVERAGE AREAS

1.Terrain Data Collection Surfaces

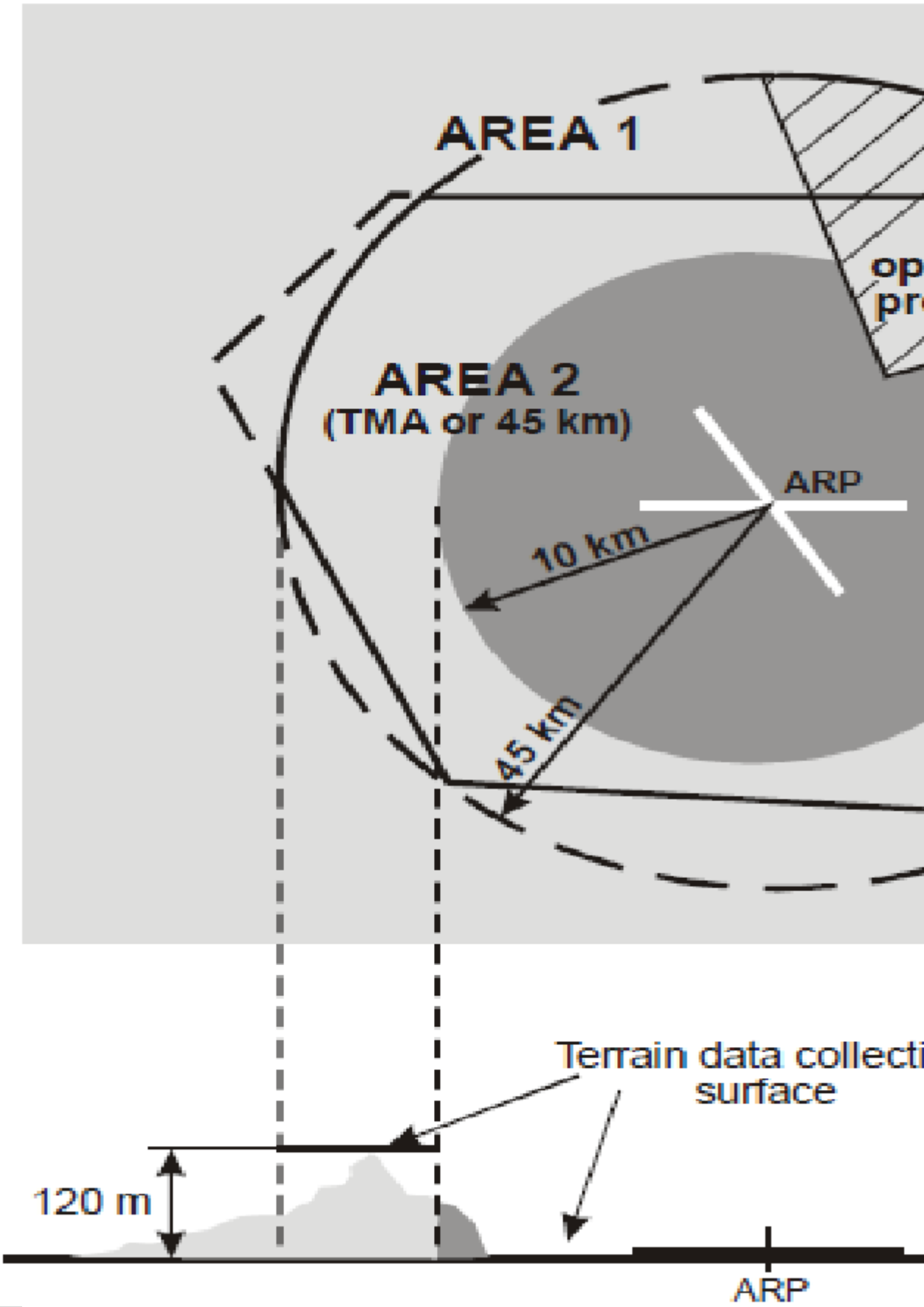
1. **Area 1**: the entire territory of a State;

2. Area 2

1. Within the area covered by a 10-km radius from the ARP, terrain data shall comply with the Area 2 numerical requirements.
2. In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 2 numerical requirements.
3. In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 1 numerical requirements.
4. In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data shall comply with the Area 1 numerical requirements.

Note.— Terrain data numerical requirements for Areas 1 and 2 are specified in appendix 1

5. Figure A3-1. Terrain data collection surfaces — Area 1 and Area 2


AREA 1
AREA 2
(TMA or 45 km)
ARP
10 km
45 km
Terrain data collecti
surface
120 m
ARP

Terrain data collected with Area 1 numerical requirements

Terrain data collected with Area 2 numerical requirements

2. Obstacle Data Collection Surfaces

2.1 Area 1: the entire territory of a State;

2.2 Area 2
Within the vicinity of an aerodrome, subdivided as follows;

— Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

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

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

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

— Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing 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.

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

Figure A3-2. Obstacle data collection surfaces — Area 1 and Area 2

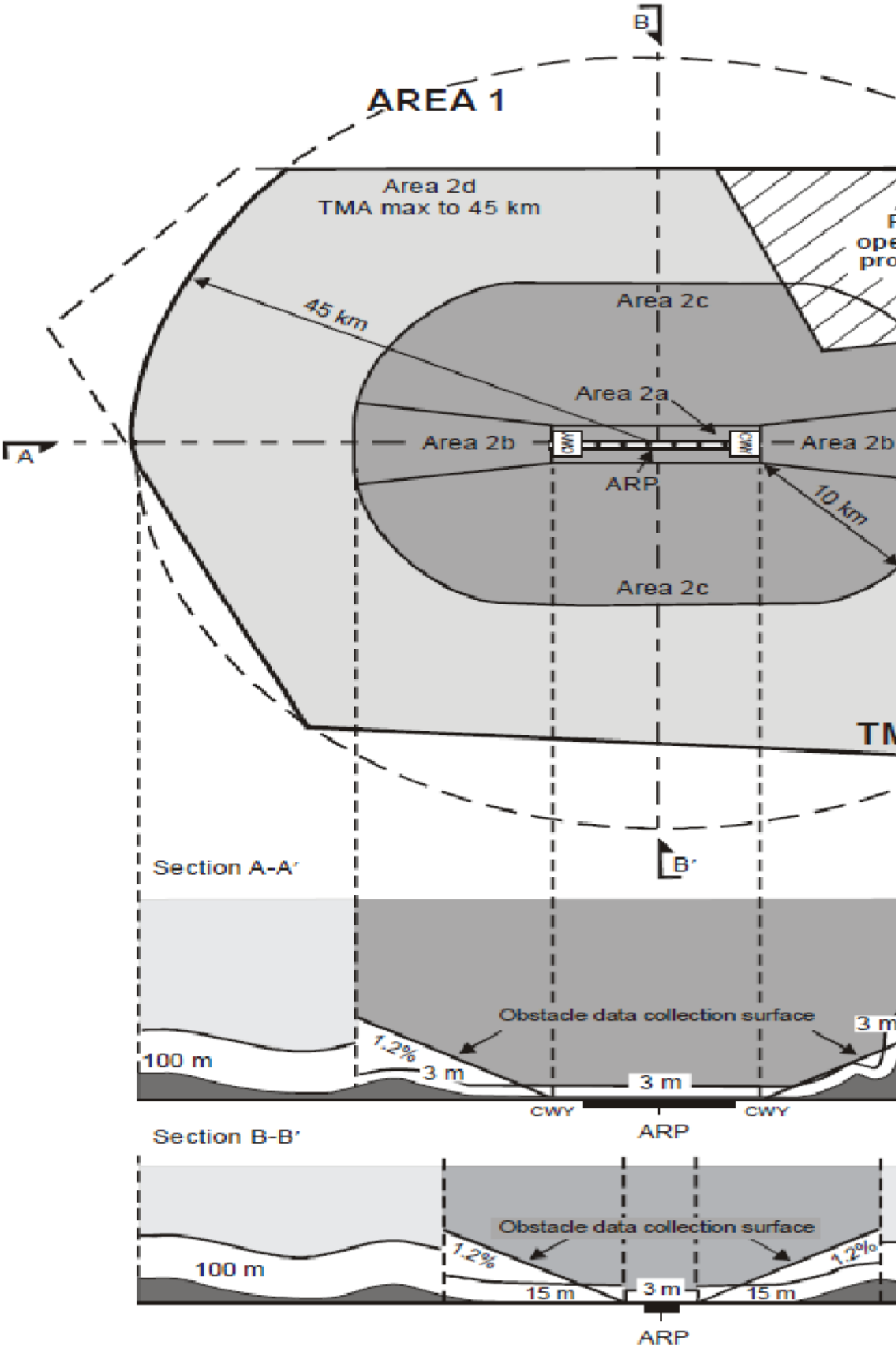

B
AREA 1
Area 2d
TMA max to 45 km
45 km
Area 2c
Area 2a
A
Area 2b
CWY
CWY
Area 2b
ARP
10 km
Area 2c
B'
Section A-A'
Obstacle data collection surface
3 m
100 m
1.2%
3 m
3 m
CWY
CWY
ARP
Section B-B'
Obstacle data collection surface
100 m
1.2%
1.2%
15 m
3 m
15 m
ARP

Figure A3-3. Obstacle data collection surface — Area 3

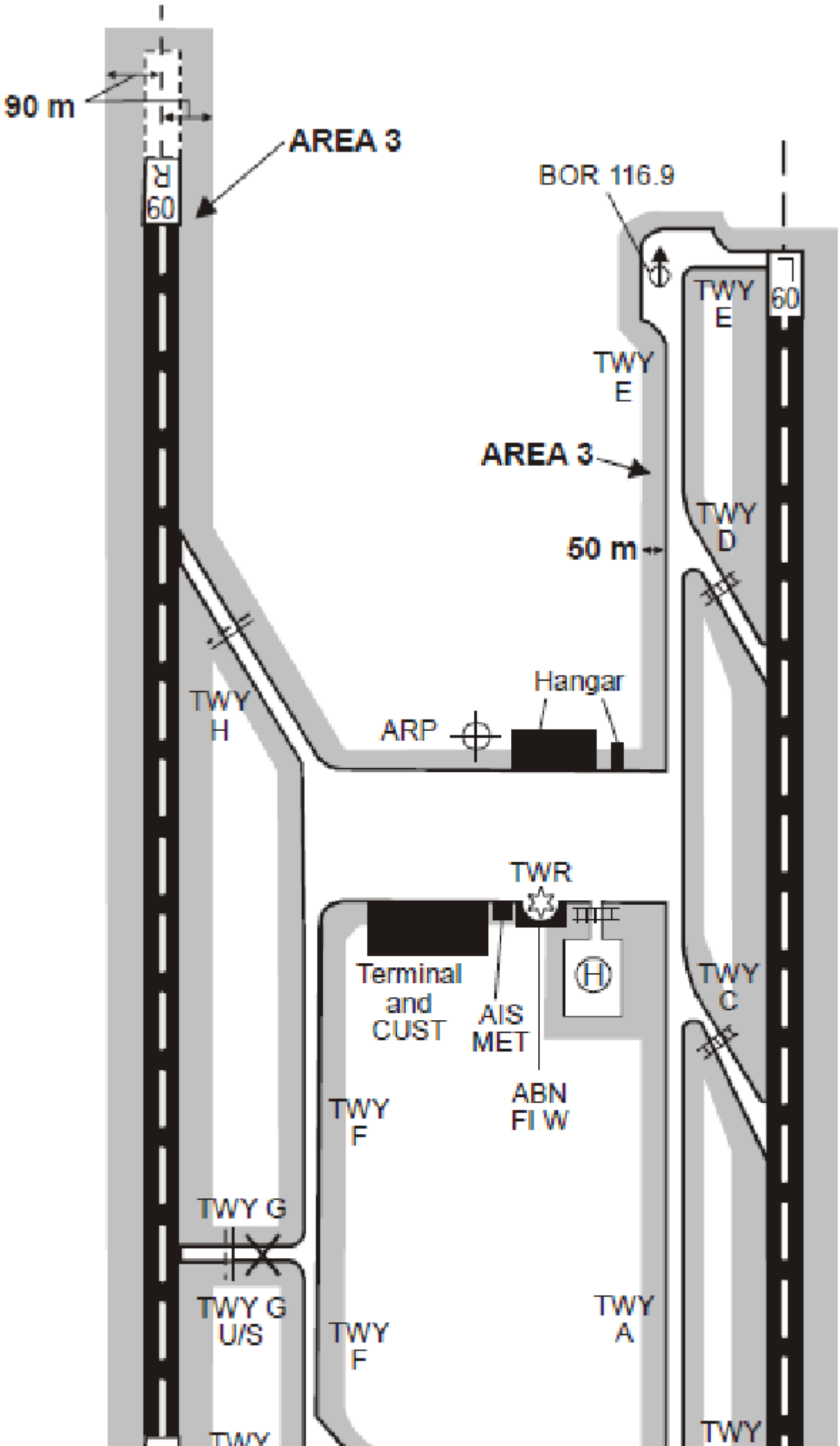
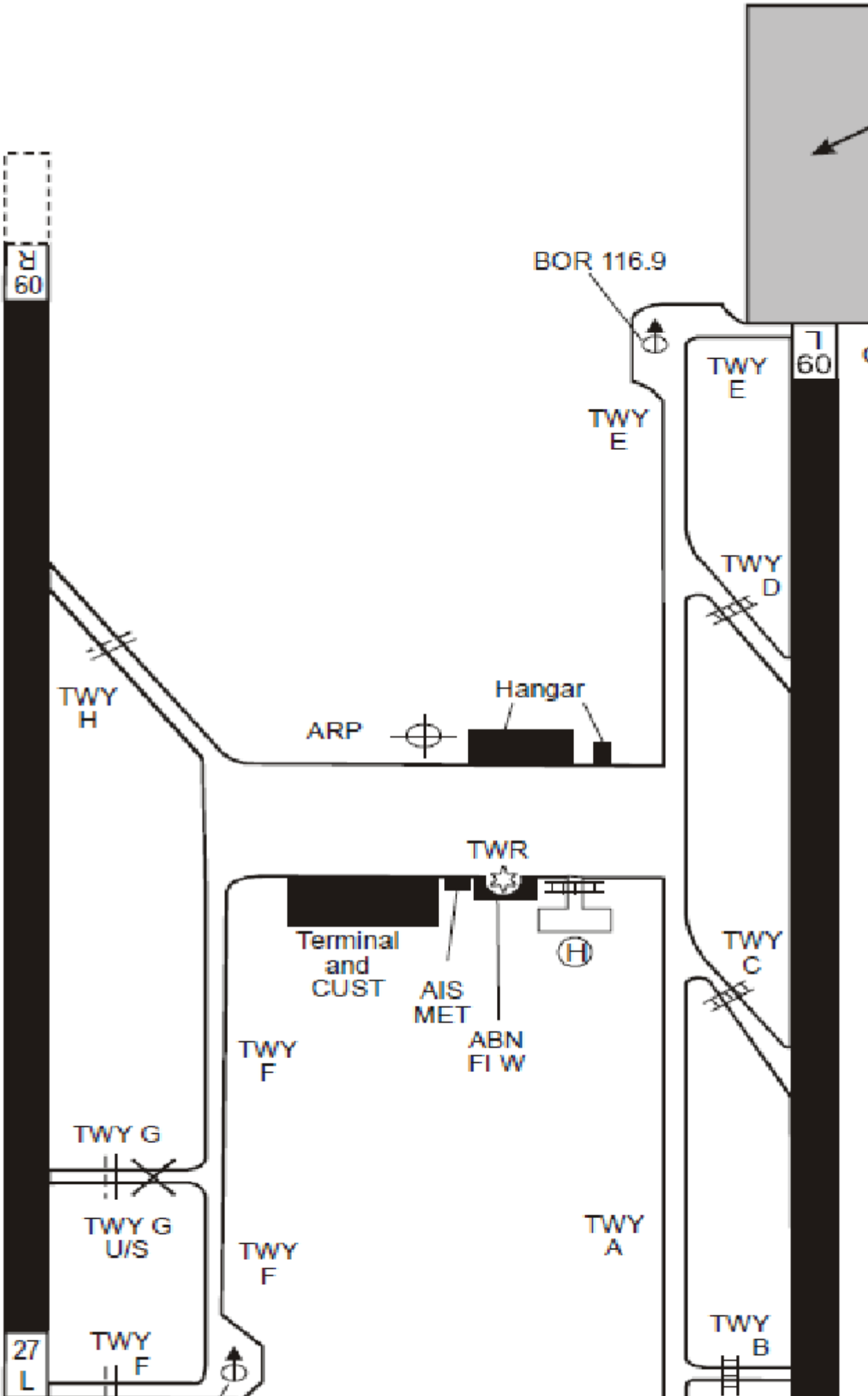

90 m
AREA 3
R
60
BOR 116.9
TWY
E
60
TWY
E
AREA 3
TWY
D
50 m
Hangar
TWY
H
ARP
TWR
Terminal
and
CUST
AIS
MET
ABN
Fl W
TWY
C
TWY
F
TWY G
TWY G
U/S
TWY
F
TWY
A
TWY

Figure A3-4. Obstacle data collection surface — Area 4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APPENDIX A3: DATA QUALITY AND INTEGRITY REQUIREMENTS

Table A1-1. Latitude and Longitude

Latitude and longitude	**Accuracy Data Type**	**Classification**
Flight information region boundary point	2km declared	routine
P, R, D area boundary points (outside CTA/CTR boundaries)	2km declared	routine
P, R, D area boundary points (inside CTA/CTR boundaries)	100 m calculated	essential
CTA/CTR boundary points	100 m calculated	essential
En-route NAVAIDS, intersections and waypoints, and holding, and STAR/SID points	100 m surveyed/calculated	essential
Obstacles in Area 1 (the entire State territory)	50 m surveyed	routine
Aerodrome/heliport reference point	30 m surveyed/calculated	routine
NAVAIDS located at the aerodrome/heliport	3 m surveyed	essential
Obstacles in Area 3	0.5 m surveyed	essential
Obstacles in Area 2 (the part within the aerodrome boundary)	5 m surveyed	essential
Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	3 m surveyed/calculated	essential
Runway threshold	1 m surveyed	critical
Runway end (flight path alignment point)	1 m surveyed	critical
Runway Centre line points	1 m surveyed	critical
Runway holding position	0.5 m surveyed	critical

Taxiway Centre line/parking guidance line points (Annex 14 Pt1)	0.5 m surveyed	essential
Ground Taxiway centre line points, air taxiway and transit route points (Annex 14 Pt2)	0.5 m surveyed/calculated	essential
Ground/Taxiway intersection marking line	0.5 m surveyed	essential
Ground/Exit guidance line	0.5 m surveyed	essential
Aircraft stand points/INS checkpoints	0.5 m surveyed	routine
Geometric centre of TLOF or FATO thresholds, heliports	1 m surveyed	critical
Apron boundaries (polygon)	1 m surveyed	routine
De-icing/anti-icing facility (polygon)	1 m surveyed	routine
Aircraft/Helicopter stand points / INS checkpoints	0.5 m surveyed	routine

Table A1-2. Elevation/altitude/height

Elevation/altitude/height	**Accuracy Data Type**	**Classification Confidence level**
Aerodrome/heliport elevation	0.5 m surveyed	Essential --
WGS-84 geoid undulation at aerodrome/heliport elevation position	0.5 m surveyed	Essential --
Runway or FATO threshold, non-precision approaches	0.5 m surveyed	Essential --
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric Centre, non-precision approaches	0.5 m surveyed	Essential --
Runway or FATO threshold, precision approaches	0.25 m surveyed	Critical --
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric Centre, precision approaches	0.25 m surveyed	Critical --
Threshold crossing height, (Reference datum height) precision approaches	0.5 m calculated	Critical --
Obstacle clearance altitude/height		Essential --

Runway Centre line points	0.25 m surveyed	Critical --
Taxiway Centre line/parking guidance line points (Annex 14 Pt1)	1 m surveyed	Essential --
Ground Taxiway Centre line points, air taxiway and transit route points (Annex 14 Pt2)	1 m surveyed	Essential --
Obstacles in Area 2 (the part within the aerodrome boundary)	3 m surveyed	Essential 90%
Obstacles in Area 3	0.5 m surveyed	Essential 90%
Obstacles in Area 1 (the entire State territory)	30 m surveyed	Routine 90%
Distance measuring equipment/precision (DME/P)	3 m surveyed	Essential --
Distance measuring equipment (DME) elevation	30 m (100 ft) surveyed	Essential --
Instrument approach procedures altitude		Essential --
~~Minimum altitudes~~	~~50 m calculated~~	~~Routine~~ ~~--~~
Area 1 Terrain	30m	Routine 90%
Area 2 Terrain	3m	essential 90%
Area 3 Terrain	0.5m	essential 90%
Area 4 Terrain	1m	essential 90%

Table A1-3. Declination and magnetic variation

Declination/variation	**Accuracy Data Type**	**Classification**
VHF NAVAID station declination used for technical line-	1 degree	essential

up	surveyed	
NDB NAVAID magnetic variation	1 degree surveyed	routine
Aerodrome/heliport magnetic variation	1 degree surveyed	essential
ILS localizer antenna magnetic variation	1 degree surveyed	essential
MLS azimuth antenna magnetic variation	1 degree surveyed	essential

Table A1-4. Bearing

Bearing	**Accuracy Data Type**	Classification
Airway segments	1/10 degree calculated	routine
Bearing used for the formation of an en-route and of a terminal fix	1/10 degree calculated	routine
Terminal arrival/departure route segments	1/10 degree calculated	routine
Bearing used for the formation of an instrument approach procedure fix	1/100 degree calculated	essential
ILS localizer alignment (True)	1/100 degree surveyed	essential
MLS zero azimuth alignment (True)	1/100 degree surveyed	essential
Runway and FATO bearing (True)	1/100 degree surveyed	Routine

Table A1-5. Gradients and angles

Type of gradient/angle	**Accuracy Data Type**	**Classification**
Non-precision final approach descent gradient		critical
Final approach descent angle (Non-precision approach or approach with vertical guidance)		critical

Precision approach glide path/elevation angle		critical

Table A1-6. Length/distance/dimension

Length/distance/dimension	Accuracy Data Type	Classification
Airway segment length	1/10 km calculated	routine
Distance used for the formation of an en-route fix	1/10 km calculated	routine
Terminal arrival/departure route segment length	1/100 km calculated	essential
Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km calculated	essential
Runway and FATO length, TLOF dimensions	1 m surveyed	critical
Runway width	1 m surveyed	essential
Displaced threshold distance	1 m surveyed	routine
Clearway length and width	1 m surveyed	essential
Stopway length and width	1 m surveyed	critical
Landing distance available	1 m surveyed	critical
Take-off run available	1 m surveyed	critical
Take-off distance available	1 m surveyed	critical
Rejected Take off distance available	1 m surveyed	critical
Accelerate-stop distance available	1 m surveyed	critical
Runway shoulder width	1 m surveyed	essential
Taxiway width	1 m surveyed	essential
Taxiway shoulder width	1 m surveyed	essential
ILS localizer antenna-runway end/FATO end, distance	3 m calculated	routine
ILS glide slope antenna-threshold, distance along Centre line	3 m calculated	routine

ILS marker-threshold distance	3 m calculated	essential
ILS DME antenna-threshold, distance along Centre line	3 m calculated	essential
MLS azimuth antenna-runway end/FATO end, distance	3 m calculated	routine
MLS elevation antenna-threshold, distance along Centre line	3 m calculated	routine
MLS DME/P antenna-threshold, distance along Centre line	3 m calculated	essential

Table A1-7. Terrain data post pacing

Data Collection Surfaces	Post Spacing
Area 1	3 arc seconds (approx. 90 m)
Area 2	1 arc second (approx. 30 m)
Area 3	0.6 arc seconds (approx. 20 m)
Area 4	0.3 arc seconds(approx. 9 m)

APPENDIX A4. PUBLICATION AND CHARTING RESOLUTION

Table A2-1. Latitude and longitude

Latitude and longitude	Publication resolution	Chart resolution
Flight information region boundary point	1 min	As plotted
P, R, D area boundary points (outside CTA/CTR boundaries)	1 min	As plotted
P, R, D area boundary points (inside CTA/CTR boundaries)	1 sec	As plotted
CTA/CTR boundary points	1 sec	As plotted
En-route NAVAIDS, intersections and waypoints, and holding, and STAR/SID points	1 sec	1 sec
Obstacles in Area 1 (the entire State territory)	1 sec	As plotted
Aerodrome/heliport reference point	1 sec	1 sec
NAVAIDS located at the aerodrome/heliport	1/10 sec	As plotted
Obstacles in Area 3	1/10 sec	1/10 sec

Obstacles in Area 2 (the part within the aerodrome boundary)	1/10 sec	1/10 sec
Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	1/10 sec	1 sec
Runway threshold	1/100 sec	1 sec
Runway end (flight path alignment point)	1/100 sec	1 sec
Runway centre line points		
Runway holding position	1/100 sec	1 sec
Taxiway centre line/parking guidance line points (Annex 14 Pt1)	1/100 sec	1/100 sec
Ground Taxiway centre line points, air taxiway and transit route points (Annex 14 Pt2)		1/100 sec
Ground/Taxiway intersection marking line	1/100 sec	1 sec
Ground/Exit guidance line	1/100 sec	1 sec
Aircraft stand points/INS checkpoints	1/100 sec	
Geometric centre of TLOF or FATO thresholds, heliports	1/100 sec	1 sec
Apron boundaries (polygon)	1/10 sec	1 sec
De-icing/anti-icing facility (polygon)	1/10 sec	1 sec
Aircraft/Helicopter stand points / INS checkpoints		1/100 sec

Table A2-2. Elevation/altitude/height

Elevation/altitude/height	**Publication resolution**	**Chart resolution**
Aerodrome/heliport elevation	1 m or 1 ft	1 m or 1 ft
WGS-84 geoid undulation at aerodrome/heliport elevation position	1 m or 1 ft	1 m or 1 ft
Runway or FATO threshold, non-precision approaches	1 m or 1 ft	1 m or 1 ft
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric centre, non-precision approaches	1 m or 1 ft	1 m or 1 ft
Runway or FATO threshold, precision approaches	0.1 m or 0.1 ft	0.5 m or 1 ft
WGS-84 geoid undulation at runway or FATO threshold,	0.1 m or 0.1	0.5 m or 1 ft

TLOF geometric centre, precision approaches	ft	
Threshold crossing height, (Reference datum height) precision approaches	0.1 m or 0.1 ft	0.5 m or 1 ft
Obstacle clearance altitude/height		As specified in PANS-OPS (Doc 8168)
Runway centre line points		
Taxiway centre line/parking guidance line points (Annex 14 Pt1)		
Ground Taxiway centre line points, air taxiway and transit route points (Annex 14 Pt2)		
Obstacles in Area 2 (the part within the aerodrome boundary)	1 m or 1 ft	1 m or 1 ft
Obstacles in Area 3	0.1 m or 0.1 ft	1 m or 1 ft
Obstacles in Area 1 (the entire State territory)	1 m or 1 ft	3 m (10 ft)
Terrain data Area 1	1m	-
Terrain data Area 2	0.1 m	-
Terrain data Area 3	0.1 m	-
Terrain data Area 4	0.1 m	-
Distance measuring equipment/precision (DME/P)	3 m (10 ft)	
Distance measuring equipment (DME) elevation	30 m (100 ft)	30 m (100 ft)
Instrument approach procedures altitude		As specified in PANS-OPS (Doc 8168)
upper and lower altitude limit at a significant point,	50 m or 100 ft	50 m or 100 ft

Table A2-3. Declination and magnetic variation

VHF NAVAID station declination used for technical line-up	1 degree		1 degree surveyed	essential

NDB NAVAID magnetic variation	1 degree		1 degree surveyed	routine
Aerodrome/heliport magnetic variation	1 degree	1 degree	1 degree surveyed	essential
ILS localizer antenna magnetic variation	1 degree		1 degree surveyed	essential
MLS azimuth antenna magnetic variation	1 degree		1 degree surveyed	essential

Table A2-4. Bearing

Bearing	**Publication resolution**	**Chart resolution**
Airway segments	1 degree	1 degree
Bearing used for the formation of an en-route and of a terminal fix	1/10 degree	1/10 degree
Terminal arrival/departure route segments	1 degree	1 degree
Bearing used for the formation of an instrument approach procedure fix	1/100 degree	1/10 degree
ILS localizer alignment (True)	1/100 degree	1 degree
MLS zero azimuth alignment (True)	1/100 degree	1 degree
Runway and FATO bearing (True)	1/100 degree	1 degree
true track between each successive significant point;	1/10 degree	1/10 degree
magnetic track between each successive significant point	1 degree	1 degree

Table A2-5. Gradients and angles

Type of gradient/angle	**Publication resolution**	**Chart resolution**
Non-precision final approach descent gradient		0.1 per cent
Final approach descent angle (Non-precision approach or approach		0.1 degree

with vertical guidance)		
Precision approach glide path/elevation angle		0.1 degree

Table A2-6. Length/distance/dimension

Length/distance/dimension	Publication resolution	Chart resolution
Airway segment length	1/10 km or 1/10 NM	1 km or 1 NM
Distance used for the formation of an en-route fix	1/10 km or 1/10 NM	2/10 km or 1/10 NM
Terminal arrival/departure route segment length	1/100 km or 1/100 NM	1 km or 1 NM
Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km or 1/100 NM	2/10 km or 1/10 NM
Runway and FATO length, TLOF dimensions	1 m or 1 ft	1 m
Runway width	1 m or 1 ft	1 m
Displaced threshold distance	1 m or 1 ft	
Clearway length and width	1 m or 1 ft	
Stopway length and width	1 m or 1 ft	1 m
Landing distance available	1 m or 1 ft	1 m
Take-off run available	1 m or 1 ft	1 m
Take-off distance available	1 m or 1 ft	1 m
Rejected Take off distance available		
Accelerate-stop distance available	1 m or 1 ft	1 m
Runway shoulder width	1 m or 1 ft	
Taxiway width	1 m or 1 ft	
Taxiway shoulder width	1 m or 1 ft	
ILS localizer antenna-runway end/FATO end, distance	1 m or 1 ft	As plotted
ILS glide slope antenna-threshold, distance along centre line	1 m or 1 ft	As plotted

ILS marker-threshold distance	1 m or 1 ft	2/10 km or 1/10 NM
ILS DME antenna-threshold, distance along centre line	1 m or 1 ft	As plotted
MLS azimuth antenna-runway end/FATO end, distance	1 m or 1 ft	As plotted
MLS elevation antenna-threshold, distance along centre line	1 m or 1 ft	As plotted
MLS DME/P antenna-threshold, distance along centre line	1 m or 1 ft	As plotted

Chapter 5 - Procedures for the provision of aeronautical information products and services

The scope of this document is PANS-AIM material related to the SARPS in the NEW Chapter 5 (Services) of AMDT 38. This document contains previous Annex 15 AMDT 36 SARPS text that is proposed to be moved in the PANS-AIM document. Such text is not highlighted.

It also contains elements from the AIS Manual (AMDT 2) that is proposed to be raised at PANS level. Such text is highlighted in grey. All new/changed text is also highlighted in grey.

5.1 Aeronautical information in a standardized presentation

5.1.1 Aeronautical Information Publication (AIP)

5.1.1.1 Contents

5.1.1.1.1 The AIP shall contain concise, current information relating to, and arranged under, the subject headings listed in, Appendix x. This facilitates both the locating of information under a specific heading and the storage/retrieval of the information using automated processing.

5.1.1.1.2 If no facilities or services are provided or no information is available for publication in respect of one of the categories of information specified in, Appendix X, an indication should be given as to which of these circumstances applies (e.g. “NIL” or “Not AVBL”).

5.1.1.1.3 Aeronautical Information Publications shall include in Part 1 — General (GEN):

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

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

c) a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices (SARPs) and Procedures (PANS and SUPPs), given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;

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

5.1.1.2 General Specification

5.1.1.2.1 The format and arrangement of an AIP should be, as much as possible, in accordance with that of the Specimen AIP, which is provided in Aeronautical Information Services Manual (Doc 8126)

5.1.1.2.1 The issuing State and publishing authority shall be clearly indicated on the cover.

5.1.1.2.1 When two or more States publish an AIP jointly, this shall also be clearly indicated both on the cover and in the table of contents.

5.1.1.2.4 AIP should be published in loose-leaf form unless the complete publication is reissued at frequent intervals.

5.1.1.2.9 Each Aeronautical Information Publication issued as a bound volume and each page of an Aeronautical Information Publication issued in loose-leaf form shall be so annotated as to indicate clearly:

a) the identity of the Aeronautical Information Publication;

b) the territory covered and subdivisions when necessary;

c) the identification of the issuing State and producing organization (authority);

d) page numbers/chart titles;

e) the degree of reliability if the information is doubtful.

5.1.1.2.2 Each Aeronautical Information Publication shall be self-contained and shall include a table of contents.

5.1.1.2.3 If it is necessary by reason of bulk or for convenience, to publish an AIP in two or more parts or volumes, each of them will indicate that the remainder of the information is to be found in the other part(s) or volume(s).

5.1.1.2.3 When the AIP is provided in more than one volume, each volume shall include:

— Preface

— Record of AIP Amendments

— Record of AIP Supplements

— Checklist of AIP pages

— List of current hand amendments

5.1.1.2.3 When the AIP is published as one volume, the above-mentioned subsections appear only in Part 1 — GEN and the annotation “not applicable” shall be entered against each of these subsections in Parts 2 and 3.

5.1.1.2.3 Each AIP should not duplicate information within itself ~~or from other sources~~.

5.1.1.2.5 Each AIP shall be dated. In the case of AIP issued in loose-leaf form, each page must be dated.

5.1.1.2.5.1 The date, consisting of the day, month (by name) and year, shall be the publication date or the effective date (AIRAC) of the information.

5.1.1.2.6 A system of page numbering adaptable to the addition or deletion of sheets should be adopted. The page number should include:

— an identification of the part of the AIP;

— the section; and

— subsection, as applicable;

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

5.1.1.2.6 A checklist giving the current date of each page in the Aeronautical Information Publication series shall be reissued frequently to assist the user in maintaining a current publication.

5.1.1.2.7 Charts, maps or diagrams shall be used, when appropriate, to complement or as a substitute for the tabulations or text of Aeronautical Information Publications.

Note.— Where appropriate, charts produced in conformity with Annex 4 — Aeronautical Charts, may be used to fulfil this requirement. Guidance material as to the specifications of index maps and diagrams included in Aeronautical Information Publications is contained in the Aeronautical Information Services Manual (Doc 8126).

5.1.1.2.8 When a small number of charts are to be included and chart size is not larger than 210 mm × 297 mm or allows for folding to these dimensions, they should be contained in the AIP. If, on the other hand, there are many charts and they are frequently amended, it may be convenient to place them in a separate volume with a separate subscription service.

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

5.1.1.2.8 If publication in more than one language is undertaken, a bilingual or multilingual edition may assist in the interpretation of questionable text to have the possibility of comparing two languages.

5.1.1.2.9 ICAO abbreviations should be used wherever practicable.

5.1.1.2.10 When listing locations, the city or town should be given in capital letters followed, where the facility is an aerodrome/heliport or is located at an aerodrome/heliport, by an oblique stroke and the name of the aerodrome/heliport in smaller capital letters or lower case type. Unless otherwise indicated, the list should be in alphabetical order.

5.1.12.11 The spelling of place names shall conform with local usage, transliterated where necessary into the ISO Basic-Latin alphabet.

5.1.12.12 In the indication of the geographical coordinates of a location:

— the latitude should be given first;

— symbols for degrees, minutes or seconds should be omitted;

— two digits should always be used in expressing values of less than 10 degrees of latitude; and

— three digits should always be used in expressing values of less than 100 degrees of longitude.

5.1.12.13 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

5.1.12.14 When describing periods of activity, availability or operation, specify the applicable days and times.

5.1.12.15 The units of measurement selected for use in the AIP, e.g. dimensions on aerodromes, distances, elevations or altitudes, should be consistently followed and should adhere to Annex 5.

5.1.1.2.10 ***Recommendation.****— The sheet size should be no larger than 210 × 297 mm, except that larger sheets may be used provided they are folded to the same size.*

5.1.1.2.11. An Aeronautical Information Publication shall be organised in three parts (GEN, ENR and AD), sections and sub-sections, except when the AIP, or a volume of the AIP, is designed to facilitate operational use in flight, the precise format and arrangement may be left to the discretion of the State provided that an adequate table of contents is included.

5.1.1.2.11. Index maps and diagrams included in the AIP should comply with the following specifications:

a) *Base map:* The base map should be an outline map of the area adapted from existing material with general details. Graticules, topography and other details should be as simple as possible Political subdivisions should be shown and identified. It should be produced in one colour.

b) *Sheet size and scale:* The overall dimensions should be 210 mm × 297 mm. If a larger map is required, it should be folded to conform to this size. A uniform scale should be used for all charts produced as a series and other charts where practicable.

c) *Title and marginal notes*: The title should be shown on the top border and should be as short and simple as possible.

d) *Colours:* The number of colours used should be kept to a minimum. If more than one colour is used, the colours should offer adequate contrast.

e) *Symbols:* Symbols should conform, where practicable, to the ICAO Chart symbols shown in Annex 4, Appendix 2. The basic, general purpose symbols for AIP index maps are a filled circle ● and an empty circle ○. Except when the symbols used are self explanatory, a legend should be provided. For details for which no ICAO symbol has been provided, any appropriate symbol may be chosen provided it does not conflict with an ICAO symbol.

AIP content replaced by data sets

Note from Annex, Chapter 5:. — Cases where digital data sets may replace the corresponding elements of the standardized presentation are detailed in PANS-AIM

5.1.1.3 Specifications for AIP Amendments

[8126] Each State is free to establish the regular interval between amendments to its AIP, which should be selected to meet the particular requirements, circumstances and capabilities of the State, taking into consideration:

a) the area covered by the AIP and the number of facilities and services contained in it;

b) the frequency at which the information is expected to change; and

c) the resources available to the AIS, such as personnel, reproduction and printing facilities.

[8126] When a State has established the regular interval or publication dates for its AIP Amendments, these intervals or publication dates shall be published in the AIP, Part 1 — General (GEN).

[8126] New or revised information contained in AIP replacement pages shall be identified by an annotation against it in the margin. A thick black vertical line or, where the change incorporated covers one line only or a part of a line, a thick black horizontal arrow, is sufficient to identify the change.

5.1.1.3.1 The normal method of amendment shall be by means of replacement sheets.

5.1.1.3.2 Each AIP Amendment shall be allocated a serial number, which shall be consecutive.

5.1.1.3.3 Each AIP Amendment page, including the cover sheet, shall display a publication date.

Each predetermined schedule AIP Amendment page, including the cover sheet, shall show a publication date and an effective date when applicable.

5.1.1.3.4 Each AIRAC AIP Amendment page, including the cover sheet, shall display an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet.

5.1.1.3.5 Each predetermined schedule AIP Amendment page, including the cover sheet, shall display an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet.

5.1.1.3.6 When an AIP Amendment is issued, it shall include references to the serial number of those elements, if any, of the Integrated Aeronautical Information Package which have been incorporated into the amendment.

5.1.1.3.7 A brief indication of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.

[8126] Each amendment shall include a checklist giving the current date of each loose-leaf page in the AIP, and shall provide a recapitulation of any outstanding manuscript corrections. The checklist shall carry both the page number and date.

[8126] The AIP shall be amended or re-issued at such regular intervals as necessary to ensure the information contained in the AIP is complete and up to date. In this respect, it shall be noted that any operationally significant changes to an AIP shall be published in predetermined schedule (as described in Chapter 5)and clearly identified as such.

[8126] The established regular intervals or publication dates for AIP Amendments should not prevent the AIS from publishing an additional amendment. However, this should be strictly limited to cases of urgent necessity.

5.1.1.4 Specifications for AIP Supplements

[8126] Since the AIP is an operational document and therefore subject to frequent change, provisions exist for its continual updating. In addition, changes of a temporary nature affecting the contents of an AIP are often required to cater for unexpected circumstances or, in some cases, planned modifications to a service/facility. The purpose of an AIP Supplement is to bring to the attention of users both temporary changes of long duration (three months or longer) and information of short duration containing extensive text or graphics which affect one or more parts of the AIP. Operationally significant changes to the AIP issued as an AIP Supplement shall be published under the predetermined schedule procedures (2.6 refers).

5.1.1.4.1 Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year(e.g. 2/13).

Note.— Guidance material on the use of AIP Supplements together with examples of such use is contained in the Aeronautical Information Services Manual (Doc 8126).

[8126] Each AIP Supplement page shall show a publication date. Each predetermined schedule AIP Supplement page shall show a publication date and an effective date.

5.1.1.4.2 AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.

[8126] Although it is recommended that AIP Supplement pages be retained as the first item in an AIP binder, it may be more appropriate for States to issue the Supplements divided into specific parts (e.g. GEN, ENR, AD) for insertion in each AIP part, as necessary.This would eliminate the need to continuously refer to the front of the AIP for the required information in cases where the Supplement affects a number of AIP pages.

[8126] 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. Whenever an AIP Supplement is issued as a replacement of a NOTAM, a reference to the series and number of the NOTAM shall be included.

5.1.1.4.3 A checklist of valid AIP Supplements shall be issued at intervals of not more than one month. This information is to be included in the monthly plain-language list of valid NOTAM.

5.1.1.4.4 **Recommendation.**— *AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow.*

5.1.1.4.5 **Recommendation.**— *AIP Supplement pages should be kept as the first item in the AIP parts.*

5.1.2 Aeronautical Information Circulars

5.1.2.1 An AIC shall be originated whenever it is desirable to promulgate:

1) forecasts of important changes in the air navigation procedures, services and facilities provided;

2) forecasts of implementation of new navigational systems;

3) significant information arising from aircraft accident/incident investigation which 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;

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 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 (see 7.1.1.2);

21) other information of a similar nature.

Note.— The publication of an AIC does not remove the obligations set forth in Chapters 4 and 5.

Note.— An AIC shall not be used for information that qualifies for inclusion in AIP or NOTAM.

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

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

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

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

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

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

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

*e) a descriptive list of clearance equipment;

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

5.1.2.3 AIC shall be issued in printed form.

Note.— Both text and diagrams may be included.

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

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

[8126] Distribution of AIC on a national basis is left to the discretion of the originating State concerned.

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

[8126] 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.

[8126] Further, if AIC are issued in more than one series, each series shall be identified by a letter (A 2/02, B 4/02, etc.).

5.1.2.6 When AIC are distributed in more than one series, each series shall be separately identified by a letter.

5.1.2.7 **Recommendation.**— *Differentiation and identification of AIC topics according to subjects using colour coding should be practised where the numbers of AIC in force are sufficient to make identification in this form necessary.*

Note.— Guidance on colour coding of AIC by subject can be found in the Aeronautical Information Services Manual (Doc 8126).

[8126] It is recommended that AIC be colour coded by subject where there are sufficient circulars in force to warrant such identification, e.g.:

a) white — administrative;

b) yellow — ATC;

c) pink — safety;

d) mauve — danger area map; and

e) green — maps/charts.

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

5.1.3 Electronic AIP (eAIP)

5.1.3.1 ***Recommendation****.— The AIP, AIP Amendment, AIP Supplement and AIC should also be published in a format that allows for displaying on a computer screen and printing on paper.*

Note 1.— This composite electronic document is named "Electronic AIP" (eAIP) and may be based on a format that allows for digital data exchange.

Note 2.— Guidance material for the production and provision of the eAIP is contained in PANS-AIM.

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

5.1.3.3 ***Recommendation****.— When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc.) and/or online on the Internet.*

Note.— Guidance material on the use of the Internet is contained in Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).

5.1.4 NOTAM

5.1.4.1 General specifications

5.1.4.1.1 Except as otherwise provided in 5.1.2.2.3 and 5.1.2.4, each NOTAM shall contain the information in the order shown in the NOTAM Format in Appendix X.

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

Note.— Detailed guidance material covering NOTAM, SNOWTAM, ASHTAM and PIB production is contained in Doc 8125.

5.1.4.1.2.1 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).

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

5.1.4.1.4 Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix X.

5.1.4.1.5 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.

5.1.4.1.6 Letters A to Z, with the exception of S and T, should be used to identify a NOTAM series.

5.1.4.1.7 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.

5.1.4.1.8 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.

5.1.4.1.9 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).

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

5.1.4.1.11 Each NOTAM shall be transmitted as a single telecommunication message.

5.1.4.1.12 A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.

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

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

5.1.4.1.13.2 Where no ICAO location indicator is assigned to the location, its place name spelt in accordance with 3.5.2 shall be entered in plain language.

5.1.4.2 NOTAM Checklist

5.1.4.2.1 A checklist of valid NOTAM are issued as a NOTAM at intervals of not more than one month. One NOTAM shall be issued for each series.

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

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

5.1.4.2.3 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.

5.1.2.1.1 ~~Issue periodically in a set format a~~ A checklist indicating all NOTAM that are valid shall be issued periodically in a set format. The checklist assists recipients in verifying that the right cancellations of NOTAM have been made. In addition, the checklist must refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed AIC. Cancelling by sole means of a checklist (i.e. by omitting NOTAM to be cancelled) is not allowed. This ~~Issue a~~ checklist shall be issued over the aeronautical fixed service (AFS) not less than once a month, and preferably to a fixed schedule so that recipients know when to expect it. Normally it would be adequate to issue the checklist for each month on the first day of the following month. Issue a checklist as a NOTAM in the series to which it refers. A separate checklist ~~must~~ shall be issued for each NOTAM series to the same distribution as the actual message series to which they refer. Checklist must be clearly identified as such.

5.1.5 Monthly plain-language list (Summary)

5.1.5.1 A monthly plain-language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements, shall be made available.

5.2 Digital Data

5.2.1 Aeronautical (AIP) data set

any need for a note that cross-references to data features provided in a different data set could be used, such as from an instrument flight procedure towards an obstacle?

any need for a requirement indicating that when an item appears in multiple data sets, it shall include sufficient information about its properties, so that the duplication can be identified by the recipient of the two or more data sets?

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5.2.2 Terrain data set

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5.2.3 Obstacle data set

Note.— Area 4 terrain data and Area 2 obstacle data are normally sufficient to support the production of the Precision Approach Terrain Chart — ICAO. When more detailed obstacle data are required for Area 4, these may be provided in accordance with the Area 4 obstacle data requirements specified in Appendix 8, Table A8-2. Guidance on appropriate obstacles for this chart is given in the Aeronautical Chart Manual *(Doc 8697).*

5.2.4 Aerodrome mapping data set

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5.2.5 Instrument flight procedure design data set

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5.3 Distribution Services

5.1.2.3.3 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. The international exchange of ASHTAM (see 5.1.2.2.4), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the centres designated by regional air navigation agreement for the operation of AFS 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 (see Appendix X) between aerodromes/heliports.

5.1.2.3.3.1 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.

5.1.2.3.3.2 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Appendix X shall be used whenever possible, subject to the requirements of 5.1.2.3.3.

Chapter 6 - Aeronautical information updates

6.1 Aeronautical Information Regulation and Control (AIRAC)

6.1.1 Circumstances considered as having operational significance and hence having to be distributed under the regulated system (AIRAC) shall be:

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

1) flight information regions;

2) control areas;

3) control zones;

4) advisory areas;

5) ATS routes;

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

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

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

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

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

e) Meteorological facilities (including broadcasts) and procedures.

f) Runways and stopways.

g) Taxiways and aprons.

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

i) Approach and runway lighting.

j) Aerodrome operating minima if published by a State.

6.1.2 **Recommendation.**— *Information about the establishment and withdrawal of, and premeditated significant changes should be distributed under the regulated system (AIRAC), so as to reach recipients at least 28 days in advance of the AIRAC effective date, when concerning:*

a) Position, height and lighting of navigational obstacles.

b) Hours of service of 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.

6.1.3 **Recommendation.**— *Information about the establishment of, and premeditated major changes should be distributed under the regulated system (AIRAC), so as to reach recipients at least 56 days in advance of the AIRAC effective date, when concerning:*

a) New aerodromes for international IFR operations.

b) New runways for IFR operations at international aerodromes.

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

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

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

6.1.4 When information has not been submitted by the AIRAC date, a NIL notification shall be originated and distributed by NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned.

6.1.5 Information provided under the AIRAC system and published in paper copy or made available on physical media form shall be distributed by the AIS unit at least 42 days in advance of the effective date.

6.2 Aeronautical Information Product updates

6.2.1 Specifications for AIP updates

6.2.1 The AIP Amendment regular interval shall be specified in the AIP, Part 1 — General (GEN).

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

6.2.2 When an AIP Amendment will not be published at the established regular interval or publication date, a NIL notification shall be originated and distributed by the NOTAM checklist.

6.2.3 Recourse to hand amendments or annotations shall be kept to the minimum.

6.2.4 When the AIP is provided in more than one volume, each volume should include separate amendment services.

6.2.2 Specifications for AIP Supplements

6.2.1.1 When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.

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

*Note 2.— Guidance material on the use of AIP Supplements together with examples of such use is contained in the Aeronautical Information Services Manual (Doc 81*26).

6.2.4 When the AIP is provided in more than one volume, each volume should include separate supplement services.

6.2.3 Specifications for of NOTAM

6.3.2.1 A NOTAM shall be originated and provided concerning the following information:

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

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

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

d) unavailability of back-up and secondary systems, having a direct operational impact, e.g. ILS Cat II/III, low visibility procedures. The operational impact shall be clearly stated in the NOTAM;

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

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

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

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

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

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

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

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

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

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

o) fireworks and sky lanterns within operational flying heights (military requirements and location in relation to aerodrome approach and departure paths to be considered);

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

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

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

s) allocation, cancellation or change of location indicators;

t) significant changes in the level of protection normally available at an aerodrome/heliport for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 17);

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

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

w) forecasts of solar cosmic radiation, where provided;

x) 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;

y) release into the atmosphere of 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, where provided;

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

aa) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

ab) specific loss of satellite based navigation systems integrity that impacts on the availability of approach capability or other operationally significant capabilities.

Note.— See Annex 11, 2.28 and Attachment D to that Annex.

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

6.2.3.3 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 available and are operative;

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

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

h) parachuting when in uncontrolled airspace under VFR (see 5.1.1.1 l)), when controlled, at promulgated sites or within danger or prohibited areas;

i) training activities by ground units, e.g. ATC On-Job-Training;

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

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

l) national regulations not affecting general aviation, e.g. restrictions imposed on specific airlines, national holidays;

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

n) general reminders on already published information;

o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users, e.g. radar stations, weather displays, monitoring equipment;

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

q) information of temporary nature concerning elements that are not published in the AIP or any aeronautical chart;

r) closure of movement area parts in connection with planned work locally coordinated (e.g. snow clearance) of duration of less than one hour;

t) closure, changes, unavailability in operation of aerodrome(s)/heliport(s) other than

aerodrome(s)/heliport(s) operation hours.

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

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

6.2.3.4 NOTAM should be published with sufficient lead time for the affected parties to take any required action, except in the case of unserviceability, volcanic activity, release of radioactive material, toxic chemicals and other events that cannot be foreseen.

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

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

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

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

6.2.3.8 Within three months from the issuing of a Permanent NOTAM, the information contained in the NOTAM shall be included in the Aeronautical Information Products affected.

6.2.3.9 When a NOTAM with estimated end of validity unexpectedly exceeds the three-month period, a replacement NOTAM shall be issued, unless the condition is expected to last for a further period of more than three months; in this case an AIP Supplement shall be issued.

6.2.3.10 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a "Trigger" NOTAM shall be originated giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement.

5.2.3.11 A "Trigger" NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.

Note.— Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements ("Trigger NOTAM") is contained in the Aeronautical Information Services Manual (Doc 8126).

6.2.4 Specifications for digital data updates

6.2.1 The regular update interval for Aeronautical (AIP) data set and Instrument Flight Procedures data sets shall be specified in data set metadata.

6.2.2 Even if there are no changes, the Aeronautical (AIP) data set and Instrument Flight Procedures data shall be reissued at regular intervals.