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| **SADC AVIATION SAFETY ORGANIZATION (SASO)**  **REGULATIONS** |



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| **ANNEX VI – PART-AIS REGULATIONS FOR AERONAUTICAL INFORMATION SERVICES PROVIDERS**  **AND**  **ANNEX VII – PART-CHARTS REGULATIONS FOR AERONAUTICAL CHARTS SERVICES PROVIDERS**  **First Edition**  **Feb 2023** |

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# RECORD OF REVISIONS

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# PART I

# PRELIMINARY PROVISION

## Citation and commencement

1. These Regulations may be cited as the SASO Model Civil Aviation AIM Regulations, 2022
2. These regulations come into operation on the date on which it is published in the [State] Gazette.

## Application

1. These Regulations shall apply to a person providing AIM / Charting services within designated air spaces and at aerodromes.

## Definitions

When the following terms are used in the SASO Regulations for the AIS, they have the following meanings:

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

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

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

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

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

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

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

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

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

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

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

**AIP Supplement.** Temporary changes to the information contained in the AIP which are provided by means of special pages.

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

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

services.

**Air traffic management (ATM).** The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

**Application.** Manipulation and processing of data in support of user requirements (ISO 19104\*).

**Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Data product.** Data set or data set series that conforms to a data product specification (ISO 19131\*).

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

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

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

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

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

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

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

**Direct transit arrangements.** Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

**Ellipsoid height (geodetic height).** The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Quality.** Degree to which a set of inherent characteristics fulfils requirements (ISO 9000\*).

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

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

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

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

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

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

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

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

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

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

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

**VOLMET.** Meteorological information for aircraft in flight.

**Data link-VOLMET (D-VOLMET).** Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

**VOLMET broadcast**. Provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

# AERONAUTICAL INFORMATION MANAGEMENT

# RESPONSIBILITIES AND FUNCTIONS

## AIS responsibilities and functions

1. An AIS shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation are made available in a form suitable for the operational requirements of the air traffic management (ATM) community, including:
2. those involved in flight operations, including flight crews, flight planning and flight simulators; and
3. the ATS unit responsible for flight information service and the services responsible for pre-flight information; and
4. An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas for which the State is responsible for the provision of ATS. Aeronautical data and aeronautical information shall be provided as aeronautical information products.
5. Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of the AIS, plus a period of at least two hours before and after such a period. Service shall also be available at such other time as may be requested by an appropriate ground organization.
6. An AIS shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:
7. from the AIS of other States; and
8. from other sources that may be available.
9. Aeronautical data and aeronautical information obtained under (d) a) shall, when distributed, be clearly identified as having the authority of the originating State.
10. Aeronautical data and aeronautical information obtained under (d) b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.
11. An AIS shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with (a).

## Exchange of aeronautical data and aeronautical information

1. Where more than one international NOTAM office is designated within a State, the extent of responsibility and the territory covered by each office shall be defined.
2. An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.
3. Wherever practicable, direct contact between AIS shall be established in order to facilitate the international exchange of aeronautical data and aeronautical information.
4. Except as provided in (f), one copy of each of the following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency:
5. Aeronautical Information Publication (AIP), including Amendments and Supplements;
6. Aeronautical Information Circulars (AIC);
7. NOTAM; and
8. aeronautical charts.
9. When aeronautical data and aeronautical information are provided in the form of digital data sets to be used by the AIS, they shall be provided on the basis of agreement between the Contracting States concerned.
10. Globally interoperable aeronautical data and aeronautical information exchange models shall be used for the provision of data sets.

## Copyright

1. Any aeronautical information product which has been granted copyright protection by the originating State and provided to another State in accordance with AIM.004 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.
2. When aeronautical data and aeronautical information are provided to a State in accordance with (f), the receiving State shall not provide the digital data sets of the providing State to any third party without the consent of the providing State

# AERONAUTICAL INFORMATION MANAGEMENT

## Information management requirements

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

## Data quality specifications

1. Data accuracy - The order of accuracy for aeronautical data shall be in accordance with its intended use.
2. Data resolution - The order of resolution of aeronautical data shall be commensurate with the actual data accuracy.
3. Data integrity - The integrity of aeronautical data shall be maintained throughout the data chain from origination to distribution to the next intended user.
4. Based on the applicable integrity classification, procedures shall be put in place in order to:
5. for routine data: avoid corruption throughout the processing of the data;
6. for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
7. for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.
8. Data traceability - Traceability of aeronautical data shall be ensured and retained as long as the data is in use.
9. Data timeliness - Timeliness of aeronautical data shall be ensured by including limits on the effective period of the data elements.
10. Data completeness - Completeness of aeronautical data shall be ensured in order to support its intended use.
11. Data format - The format of delivered aeronautical data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

## Aeronautical data and aeronautical information verification and validation

1. Material to be issued as part of an aeronautical information product shall be thoroughly checked before it is submitted to the AIS in order to ensure that all necessary information has been included and that it is correct in detail.
2. An AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements are met.

## Data error detection

1. Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.
2. Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in (c).

## Use of automation

1. Automation shall be applied in order to ensure the quality, efficiency and cost-effectiveness of aeronautical information services.
2. Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.
3. In order to meet the data quality requirements, automation shall:
4. enable digital aeronautical data exchange between the parties involved in the data processing chain; and
5. use aeronautical information exchange models and data exchange models designed to be globally interoperable.

## Quality management system

1. Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in AIM.003. The execution of such quality management systems shall be made demonstrable for each function stage.
2. Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and abilities.
3. Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.
4. The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements.

## Human factors considerations

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

# SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

## Scope of aeronautical data and aeronautical information

1. The aeronautical data and aeronautical information to be received and managed by the aeronautical information service (AIS) shall include at least the following sub-domains:
2. national regulations, rules and procedures;
3. aerodromes and heliports;
4. airspace;
5. air traffic services (ATS) routes;
6. instrument flight procedures;
7. radio navigation aids/systems;
8. obstacles;
9. terrain; and
10. geographic information.
11. Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

## Metadata

1. Metadata shall be collected for aeronautical data processes and exchange points. Each data set shall include the following minimum set of metadata:
2. the names of the organization or entities providing the data set;
3. the date and time when the data set was provided;
4. period of validity of the data set; and
5. any limitations with regard to the use of the data set.
6. Metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.

# AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

## General

1. Aeronautical information shall be provided in the form of aeronautical information products and associated services.
2. When aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

## Aeronautical information in a standardized presentation

1. Aeronautical information provided in a standardized presentation shall include the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.
2. The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.
3. Aeronautical Information Publication shall include:
4. a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
5. the general conditions under which the services or facilities are available for international use;
6. a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;
7. the choice made by a State in each significant case where an alternative course of action is provided for ICAO Standards, Recommended Practices and Procedures.
8. AIP Supplement;

A checklist of valid AIP Supplements shall be regularly provided.

1. Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.
2. Each AIP Supplement shall be provided on distinctive pages allowing for easy identification from the regular AIP content.
3. Whenever an AIP Supplement is issued as a replacement of a NOTAM, a reference to the series and number of the NOTAM shall be included.
4. A checklist of valid AIP Supplements shall be issued at intervals of not more than one month as part of the checklist of NOTAM required by (a)(3) and with distribution as for the AIP Supplements.
5. Each AIP Supplement page shall show a publication date.
6. Each AIRAC AIP Supplement page shall show a publication date and an effective date.
7. Aeronautical Information Circulars
8. An AIC shall be used to provide;
9. a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
10. information of a purely explanatory or advisory nature liable to affect flight safety; or
11. information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.
12. An AIC shall not be used for information that qualifies for inclusion in AIP and NOTAM.
13. The validity of AIC currently in force shall be reviewed at least once a year.
14. A checklist of currently valid AIC shall be regularly provided.
15. Aeronautical charts
16. The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:
17. Aerodrome/Heliport Chart — ICAO;
18. Aerodrome Ground Movement Chart — ICAO;
19. Aerodrome Obstacle Chart — ICAO Type
20. Aerodrome Obstacle Chart — ICAO Type B (when available);
21. Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);
22. Aircraft Parking/Docking Chart — ICAO;
23. Area Chart — ICAO;
24. ATC Surveillance Minimum Altitude Chart — ICAO;
25. Instrument Approach Chart — ICAO;
26. Precision Approach Terrain Chart — ICAO;
27. Standard Arrival Chart — Instrument (STAR) — ICAO;
28. Standard Departure Chart — Instrument (SID) — ICAO; and
29. Visual Approach Chart — ICAO.
30. The Enroute Chart — ICAO shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.
31. The aeronautical charts listed below shall, when available, be provided as aeronautical information products:
32. World Aeronautical Chart — ICAO 1:1 000 000;
33. Aeronautical Chart — ICAO 1:500 000;
34. Aeronautical Navigation Chart — ICAO Small Scale; and
35. Plotting Chart — ICAO chart.
36. The chart resolution of aeronautical data shall be that as specified for a particular chart.
37. NOTAM

A checklist of valid NOTAM shall be regularly provided.

1. Except as otherwise provided in (iv) and (vi), each NOTAM shall contain the information in the order shown in the NOTAM Format in Appendix 3.
2. NOTAM text shall be composed of the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language.
3. All NOTAM shall be issued in the English language.
4. information concerning snow, slush, ice and standing water on aerodrome/heliport pavements shall, when reported by means of a SNOWTAM, contain the information in the order shown in the SNOWTAM Format in Appendix 4.
5. information concerning snow, slush, ice, frost, standing water, or water associated with snow, slush, ice or frost on the movement area shall be disseminated by means of a SNOWTAM, and shall contain the information in the order shown in the SNOWTAM Format in Appendix 4.
6. Information concerning an operationally significant change in volcanic activity, volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix 5.
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.
8. When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated.
9. The series, location indicator and subject of both NOTAM shall be the same.
10. Only one NOTAM shall be cancelled or replaced by a NOTAM.
11. Each NOTAM shall deal with only one subject and one condition of the subject.
12. Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.
13. Each NOTAM shall be transmitted as a single telecommunication message.
14. A NOTAM containing permanent information or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.
15. Location indicators included in the text of a NOTAM shall be those contained in Location Indicators (Doc 7910).
16. In no case shall a curtailed form of such indicators be used.
17. Where no ICAO location indicator is assigned to the location, its place name shall be entered in plain language, spelt in conformity with local usage, transliterated, when necessary, into the ISO basic Latin alphabet.
18. NOTAM number and series allocation
19. The international NOTAM office shall allocate to each NOTAM a series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year. The four-digit number shall be consecutive and based on the calendar year.
20. Letters S and T shall not be used to identify a NOTAM series.
21. All NOTAM shall be divided in series based on subject, traffic or location or a combination thereof, depending on end-user needs. NOTAM for aerodromes allowing international air traffic shall be issued in international NOTAM series.
22. If NOTAM are issued in both English and a national language, the NOTAM series shall be organized such that the national language series is equivalent to the English language series in terms of content.
23. Whenever possible, the national language series should have the same numbering as the English language series to facilitate comparison.
24. The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, section GEN 3.
25. Series allocation shall be monitored and, if required, appropriate measures shall be taken to assure that no series reach the maximum possible number of issued NOTAM before the end of the calendar year.
26. NOTAM checklist
27. A checklist of valid NOTAM shall be issued as a NOTAM checklist at intervals of not more than one month.
28. One NOTAM checklist shall be issued for each series.
29. A NOTAM checklist shall refer to the latest AIP Amendments, AIP Supplements, data sets and at least the internationally distributed AIC, and, when it is selected, include the checklist of AIP Supplements.
30. A NOTAM checklist shall have the same distribution as the actual message series to which it refers and shall be clearly identified as a checklist.

## Digital data sets

1. Digital data shall be in the form of the following data sets:
2. AIP data set;
3. terrain data sets;
4. obstacle data sets;
5. aerodrome mapping data sets; and
6. instrument flight procedure data sets.
7. Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.
8. A checklist of valid data sets shall be regularly provided.
9. AIP data set
10. The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.
11. Terrain and obstacle data sets
12. The coverage areas for terrain and obstacle data sets shall be specified as:
13. Area 1: the entire territory of a State;
14. Area 2: within the vicinity of an aerodrome, subdivided as follows:
15. Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists;
16. 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;
17. 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
18. Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;
19. Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area; and
20. Area 4: the area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

# AERONAUTICAL INFORMATION UPDATES

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

## Aeronautical information regulation and control (AIRAC)

1. Information concerning the following circumstances shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including 8 November 2018:
2. limits (horizontal and vertical), regulations and procedures applicable to:
3. flight information regions;
4. control areas;
5. control zones;
6. advisory areas;
7. air traffic services (ATS) routes;
8. permanent danger, prohibited and restricted areas (including type and periods of activity when known) and air defence identification zones (ADIZ);
9. permanent areas or routes or portions thereof where the possibility of interception exists;
10. positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;
11. holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;
12. transition levels, transition altitudes and minimum sector altitudes;
13. meteorological facilities (including broadcasts) and procedures;
14. runways and stopways;
15. taxiways and aprons;
16. aerodrome ground operating procedures (including low visibility procedures);
17. approach and runway lighting; and
18. aerodrome operating minima if published by a State.
19. The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.
20. Information provided under the AIRAC system shall be made available by the aeronautical information service (AIS) so as to reach recipients at least 28 days in advance of the effective date.
21. When information has not been submitted by the AIRAC date, a NIL notification shall be distributed not later than one cycle before the AIRAC effective date concerned.
22. Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

## Aeronautical information product updates

1. AIP updates
2. The aeronautical information publication (AIP) shall be amended or reissued at such regular intervals as may be necessary to keep it up to date.
3. Permanent changes to the AIP shall be published as AIP Amendments.
4. Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.
5. NOTAM
6. When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a Trigger NOTAM shall be originated.
7. A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration, or when operationally significant permanent changes or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.
8. A NOTAM shall be originated and issued concerning the following information:
9. establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;
10. establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.);
11. establishment, withdrawal or significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
12. unavailability of back-up and secondary systems, having a direct operational impact;
13. establishment, withdrawal or significant changes to visual aids;
14. interruption of or return to operation of major components of aerodrome lighting systems;
15. establishment, withdrawal or significant changes to procedures for air navigation services;
16. occurrence or correction of major defects or impediments in the manoeuvring area;
17. changes to and limitations on availability of fuel, oil and oxygen;
18. major changes to search and rescue facilities and services available;
19. establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
20. changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
21. presence of hazards which affect air navigation (including obstacles, military exercises, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events outside promulgated sites);
22. planned laser emissions, laser displays and search lights if pilots’ night vision is likely to be impaired;
23. erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
24. establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
25. 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;
26. allocation, cancellation or change of location indicators;
27. changes in aerodrome/heliport rescue and firefighting category provided (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 17);
28. presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material,
29. toxic chemicals, volcanic ash deposition or water on the movement area;
30. outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
31. observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;
32. 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;
33. release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
34. 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
35. implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services.
36. The following information shall not be notified by NOTAM:
37. routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;
38. runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;
39. temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;
40. partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;
41. partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;
42. the lack of apron marshalling services and road traffic control;
43. the unserviceability of location, destination or other instruction signs on the aerodrome movement area;
44. parachuting when in uncontrolled airspace under VFR (see 6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;
45. training activities by ground units;
46. unavailability of back-up and secondary systems if these do not have an operational impact;
47. limitations to airport facilities or general services with no operational impact;
48. national regulations not affecting general aviation;
49. announcement or warnings about possible/potential limitations, without any operational impact;
50. general reminders on already published information;
51. availability of equipment for ground units without containing information on the operational impact for airspace and facility users;
52. information about laser emissions without any operational impact and fireworks below minimum flying heights;
53. closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
54. closure or unavailability of, or changes in, operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours; and
55. other non-operational information of a similar temporary nature.
56. Data set updates
57. Data sets shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.
58. Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a subset that includes only the differences from the previously issued complete data set.
59. Updates to AIP and digital data sets shall be synchronized.

# AERONAUTICAL CHARTS

## The provision of aeronautical charts

1. The AIS provider shall ensure that all aeronautical charts which are produced in (State) are in conformity with ICAO Annex 4 and Annex 15.
2. The AIS provider shall publish the following aeronautical charts which are applicable in (State):
3. Aerodrome Obstacle Chart — ICAO Type A (Operating Limitations)
4. Aerodrome Obstacle Chart — ICAO Type B
5. Aerodrome Terrain and Obstacle Chart — ICAO (Electronic)
6. Precision Approach Terrain Chart — ICAO
7. Enroute Chart — ICAO
8. Area Chart — ICAO
9. Standard Departure Chart — Instrument (SID) — ICAO
10. Standard Arrival Chart — Instrument (STAR) — ICAO
11. Instrument Approach Chart — ICAO
12. Visual Approach Chart — ICAO
13. Aerodrome/Heliport Chart — ICAO
14. Aerodrome Ground Movement Chart — ICAO
15. Aircraft Parking/Docking Chart — ICAO
16. World Aeronautical Chart — ICAO 1:1 000 000
17. Aeronautical Chart — ICAO 1:500 000
18. Aeronautical Navigation Chart — ICAO Small Scale
19. Plotting Chart — ICAO
20. Electronic Aeronautical Chart Display — ICAO
21. ATC Surveillance Minimum Altitude Chart — ICAO
22. The chart resolution of aeronautical data shall be that as specified for a particular chart.
23. The AIS provider shall ensure that all aeronautical charts listed in AIM.0019 are readily available to users, including from other ICAO Contracting States.
24. The AIS provider shall take all reasonable measures to ensure that the information it provides and the aeronautical charts made available are adequate and accurate and that they are maintained up-to-date by an adequate revision service.
25. The AIS provider shall ensure that each type of aeronautical chart provides information relevant to the function of the chart and its design shall observe human factors principles which facilitate its optimum use.
26. The AIS provider shall ensure that the presentation of information in the aeronautical charts is accurate, free from distortion and clutter, unambiguous, and readable under all normal operating conditions.
27. The AIS provider shall ensure that aeronautical data quality requirements related to the data integrity and charting resolution are in accordance with ICAO Annex 4 paragraph 2.17. The integrity of the data shall be maintained throughout the data process from origination to the next intended user. Aeronautical data integrity requirements shall be based upon the integrity classification provided in PANS-AIM (Doc 10066) Appendix 1.
28. Electronic aeronautical charts shall be provided based on digital databases and the use of geographic information systems.
29. With effect from 12 November 2015, the AIS provider shall make available Aerodrome Terrain and Obstacle Chart – ICAO (Electronic) for (State) civil aerodromes as specified in ICAO Annex 4, Chapter 5.

# APPENDICES

# Appendix 1

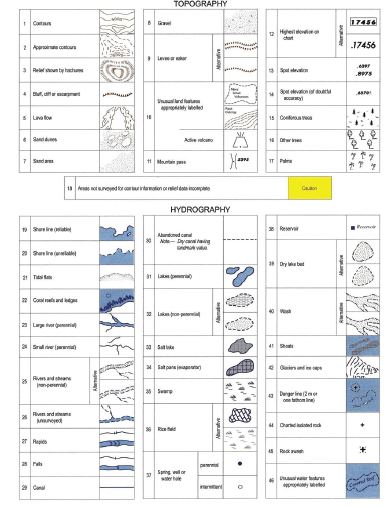
# Data Catalogue

# Appendix 2 - SNOWTAM

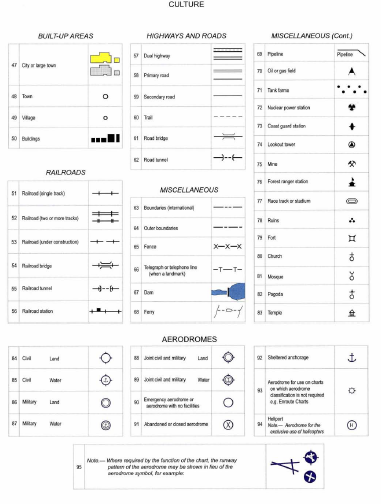
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| NOTAM containing new information NOTAM replacing a previous NOTAM NOTAM cancelling a previous NOTAM | | | | | | | | | | | | | | | | ......................................... NOTAMN (series and number/year)  ......................................... NOTAMR .............................................................(series and number/year)(series and number/year of NOTAM to be replaced)  ......................................... NOTAMC ............................................................  (series and number/year)(series and number/year of NOTAM to be cancelled) ≪≡ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Qualifiers** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | FIR | | | | NOTAM Code | | | | | Traffic | | | | Purpose | | | | | | Scope | | | | | Lower limit | | | | | | Upper limit | | | | Coordinates, Radius | | | | | | | | | | | | | | | | | | | |  | |
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| Identification of ICAO location indicator in which the facility, airspace or condition reported on is located | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | A) | | | | | | | | | | | | | | | | | | | | | |
| **Period of validity** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| From *(date-time group)* | | | | | | | | | | | | | | B) | | | | | |  | | |  | | | |  | | |  |  | | | |  | |  | | | |  | | |  | | |  | | |  | | | | | | |
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| Time schedule *(if applicable)* | | | | | | | | | | | | | | D) | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |  |
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| **Text of NOTAM; plain-language entry (using ICAO abbreviations)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Signature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Appendix 3

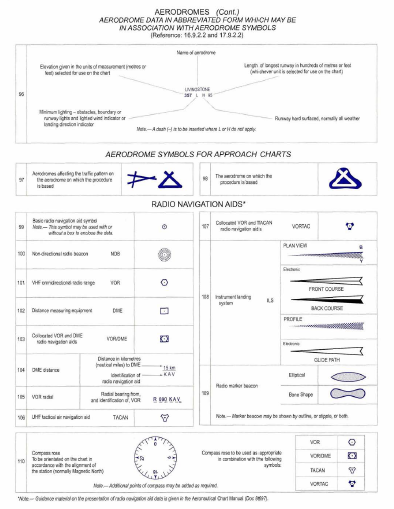
# Appendix 4



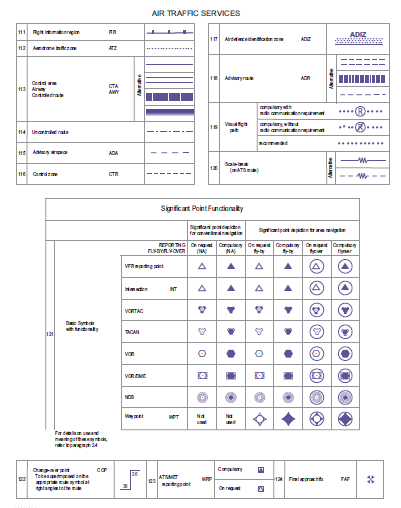
# Appendix 5

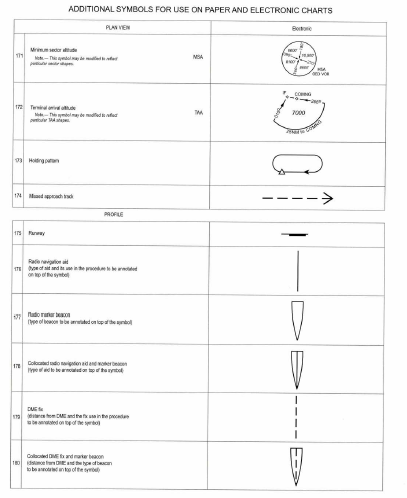


Appendix 6

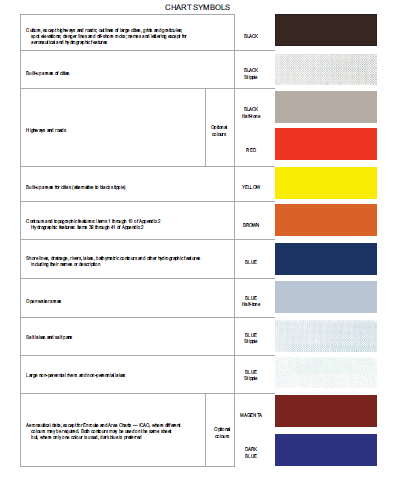


Appendix 7



Appendix 8

Appendix 9



Appendix 10

