

**Draft Annex X to ED Decision 201X/XXX/R**

**‘Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-AIS on specific requirements for providers of aeronautical information services’**

Annex VI to ED Decision 2017/001/R is replaced as follows:

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

- deleted text is ~~struck through~~;
- new or amended text is highlighted in grey;
- an ellipsis ‘(…)’ indicates that the rest of the text is unchanged.

FOR INFORMATION ONLY

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**AMC/GM TO PART-AIS**  
**SPECIFIC REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL INFORMATION SERVICES**

*Reserved*

**SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL  
INFORMATION SERVICES (AIS.OR)**

**GM1 to Annex VI — Part-AIS**

**ICAO DOC 8126**

Guidance material on the organisation and operation of aeronautical information services is contained in ICAO Doc 8126 (Aeronautical Information Services Manual).

**GM1 to Annex VI — Part-AIS**

**OPERATING PROCEDURE FOR AIS STATIC DATA**

Guidance material on the AIS Data Process and Static Data Procedures can be found in the AIS Data Process (ADP) and Static Data Procedures (SDP) developed by EUROCONTROL, Edition 2.0 of 17 July 2009.

**Section 1 — General requirements**

**GM1 AIS.OR.100 Aeronautical information management**

**PURPOSE OF AERONAUTICAL INFORMATION**

- (a) The object of AIS is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity, economy and efficiency in an environmentally sustainable manner.
- (b) The role and importance of aeronautical data and aeronautical information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE). Corrupt, erroneous, late, or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation.

**GM1 AIS.OR.105(c) Responsibilities of aeronautical information services providers**

**DAT PROVIDER**

The DAT provider (provider of data services) are not specifically specified in this paragraph as being an entity receiving the aeronautical data and aeronautical information from the AIS provider. However, they are considered as being covered in AIS.OR.105(c)(1). They also receive, assemble, translate, select, format, distribute and/or integrate aeronautical data and information that is released by an authoritative source for use in aeronautical databases on certified aircraft application/equipment.

**GM1 AIS.OR.105(d) Responsibilities of aeronautical information services providers**

**PROVISION OF PRE-FLIGHT INFORMATION**

An AIS provider obtains aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information from:

- (a) the aeronautical information services of other States;
- (b) other sources that may be available.

#### **GM1 AIS.OR.105(e) Responsibilities of aeronautical information services providers**

##### **AVAILABLE AERONAUTICAL DATA**

When no data is available to the AIS provider, they will not be transmitted to other AIS providers.

### **Section 2 — Data quality management**

#### **GM1 to Section 2 — General requirements**

##### **ED-76A**

The quality of data is a degree or level of confidence that the data provided meets the requirements of the user. Minimum requirements for the processing of aeronautical data may be found in the EUROCAE Document ED-76A, (Standards for Processing Aeronautical Data), June 2015, which aims to assist aeronautical data chain actors and authorities in meeting their responsibilities. It is intended to be used by organisations seeking approval of the method(s) they use to process or manipulate data.

#### **GM1 AIS.OR.200 General**

##### **AERONAUTICAL DATA CATALOGUE**

The aeronautical data catalogue presents the scope of data that can be collected and maintained by the AIS providers and provides a common terminology that can be used by data originators and service providers.

#### **AMC1 AIS.OR.200(c) General**

##### **AUTOMATED DATA PROCESSING**

Where processes or parts of processes used in the origination, production, storage, handling, processing, transfer and distribution of aeronautical data and aeronautical information are subject to automation, they should be:

- (a) automated to a level commensurate with the context of the data process;
- (b) automated to optimise the allocation and interaction of human and machine to achieve a high degree of safety and quality benefits of the process;
- (c) automated to ensure traceability of the performed actions.
- (d) designed to avoid the introduction of data errors; and
- (e) designed to detect errors in received/input data.

#### **AMC1 AIS.OR.205 Formal arrangements**

##### **CONTENT**

Formal arrangements should include the following minimum content:

- (a) the aeronautical data to be provided;
- (b) the data quality requirements for each data item supplied according to the aeronautical data catalogue;
- (c) the method(s) for demonstrating that the data provided conforms with the specified requirements;
- (d) the action to be taken in the event of discovery of a data error or inconsistency in any data provided;

- (e) the following minimum criteria for notification of data changes:
  - (1) criteria for determining the timeliness of data provision based on the operational or safety significance of the change;
  - (2) any prior notice of expected changes; and
  - (3) the means to be adopted for notification;
- (f) the party responsible for documenting data changes;
- (g) data exchange details such as format or format change processes;
- (h) any limitations on the use of data;
- (i) requirements for the production of data origination quality reports ;
- (j) metadata requirements; and
- (k) contingency requirements concerning the continuity of data provision.

#### **AMC1 AIS.OR.210(a) Exchange of aeronautical data and aeronautical information**

##### **EXCHANGE MODEL**

An AIS provider should use the aeronautical information exchange model (AIXM) to enable the management and distribution of aeronautical information services data in digital format.

#### **GM1 AIS.OR.210(a) Exchange of aeronautical data and aeronautical information**

##### **EXCHANGE MODEL**

Currently, AIXM 5.1 is considered as being the minimum baseline for the exchange of aeronautical data and aeronautical information.

More information on the AIXM may be found under <http://www.aixm.aero>.

#### **GM1 AIS.OR.210(a) Exchange of aeronautical data and aeronautical information**

##### **DIGITAL TERRAIN DATA**

The existing formats for the exchange of electronic terrain datasets do not fully meet the requirements of the ISO 19100 series on geographic information, therefore the GeoTIFF format with metadata is preferred. Further formats may include Shape file.

#### **GM1 AIS.OR.210(b) Exchange of aeronautical data and information**

##### **ELECTRONIC MEANS**

The exchange of aeronautical data and aeronautical information may be done by a number of electronic exchanges avoiding the need of manual interaction with the data itself.

#### **AMC1 AIS.OR.215 Tools and software**

##### **EVIDENCE**

- (a) In order to prove that software tools do not adversely impact on the quality of data, the potential software contribution to failure conditions should be analysed and a global analysis process of error cases should be chosen. e.g. 'Failure Modes and Effects Analysis' (FMEA).
- (b) During the software development phase, system-level requirements dealing with error cases should be further developed, or detailed, as requirements.

## **GM1 AIS.OR.215 Tools and software**

### **SOFTWARE**

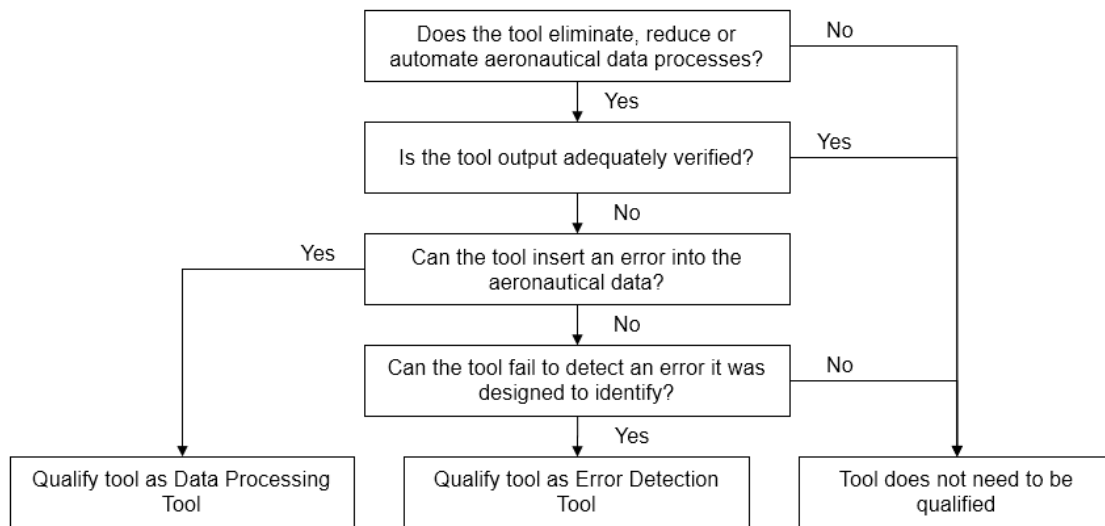
- (a) A means by which AIS.OR.215 can be met, is through the validation and verification of software applied to a known executable version of the software in its target operating environment.
- (b) The validation of software is a process of ensuring that software meets the requirements for the specified application or intended use of the aeronautical data and aeronautical information.
- (c) The verification of software is an evaluation of the output of an aeronautical data and/or aeronautical information software development process to ensure correctness and consistency with respect to the inputs and applicable software standards, rules and conventions used in that process.

## **GM2 AIS.OR.215 Tools and software**

### **TOOL QUALIFICATION**

- (a) Tools (e.g. software) can be used to eliminate, reduce or automate the activities associated with aeronautical data processes. Tool qualification is the process by which assurance is achieved that tools employed will neither introduce errors into the data nor fail to detect an error. When required, tool qualification shall be performed within the context of the tool's intended use, using EUROCAE ED-215/RTCA DO-330 with adaptations provided in EUROCAE ED-76A/RTCA DO-200B, Appendix D.
- (b) The objectives of tool qualification are to:
  - demonstrate that the tool complies with its requirements; and
  - ensure that the tool provides equivalence to any activities that it automates and tool qualification is commensurate with the tool's intended use or the data production process.
- (c) Determining requirements for tool qualification
  - (1) Tools shall be qualified when data processes are eliminated, reduced or automated by the use of the tool without the output being verified. Only tools that have the ability to insert or fail to detect an error in the aeronautical data process require qualification. The following requirements apply equally to tools obtained 'off the shelf' or developed by the data chain participants.
    - Each proposal for a new tool or for a modification of an existing tool, shall be reviewed to determine whether the tool is required to undergo qualification; and
    - Where a decision is made that qualification is not required, justification for that decision shall be documented.
  - (2) The tool qualification process may be applied to a single tool, a collection of tools, or one or more functions within a tool. For a tool with multiple functions, if protection between tool functions can be demonstrated, only those functions that are used to eliminate, reduce or automate data processes, and whose outputs are not verified, need to be qualified. Protection is the use of a mechanism to ensure that a tool function cannot adversely impact on another tool function. A tool is qualified where the intention to use the tool is stated in the data processing procedures. A tool is qualified to support data quality, as defined in the DQRs. If a tool is used to provide data compliance with additional or modified DQRs, the need for re-qualification shall be assessed.





**Figure: Criteria for tool qualification**

- (3) The first question posed is whether or not the tool eliminates, reduces, or automates an activity associated with the aeronautical data chain, which includes any action that is performed to complete an aeronautical data chain functional link. If the answer is yes, the next question is posed, and if no, the tool does not need to be qualified.
- (4) The second question is whether or not the activity or resultant output of the tool will be adequately verified by a different qualified tool or a manual process. If the answer is no, the next question is posed, and if yes, the tool does not need to be qualified.
- (5) The third question is whether or not the tool has the ability to insert an error into the aeronautical data contained in the database being processed. If the answer is yes, the tool shall be qualified as a data processing tool. If the answer is no, the next question is posed.
- (6) The final question posed, for tools that have not yet been identified as needing qualification, is whether or not the tool could theoretically fail to detect an error it was designed to identify. If the answer is yes, the tool shall be qualified as an error detection tool, and if no (which essentially means that the tool was not designed to directly perform modification or verification of any aeronautical data elements), the tool does not need to be qualified. It should be noted that the error detection tool does not need qualification to find any error that may exist in the data, but only errors in the data it is designed to find.

**(d) Determining tool qualification level**

- (1) When tool qualification is needed, the impact of the tool use in the aeronautical data chain should be assessed in order to determine its tool qualification level (TQL).
- (2) The appropriate DPAL and TQL are indicated in the table below. Three levels of tool qualification, TQL-3 to TQL-5, are identified based on the tool use and its potential impact on the aeronautical data chain. TQL-3 is the most rigorous level and TQL-5 is the least rigorous level.
- (3) The objectives, activities, and guidance required for each TQL are described in EUROCAE ED-215/RTCA DO-330 with adaptations provided in Appendix D of this standard (TQL-1 and TQL-2 are not invoked).

DPAL	Data processing tool	Error detection tool
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1	TQL-3	TQL-5
2	TQL-4	TQL-5
3	Not required	Not required

(e) Tools previously qualified under EUROCAE ED-76/RTCA DO-200A

- (1) If an organisation has tools that were previously qualified under EUROCAE ED-76/RTCA DO-200A and it desires to meet EUROCAE ED-76A/RTCA DO-200B process standards, those tools can continue to be used without additional qualification activities taking place as long as the following conditions are met:
  - The tool has not changed since its previous qualification;
  - The tool environment has not changed since its previous qualification; and
  - The use of the tool to eliminate, reduce or automate activities associated with aeronautical data processes remains the same.
- (2) Tools previously qualified under EUROCAE ED-76/RTCA DO-200A that have changed and require requalification after a data supplier has transitioned to meet EUROCAE ED-76A/RTCA DO-200B process standards, shall perform that new qualification based on the following guidelines.
- (3) First, the tool is classified as a data processing or error detection tool. Then, the RTCA DO-200B/EUROCAE ED-76A TQL that the tool corresponds to is determined using Section 2.4.5.2. Based on this determination, one of the three following requirements applies:
  - For tools categorised as TQL-3, the new tool qualification process shall follow EUROCAE ED-76A/ RTCA DO-200B tool qualification standards.
  - For tools categorised as TQL-4, the tool qualification process approved under EUROCAE ED-76/ RTCA DO-200A may continue to be used so long as concurrence from the authority granting recognition of compliance with this standard has been obtained/maintained. This concurrence may be granted based on an analysis of the tool addressing one or more of the following concepts:
    - configuration management of the tool;
    - effectiveness of problem reporting activity for the tool;
    - stability and maturity of the tool;
    - relevance of tool service history environment;
    - actual error rates and tool service history; and
    - impact of tool modifications.

If concurrence cannot be achieved or is not desired, EUROCAE ED-76A/RTCA DO-200B tool qualification standards shall be met.
  - For tools categorised as TQL-5, the tool qualification process shall follow either EUROCAE ED-76 / RTCA DO-200B tool qualification standards, or the supplier's previous tool qualification process approved under EUROCAE ED-76/RTCA DO-200A.

NOTE: The previous tool qualification data collected using EUROCAE ED-76/RTCA DO-200A tool qualification standards, or a tool's service history, can be used as an alternate method of compliance with some EUROCAE ED-215/RTCA DO-330 objectives if qualification is being performed against EUROCAE ED-76A/RTCA DO-200B standards. EUROCAE ED-215/RTCA DO-330 provides additional information regarding alternative methods for tool qualification.

### **GM3 AIS.OR.215 Aeronautical data and aeronautical information**

#### **TOOL AND SOFTWARE**

- (1) This GM provides guidance on the application of EUROCAE ED-215/RTCA DO-330 to qualified tools in the aeronautical data processing domain.
- (2) In the aeronautical data processing domain, EUROCAE ED-215/RTCA DO-330 certification liaison objectives are not applicable.
- (3) The following terms from EUROCAE ED-215/RTCA DO-330 are changed to the aeronautical data processing domain. They are applicable to the intent of EUROCAE ED-76A/RTCA DO-200B, Appendix D:
  - Certification credit — replaced by the general statement 'satisfaction of the applicable EUROCAE ED-76A/ RTCA DO-200B objectives';
  - Certification authority — should be understood as approval authority (See EUROCAE ED-76A/RTCA DO-200B, Section 2.5.1);
  - Applicant — identifies the entity seeking compliance with EUROCAE ED-76A/RTCA DO-200B requirements; and
  - Terms such as 'software life cycle', 'software processes', 'software plans', and 'software' are used. They refer to the product life cycle, processes, plans, and domain where the tool will be used in the software domain. In the context of this standard, the term 'software' should be understood as 'aeronautical databases', and 'software life cycle processes' should be understood as 'aeronautical data processes'.
- (4) TQL-1 and TQL-2 are not invoked as they have been assessed as not applicable to the aeronautical data processing domain.
- (5) Tool development standards (e.g. tool requirements standards, tool design standards, and tool coding standards), as defined in EUROCAE ED-215/RTCA DO-330, are not required under the aeronautical data processing domain.

### **GM4 AIS.OR.A.215 Aeronautical data and aeronautical information**

#### **TOOL AND SOFTWARE — PROCESSING ADAPTATIONS**

##### **Tables:**

- summarising the objectives adapted from EUROCAE ED-215/RTCA DO-330 by showing the applicability of each objective by TQL;
- whether the objective is to be implemented with independence;
- the output which results from satisfying the objective;
- and the control category for each tool life cycle data item,

may be found in Appendix D.2 to ED-76A (EUROCAE ED-215/RTCA DO-330 OBJECTIVES AERONAUTICAL DATA PROCESSING ADAPTATIONS)

## **GM1 AIS.OR.225 Metadata**

### **PERSONAL DATA**

When collecting metadata, the protection of individuals with regard to the processing of personal data and on the free movement of such data applies, in accordance with Directive 95/46/EC on Data protection.

## **GM1 AIS.OR.230(a) Data error detection and authentication**

### **DATA PROTECTION**

- (a) Digital error detection techniques can be used to detect errors during the transmission or storage of data.
- (b) An example of a digital error detection technique is the use of cyclic redundancy checks (CRCs). Coding techniques can be effective regardless of the transmission media (e.g. computer disks, modem communication, or internet).

## **GM1 AIS.OR.230(b) Data error detection and authentication**

### **DATA SECURITY**

- (a) Transmission of data via electronic/digital means (e.g. file transfer protocol (FTP) sites, web downloads, or email) may be subject to malicious attack that can corrupt the integrity of data for its intended use. Provision of means to mitigate the intentional corruption of digitally transmitted data may already exist within the organisational construct and operating procedures of participating entities. This section provides requirements to address data security.
- (b) The objective of data security is to ensure that data is received from a known source and that there is no intentional corruption during processing and exchange of data.
- (c) Records shall be maintained to show what data security provisions have been implemented.
- (d) Provisions supporting this objective may include:
  - (1) implementation of technical data security measures to provide authentication and prevent intentional corruption during exchange of data (e.g. secure hashes, secure transmissions, digital signatures); and
  - (2) Implementation of organisational data security measures to protect processing resources and prevent intentional corruption during processing of data.

## **GM1 AIS.OR.230 Data error detection and authentication**

### **DATA PROCESSING**

More explanation and guidance may be found in Appendix C (Guidance on compliance with data processing requirements) of EUROCAE ED-76A/RTCA DO-200B.

## **GM1 AIS.OR.230 Data error detection and authentication**

### **ERROR**

- (a) The term 'error' is understood as being defective, degraded, lost, misplaced or corrupted data elements, or data elements not meeting stated quality requirements.
- (b) Guidance on how to detect, identify, report and address/resolve aeronautical data errors may be found in EUROCAE ED-76A, 'Standards for processing aeronautical data', June 2015.

#### **AMC1 AIS.OR.235 Error reporting and corrective action**

##### **ISO 9001**

An EN ISO 9001 certificate, issued by an appropriately accredited organisation, covering all aspects of the AIS quality management system is considered as a sufficient means of compliance in meeting the error reporting and corrective action.

#### **GM1 AIS.OR.235 Error reporting and corrective action**

##### **DATA PROCESSING**

- (a) An AIS provider should have a system for handling errors and anomalies identified during data processing, and those identified after delivery of the data to the users.
- (b) All problems reported with the data should be analysed and any errors or anomalies documented and resolved or addressed.
- (c) All errors or anomalies detected in the data should be resolved or addressed prior to delivery.
- (d) Information concerning any errors in the data that have been delivered should be made available to all affected users.

##### **FURTHER GUIDANCE**

Explanation and guidance on error reporting and corrective action may be found in EUROCAE ED-76A/RTCA DO-200B.

#### **AMC1 AIS.OR.250 Consistency requirement**

##### **DUPLICATED INFORMATION**

The AIS provider should establish mechanisms to ensure that:

- (a) previous coordination and explicit agreement with the service providers responsible for the AIPs of the Member States concerned is reached before introducing changes in published border or cross-border data and information (e.g. designated points used in route segments, cross-border areas/airspace, cross-border entities); and
- (b) periodic reviews are performed to detect inconsistencies between the AIPs of the Member States concerned.

#### **GM1 AIS.OR.250 Consistency requirement**

##### **CROSS BORDER PROVISIONS**

- (a) Coordination and alignment processes between AIS providers should whenever possible be expanded beyond the AIP content and include all duplicated aeronautical data and information.
- (b) The AIS provider may identify and maintain a list of the data items and information which should be subject to coordination, for the reference and use by its operational staff.
- (c) When establishing periodic reviews, the AIS provider may reflect those in formal arrangements established with other AIS providers.

## Section 3 — Aeronautical information products

### GM1 AIS.OR.300 Aeronautical information products

#### INFORMATION PROVIDED IN MULTIPLE FORMATS

Multiple formats means aeronautical data and aeronautical information provided in different products, such as data sets, electronic or paper products.

## Chapter 1 — Aeronautical information in a standardised presentation

### AMC1 AIS.OR.325 Aeronautical charts

#### PRODUCTION

Aeronautical charts should be produced in accordance with the specifications contained in ICAO Annex 4, Amendment No 59, in its 11<sup>th</sup> edition of July 2009.

### GM1 AIS.OR.325 Aeronautical charts

#### APPROACH

AIS.OR.325 provides the context in which the charts are provided. The requirement to provide aeronautical charts is specified in ICAO Annex 4, which has not been transposed in European regulation.

### GM1 AIS.OR.330(a)(1) NOTAM

#### SHORT DURATION / SHORT NOTICE

- (a) In the case of NOTAM issuing, the reference to the 'short duration' of distributed information should, in general, be understood as being less than 3 months otherwise an AIP supplement would be issued.
- (b) The reference to 'short notice' should be understood as too late for the AIS provider to have an AIP supplement distributed in time.

### GM1 AIS.OR.330(a)(2) NOTAM

#### TIMELY KNOWLEDGE

By timely knowledge it may be considered that the knowledge of the information is "timely" if it reaches the personnel involved with flight operations in time to ensure that the safety, regularity and efficiency of flight operations affected by the information remains ensured.

### GM1 AIS.OR.330(b) NOTAM

#### EXCEPTIONAL SITUATIONS

- (a) It is recognised that, in the cases of NOTAM or digital NOTAM that are crucial to ensure the safety of flight, it is not always possible to comply with all the relevant provisions of the Regulation. However, it is also not possible to determine a priori in all cases where this consideration may apply, this is dependent on a case by case individual assessment made by competent AIS staff.
- (b) If it is determined that it is not possible to comply with all the relevant provisions of the Regulation, the NOTAM Office ensures, at the minimum, that:
  - (1) the party originating the aeronautical data is authorised and/or an eligible/reasonable source;
  - (2) the content is plausible;
  - (3) the data quality requirements are validated post publication, as soon as practicable.

## Chapter 2 — Digital data sets

### GM1 AIS.OR.335(a) General — digital data sets

#### AVAILABLE DATA

Digital data sets (AIP, terrain, obstacle, aerodrome mapping and instrument flight procedure) are currently not compulsory to be provided by the AIS providers. Similarly to ICAO approach, where the provisions stipulates that these are to be provided only when they are made available to the AIS provider, this requirement does not oblige to the AIS provider to comply with this requirement if such digital data sets are not made available to it. Therefore, this requirement has to be read in the sense that it does not impose a general obligation on the AIS provider. If digital data is made available, this requirement applies.

### GM1 AIS.OR.335(a) General

#### DATA SET

Data items may appear in multiple data sets.

### GM1 AIS.OR.345 AIP data set

#### PURPOSE

The purpose of the AIP data set is to support the initial transition of the ATM domain towards the use of digital data sets instead of paper products. Therefore, its scope is defined considering the likelihood that the data contained in this set is actually being used in digital format by service providers, air traffic control and instrument flight rules /visual flight rules airspace users.

### GM1 to AIS.OR.350 Terrain and obstacle data

#### GENERAL

- (a) Useful information for those organisations involved in the origination, processing and provision of electronic terrain and obstacle data, from the point at which the need for origination is identified through to the point when the State makes it available in accordance with the requirements of ICAO Annex 15, can be found in the EUROCONTROL 'Terrain and Obstacle Data Manual' (November 2015, Edition 2.1).
- (b) In addition, the EUROCAE Document ED-98C 'User Requirements For Terrain And Obstacle Data' (October 2015) provides guidance for data gathering by data originators, for data processing by data integrators, for implementation by system designers, and for end use by the aviation community (e.g. air carriers, air traffic services, procedure designers).

### GM2 AIS.OR.350 Terrain and obstacle data

#### NAVIGATION APPLICATIONS

- (a) Terrain and obstacle data are intended to be used in the following air navigation applications:
  - (1) ground proximity warning system with forward-looking terrain avoidance function and minimum safe altitude warning (MSAW) system;
  - (2) determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;
  - (3) aircraft operating limitations analysis;
  - (4) instrument procedure design (including circling procedure);

- (5) determination of en-route 'drift-down' procedure and en-route emergency landing location;
- (6) advanced surface movement guidance and control system (A-SMGCS); and
- (7) aeronautical chart production and on-board databases.

(b) The data may also be used in other applications such as flight simulator and synthetic vision systems, and may assist in determining the height restriction or removal of obstacles that pose a hazard to air navigation.

#### **GM1 AIS.OR.355 Terrain data sets**

##### **ADDITIONAL TERRAIN DATA**

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

#### **GM1 AIS.OR.355(b)(3) Terrain data sets**

##### **TAKE-OFF FLIGHT PATH AREA**

'Take-off flight path area' is defined in 3.8.2 of ICAO Annex 4.

#### **GM1 AIS.OR.355(b)(4) Terrain data sets**

##### **AERODROME OBSTACLE SURFACES**

'Aerodrome obstacle surfaces' are defined in the CS and GM for aerodrome design.

#### **GM1 AIS.OR.360 Obstacle data sets**

##### **ADDITIONAL OBSTACLE DATA**

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

### **Section 4 — Distribution and pre-flight information services**

#### **GM1 AIS.OR.400(a) Distribution services**

##### **AERONAUTICAL INFORMATION PRODUCTS**

- (a) The distribution of available aeronautical information products to the next intended user differs in the delivery method applied which may either be:
- (1) physical distribution — the means by which aeronautical data and aeronautical information distribution is achieved through the delivery of a physical package, such as postal services; or
  - (2) direct electronic distribution — the means by which aeronautical data and aeronautical information distribution is achieved automatically through the use of a direct electronic connection between the AIS provider and the next intended user.
- (b) Different delivery methods and data media may require different procedures to ensure the required data quality.
- (c) Further guidance on digital dataset distribution can be found in the ICAO Doc 10039 (Manual on system wide information management (SWIM) concept).
- (d) Global communication networks and web services may be employed for the provision of aeronautical information products.



## **GM1 AIS.OR.400(c) Distribution services**

### **NOTAM**

Further information on the distribution of NOTAM by an aeronautical information services provider may be found in the 'EUROCONTROL Guidelines — Operating Procedures for AIS Dynamic Data (OPADD)', Edition 4.0, 17 April 2015.

## **GM1 AIS.OR.405(a) Pre-flight information services**

### **COMMUNICATION**

Pre-flight information may be provided as a verbal briefing or a self-briefing.

## **GM1 AIS.OR.405(b) Pre-flight information services**

### **OPERATIONAL SIGNIFICANCE**

- (a) Geographic coverage for pre-flight information services should be determined and periodically reviewed. In general, the coverage zone should be limited to the flight information region (FIR) within which the aerodrome/heliport is located, the FIR(s) adjacent thereto, and all air route or portion of route flown without an intermediate landing, originating at the aerodrome/heliport and extending beyond the FIR(s) mentioned.
- (b) The elements of the aeronautical information products may be limited to national publications and when practicable, those of immediately adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available with that library.
- (c) A recapitulation of valid NOTAM of operational significance and other information of urgent character can be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB).
- (d) Guidance on the preparation of pre-flight information services and PIB may be found in Chapter 8 of ICAO Doc 8126 (Aeronautical Information Services Manual) and in Chapter 7 of the 'EUROCONTROL Guidelines — Operating Procedures for AIS Dynamic Data (OPADD)', Edition 4.0, 17 April 2015.

## **Section 5 — Aeronautical information products updates**

## **GM1 AIS.OR.505(a) AIRAC**

### **STATIC DATA PROCEDURES (SDP)**

Further explanations with regard to the application of the AIRAC system can be found in the 'Procedure for the Assessment of Information for Notification by AIRAC' (SDP/8), developed by the European organisation for the safety of air navigation – EUROCONTROL, Edition 2.0, 17 July 2009. Additional details can be found in SDP/9, 10 & 13 for specific products.

## **GM2 AIS.OR.505(a) AIRAC**

### **SCOPE**

The AIRAC system should also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below:

- (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.

#### **AMC1 AIS.OR.505(b)(2) AIRAC**

AIRAC information, distributed as physical media, should be sent at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.

#### **GM1 AIS.OR.515 Data set updates**

##### **GENERAL**

- (a) When made available as a completely re-issued data set, the differences from the previously issued complete data set should be indicated.
- (b) When temporary changes of short duration are made available as digital data, they should use the same information model as the complete data set.

### **Section 6 — Personnel requirements**

#### **GM1 AIS.OR.600 General requirements**

##### **COMPETENCE**

‘Competence’ is understood as a situation where the personnel responsible for originating aeronautical data and aeronautical information possess the required level of knowledge, technical and behavioural skills and experience, and language proficiency when required, in order to be authorised to perform their duties.

##### **AUTHORISATION**

The authorisation of personnel is usually done by the AIS provider, but it might be done by another entity depending on the national arrangements for managing the competence and performance of AIS personnel.

### **SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL INFORMATION SERVICES (AIS.TR)**

#### **Section 2 — General requirements**

#### **GM1 AIS.TR.200(b) General**

##### **RESOLUTION**

- (a) The resolution of the data contained in the database may be the same or finer than the publication resolution.
- (b) Stating that resolution needs to be commensurate with the accuracy means that digital data needs to have sufficient resolution to maintain accuracy. Typically, if an accuracy of .1 units is needed, then a resolution of 0.01 or .001 units would enable a data chain to preserve the accuracy without issue. A finer resolution could be misleading as one could assume that it supports a finer accuracy. This factor range of 10 to 100 between accuracy and resolution is applicable regardless of the units of measurements used.

## **AMC1 AIS.TR.200(d) General**

### **RETENTION PERIOD**

Aeronautical data and associated metadata should be kept for a minimum period of 5 years beyond the validity period of the associated aeronautical information.

## **GM1 AIS.TR.200(g) General**

### **FORMAT REQUIREMENTS**

The format requirements should be specified in the formal arrangements.

## **AMC1 AIS.TR.210 Exchange of aeronautical data and aeronautical information**

### **EXCHANGE MODELS**

- (a) The exchange model used should encompass the aeronautical data and aeronautical information to be exchanged.
- (b) The exchange model used should:
  - (1) use the unified modelling language (UML) to describe the aeronautical information features and their properties, associations and data types;
  - (2) include data value constraints and data verification rules;
  - (3) include provisions for metadata; and
  - (4) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.
  - (5) apply a commonly used data encoding format;
  - (6) cover all the features, attributes, data types and associations of the aeronautical information model; and
  - (7) 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 standardisation.

## **GM1 AIS.TR.210 Exchange of aeronautical data and aeronautical information**

### **ENABLING EXCHANGE**

- (a) The intent of using a commonly used data encoding format, as referred to in AMC1 AIS.TR.210 above, is to ensure interoperability of aeronautical data exchange between agencies and organisations involved in the data processing chain.
- (b) Examples of commonly used data encoding formats include extensible markup language (XML), geography markup language (GML), and JavaScript object notation (JSON).

## **GM1 AIS.TR.220 Validation and verification processes**

### **GENERAL**

#### **(a) Validation**

Validation is the activity where a data element is checked as having a value that is fully applicable to the identity ascribed to the data element, or a set of data elements is checked as being acceptable for their intended use.

The application of validation techniques considers the entire aeronautical data chain. This includes the validation performed by prior data chain participants and any requirements levied on the data supplier.

Providing data integrity has been assured, there is no need to repeat earlier validations as a matter of course.

Examples of validation techniques include:

- (1) Validation by Application: one method of validation is to apply data under test conditions. In certain cases, this may not be practical. Validation by application is considered to be the most effective form of validation. For example, flight inspection of final approach segment data prior to publication can be used to ensure that the published data is acceptable.
- (2) Logical Consistency: validates by comparing two different data sets or elements and identifying inconsistencies between values based on operative rules (e.g. business rules).
- (3) Semantic Consistency: validates by comparing data to an expected value or range of values for the data characteristics.
- (4) Validation by Sampling: evaluates a representative sample of data and applies statistical analysis to determine the confidence in the data quality.

(b) Verification

Verification is a process for checking the integrity of a data element whereby the data element is compared to another source, either from a different process or from a different point in the same process. While verification cannot ensure that the data is correct, it can be effective to ensure the data has not been corrupted by the data process.

The application of verification techniques considers only the portion of the aeronautical data chain controlled by the organisation. Yet, verification techniques may be applied at multiple phases of the data processing chain.

Examples of verification techniques include:

- (1) Feedback testing is the comparison of a data set between its output and input state.
- (2) Independent Redundancy testing involves processing the same data through two or more independent processes and comparing the data output of each process.
- (3) Update Comparison: updated data can be compared to its previous version. This comparison can identify all data elements that have changed. The list of changed elements can then be compared to a similar list generated by the supplier. A problem can be detected if an element is identified as changed on one list and not on the other.

**AMC1 AIS.TR.220(a)(2) Verification and validation processes**

**DATA PROTECTION**

(a) The processes should define the means used to:

- (1) confirm that the data has been received without corruption;
- (2) ensure that stored data is protected from corruption; and
- (3) confirm that originated data has not been corrupted prior to being stored.

(b) The processes should define the:

- (1) actions to be taken when data fails a verification or validation check;
- (2) tools required for the verification and validation process;

- (3) methods used to verify received data;
- (4) methods by which data quality is preserved.

#### **AMC1 AIS.TR.225(a) Metadata**

##### **DATA ACTION**

The metadata collected should clearly identify the organisation or entity originating the data, as well as any organisation or entity introducing amendments the data.

#### **AMC1 AIS.TR.225(b) Metadata**

##### **DATA QUALITY REQUIREMENTS**

The metadata reflecting each action performed involving origination or manipulation of the data should reflect any potential impact to the compliance with the applicable data quality requirements.

#### **GM1 AIS.TR.225 Metadata**

##### **ISO**

Further explanation on the schema required for describing geographic information and services by means of metadata may be found in the International Organisation for Standardisation, ISO 19115 — Geographic information — Metadata, Part I.

#### **GM1 AIS.TR.240 Data limitations**

##### **ANNOTATION**

- (a) The objective of such an annotation is to notify the users of the AIS products including its aeronautical data that specific quality requirements are not met and may, therefore, compel limitations in the operational use of the relevant aeronautical data.
- (b) The following principles apply:
  - (1) the solution applies for both the eAIP and paper AIP;
  - (2) the use of the 'asterisk' is undesirable because it is already used for WGS-84 issues;
  - (3) the non-compliance covers all parts of the AIP, i.e. textual aeronautical data and charts.
  - (4) non-compliant aeronautical data items shall be individually and explicitly identified and the use of any general statement with the intention to cover a range of data items shall be avoided.
- (c) The AIP section GEN 1.7 is used to identify non-compliant aeronautical data items. A new sub-header should be introduced at the end of the current section named: "Data non-compliant with European Commission Regulation (EU) No 2017/373".
- (d) Within AIP GEN 1.7 the following two alternatives are proposed. The choice of which depends on national practicalities being either based on the amount of annotations to be published or individual existing operational or technical constraints.

- (1) Annotation Alternative 1:

Alternative 1 is recommended if the number of identified non-compliances covers no more than two AIP pages.

The relevant non-compliant data items shall be listed in a table, including as a minimum:

- specific data item;

- AIP section(s) concerned;
- reason for non-compliance;
- Notes/remarks.

Proposed table format:

Data Item	AIP section	Reason for non-compliance	Notes/remarks

(2) Annotation Alternative 2:

Alternative 2 is recommended if the number of non-compliances extends more than two AIP pages. It should then contain a general (global) statement to indicate: “Several data are not compliant with the given regulation – details can be found [choice] attached to the AIP AMDT or online via <link>. The link shall direct the user to a list on the website which must support following minimum requirements: the list must be accessible online.

Note: The indication of ‘available on request’ or similar, is clearly insufficient. The list must be kept up to date and fully synchronized (consistent) with the AIP update cycles, as relevant. This list should be in the form of a table as indicated under alternative 1 noting that it will be made available to users as an extra element outside the AIP.

### Section 3 — Aeronautical information products

#### GM1 AIS.TR.300(b) General — Aeronautical information products

##### TRANSLITERATION OF PLACE NAMES

The term ‘when necessary’ means ‘for interoperability purposes’ e.g. in aeronautical information products that are intended to be processed by automated systems (NOTAM, Data sets, etc.).

#### AMC1 AIS.TR.305(a) Aeronautical information publication (AIP)

##### ELECTRONIC FORM

The eAIP, eAIP amendments and eAIP supplements should be provided according to the ‘EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP)’, Edition 2.1, 6 October 2015.

#### GM1 AIS.TR.305(c) Aeronautical information publication (AIP)

##### LOCATION FORMAT

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 letters. Unless otherwise indicated, the list should be in alphabetical order.

## **AMC1 AIS.TR.305(a) Aeronautical information publication (AIP)**

### **ELECTRONIC AIP**

When provided, the eAIP should be available on a physical distribution medium, such as cd, dvd, etc. and/or online on the internet.

## **GM1 AIS.TR.305(a) Aeronautical information publication (AIP)**

### **PRINTED AIP**

- (a) A system of page numbering adaptable to the addition or deletion of sheets should be adopted. The page number should include:
  - (1) an identification of the part of the AIP;
  - (2) the section; and
  - (3) subsection, as applicable,
  - (4) 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).
- (b) 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).
- (c) When the AIP is provided in more than one volume, each volume should include:
  - (1) a preface;
  - (2) a record of AIP amendments;
  - (3) a record of AIP supplements;
  - (4) a checklist of AIP pages; and
  - (5) a list of current hand amendments.
- (d) When the AIP is published as one volume, the above-mentioned subsections should appear only in Part 1 — GEN and the annotation 'not applicable' should be entered against each of these subsections in Parts 2 and 3.
- (e) The AIP should be published in loose-leaf form unless the complete publication is reissued at frequent intervals.

## **GM1 AIS.TR.305(c) Aeronautical information publication (AIP)**

### **CHARTS, MAPS OR DIAGRAMS**

- (a) Charts, maps or diagrams should be used, when appropriate, to complement or as a substitute for the tabulations or text of the AIP.
- (b) Where appropriate, charts produced in conformity with AIS.OR.325 may be used to fulfil this requirement.

## **GM2 AIS.TR.305(c) Aeronautical information publication (AIP)**

### **AIP DATA SET**

When the AIP data set is provided, the following sections of the AIP may be left blank and a reference to the data set availability should be provided:

- (a) ENR 2.1 FIR, UIR, TMA;
- (b) ENR 3.1 Lower ATS routes;
- (c) ENR 3.2 Upper ATS routes;
- (d) ENR 3.3 Area navigation (RNAV) routes;
- (e) ENR 3.4 Helicopter routes;
- (f) ENR 3.5 Other routes;
- (g) ENR 3.6 En route holding;
- (h) ENR 4.1 Radio navigation aids — en route;
- (i) ENR 4.4 Name-code designators for significant points;
- (j) ENR 4.5 Aeronautical ground lights — en route;
- (k) ENR 5.1 Prohibited, restricted and danger areas;
- (l) ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ);
- (m) ENR 5.3.1 Other activities of a dangerous nature;
- (n) ENR 5.5 Aerial sporting and recreational activities;
- (o) AD 2.17 Air traffic services airspace
- (p) AD 2.19 Radio navigation and landing aids;
- (q) AD 3.16 Air traffic services airspace; and
- (r) AD 3.18 Radio navigation and landing aids.

### **GM3 AIS.TR.305(c) Aeronautical information publication (AIP)**

#### **OBSTACLE DATA SET**

When the obstacle data set is provided, the following sections of the AIP may be left blank and a reference to the data set availability should be provided:

- (a) ENR 5.4 Air navigation obstacles;
- (b) AD 2.10 Aerodrome obstacles; and
- (c) AD 3.10 Heliport obstacles.

### **AMC1 AIS.TR.310(g) AIP amendment**

#### **ANNOTATION OF THE AMENDMENT**

- (a) The annotation in the margin should be done by 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.
- (b) For aeronautical charts, the annotation should be made as a marginal note.

### **GM1 AIS.TR.310(h) AIP amendments**

#### **EFFECTIVE TIME**

When an effective time other than 0000 UTC is used, the effective time should also be indicated.



## **GM1 AIS.TR.315 AIP supplements**

### **ISSUE OF NOTAM**

When there is not sufficient time for the distribution of an AIP Supplement, a NOTAM may be issued.

## **AMC1 AIS.TR.320(a) AIC**

### **ELECTRONIC FORM**

When AIC are provided as part of the 'electronic AIP', they should comply with the 'EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP)', Edition 2.1, 6 October 2015.

## **GM1 AIS.TR.320(a) AIC**

### **PRINTED FORM**

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. For example:

- (a) white — administrative;
- (b) yellow — ATC;
- (c) pink — safety;
- (d) mauve — danger area map; and
- (e) green — maps/charts.

## **GM1 AIS.TR.320(c) AIC**

### **GENERAL**

- (a) AICs are not used to promulgate aeronautical data and aeronautical information that qualifies for inclusion in AIP (including amendments and supplements) or in NOTAM. Nevertheless, AICs can be used to provide detailed information and/or interpretation about data contained in those AI products.
- (b) Consequently:
  - (1) an AIC is not used to promulgate aeronautical data that are part of the data catalogue;
  - (2) the content of an AIC is not subject to the application of the data quality requirements;
- (c) AIC can be made available with the electronic AIP for distribution purpose, as long as it is understood that they remain separate aeronautical information products.

## **GM1 AIS.TR.320(d) AIC**

### **SNOW PLAN INFORMATION**

The seasonal AIC on the snow plan, may 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; and
- (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.

#### **AMC1 AIS.TR.330 NOTAM**

##### **USE OF OPADD**

The origination and issuing of NOTAM should be in accordance with the 'EUROCONTROL Guidelines — Operating Procedures for AIS Dynamic Data (OPADD)', Edition 4.0, 17 April 2015.

#### **GM1 AIS.TR.330(d) NOTAM**

##### **NOTAM CODE**

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

#### **GM1 AIS.TR.330(u) NOTAM**

##### **CHECKLIST**

The checklist NOTAM may include the checklist of SUP.

## **Chapter 2 — Digital data sets**

#### **GM1 AIS.TR.335(a) General— Digital data sets**

##### **ISO**

The ISO 19100 series of standards for geographic information may be used as a reference framework.

#### **GM1 AIS.TR.335(b) General — Digital data sets**

##### **DATA PRODUCT SPECIFICATION**

- (a) ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information. This is intended to facilitate and support the use and exchange of digital data sets between data providers and data users.
- (b) The data product specification enables air navigation users to evaluate the products and determine whether they fulfil the requirements for their intended use (application).
- (c) This may include an overview, specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information, and metadata.

#### **GM1 AIS.TR.345(a) AIP data set**

##### **CONTENT**

The AIP data set includes the relevant AIP amendment and SUP information.

## **GM1 AIS.TR.345(b) AIP data set**

### **PROPERTY**

There may also be other reasons why a property is not provided, e.g. missing, unknown, withheld, etc.

## **GM1 AIS.TR.350(d) Terrain and Obstacle data — general requirements**

### **AREA 4**

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

## **GM1 AIS.TR.355(e) Terrain data set**

### **ATTRIBUTES**

The following additional terrain feature attributes may be recorded in the terrain data set:

- (a) Surface type;
- (b) Penetration level;
- (c) Known variations.

## **GM1 AIS.TR.360(b) Obstacle data set**

### **ATTRIBUTES**

The following additional obstacle feature attributes may be recorded in the terrain data set:

- (a) Height;
- (b) Operations;
- (c) Effectiveness.

## **GM1 AIS.TR.365 Aerodrome mapping data sets**

### **ADDITIONAL GUIDANCE**

Further information concerning minimum requirements and reference material applicable to the content, origination, publication, and updating of aerodrome mapping information may be found in EUROCAE Documents ED-99D 'User requirement for aerodrome mapping information', October 2015, and ED-119C 'Interchange standards for terrain, obstacle and aerodrome mapping data', October 2015.

## **GM1 AIS.TR.365(a) Aerodrome mapping data sets**

### **AERODROME FEATURES**

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

## **GM2 AIS.TR.365(a) Aerodrome mapping data sets**

### **ADDITIONAL DATA**

Aerodrome mapping data may be supported by electronic terrain and obstacle data for Area 3 in order to ensure consistency and quality of all geographical data related to the aerodrome.

### **GM3 AIS.TR.365(a) Aerodrome mapping data sets**

#### **COMMON ACQUISITION TECHNIQUES**

Electronic terrain and obstacle data pertaining to Area 3 and aerodrome mapping data may be originated using common acquisition techniques and managed within a single geographic information system (GIS).

### **GM1 AIS.TR.365(b) Aerodrome mapping data sets**

#### **ISO**

ISO Standard 19100 series on geographic information can be used as a reference framework.

### **GM1 AIS.TR.365(c) Aerodrome mapping data sets**

#### **ISO**

ISO Standard 19131 contains standards for data product specification.

### **GM1 AIS.TR.365(d) Aerodrome mapping data sets**

#### **ISO**

ISO Standard 19109 contains standards for application schemas, while ISO Standard 19110 describes the feature cataloguing methodology for geographic information.

### **GM1 AIS.TR.370 Instrument Flight Procedure data set**

#### **ICAO REFERENCE**

Guidance on the Instrument Flight Procedure data set can be found in PANS-OPS, ICAO Doc 8168, Volume II, 6<sup>th</sup> edition of 2014 – Part III, Section 2, Chapter 5.

## **Section 4 — Distribution and pre-flight information services**

### **GM1 AIS.TR.400(a) Distribution services**

#### **NOTAM**

- (a) The predetermined distribution system provides for incoming NOTAM (including SNOWTAM and ASHTAM) to be channelled through the AFS direct to designated addressees predetermined by the receiving country concerned while concurrently being routed to the international NOTAM office for checking and control purposes.
- (b) The addressee indicators for those designated addressees are constituted as follows:
  - (1) First and second letters:

The first two letters of the location indicator for the AFS communication centre associated with the relevant international NOTAM office of the receiving country.
  - (2) Third and fourth letters:

The letters 'ZZ' indicating a requirement for special distribution.
  - (3) Fifth letter:

The fifth letter differentiating between NOTAM (letter 'N'), SNOWTAM (letter 'S'), and ASHTAM (letter 'V').
  - (4) Sixth and seventh letters:

The sixth and seventh letters, each taken from the series A to Z, denoting the national and/or international distribution list(s) to be used by the receiving AFS centre.

The fifth, sixth and seventh letters replace the three-letter designator YNY which, in the normal distribution system, denotes an international NOTAM office.

(5) Eighth letter:

The eighth position letter shall be the filler letter 'X' to complete the eight-letter addressee indicator.

- (c) States are to inform the States from which they receive NOTAM of the sixth and seventh letters to be used under different circumstances to ensure proper routing.

**GM2 AIS.TR.400(c) Distribution services**

**COMMUNICATION PROCEDURES**

The relevant ICAO communication procedures are those referred to in Annex 10 Volume II ICAO communication procedures.

**GM1 AIS.TR.405(a) Pre-flight information services**

**AUTOMATION**

- (a) Automated pre-flight information systems providing a harmonised, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical information and meteorological information should be established by an agreement between the AIS provider and the meteorological services provider.
- (b) Where automated pre-flight information systems are used to provide the harmonised, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical data, aeronautical information and meteorological information, the AIS provider remains responsible for the quality and timeliness of the aeronautical data and aeronautical information provided by means of such a system.
- (c) The meteorological services provider concerned remains responsible for the quality of the meteorological information provided by means of such a system in accordance with Annex V - Part-MET.

**GM1 AIS.TR.405(e) Pre-flight information services**

**NOTAM**

Although miscellaneous NOTAM is regarded not subject for a briefing but available on request, all NOTAM are to be provided for briefing by default and content reduction should be at user's discretion.

**Section 5 — Aeronautical information products updates GM1 AIS.TR.500 AIRAC**

Obstacle data sets are not included on the AIRAC requirements because the obstacle life cycle is not following AIRAC.

**AMC1 AIS.TR.505(b) AIRAC**

**MAJOR CHANGES**

Whenever major changes are planned and where advance notice is desirable and possible, information should be distributed and/or made available by the AIS provider, whenever practicable, so as to reach recipients at

least 56 days in advance of the AIRAC effective date. This should apply to the establishment of, and premeditated major changes in the circumstances listed below, as well as to other major changes if deemed necessary:

- (a) New aerodromes for international IFR operations;
- (b) New runways for IFR operations at international aerodromes;
- (c) Design and structure of the ATS 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 AIS.TR.505(a) if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

**GM1 AIS.TR.505(c) AIRAC**

NIL

A synonym of 'NIL' (notification) may be 'non-existent'. This means that when a NIL notification is mentioned in a NOTAM, it should be considered as containing no information.

**GM1 AIS.TR.510(a) NOTAM updates**

ADVANCE NOTICE

- (a) Whenever possible, at least 24 hours' advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilisation planning.
- (b) At least seven days' advance notice should be given of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations.
- (c) 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.