AIM RBIS Project – Workshop on Go-team methodology

Review of AIM provisions

Fanfe Bamba

Regional Officer – Aeronautical Information Management
Western & Central African Office

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Outline

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- Scope of aeronautical data and information

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- Terrain data sets

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General

Object of Aeronautical information service (AIS)

- Ensure the **flow** of aeronautical **data** and **information necessary** for the **safety**, **regularity**, **economy** and **efficiency** of the **global ATM system** in an **environmentally sustainable** manner.

- Role of aeronautical data/information becomes **more important** with the implementation **RNAV**, **PBN**, **PBC**, **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.

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Responsibilities and functions

State responsibilities (Annex 15, §2.1)

- Each Contracting State shall **provide** an **AIS** or **agree** with **other State(s)** to **provide** it, or **delegate** … its provision … to an agency.

- State shall **ensure** that the **provision** of aeronautical data and aeronautical information **covers** **its own territory** and those **areas** over the **high seas** for which it is **responsible** for the **provision of ATS**.

- State shall remain **responsible** for the aeronautical **data** and aeronautical **information** **provided on its behalf**, **ensure** **required quality** is met and **formal arrangements** are made between data originators and AIS.

Responsibilities and functions

AIS responsibilities and functions (Annex 15, §2.2)

- 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 ATM community.

- An AIS shall **receive**, **collate** or **assemble**, **edit**, **format**, **publish**/**store** and **distribute** aeronautical data and aeronautical information …

- Aeronautical data and aeronautical information shall be **provided** as aeronautical information **products**.

Scope of aeronautical data and information

Definition of the scope (Annex 15, §4.1)

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

    - national regulations, rules and procedures;

    - aerodromes and heliports;

    - airspace;

    - air traffic services (ATS) routes;

    - instrument flight procedures;

Scope of aeronautical data and information

Definition of the scope (Annex 15, §4.1)

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

  – radio navigation aids/systems;

  – obstacles;

  – terrain; and

  – geographic information.

- **Appendix 1** to **PANS-AIM** provides Detailed **specifications** concerning the **content** of each sub-domain.

Quality management system – Ref Annex 15

- **§3.6.1 -** Quality management systems **shall** be **implemented** and **maintained** encompassing **all functions** of an AIS… The **execution** of such quality management systems shall be **made demonstrable** for each function stage.

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

- *§3.6.3 -* The QMS … should **follow** the **ISO 9000 series** of **quality assurance standards** and be **certified** by an accredited certification body.

Quality management system – Ref Annex 15

- **§3.6.5 -** Each QMS **shall** include the necessary **policies**, **processes** and **procedures** … to ensure and **verify** that aeronautical data is **traceable throughout** the aeronautical information data chain … to allow any data anomalies or errors detected in use to be **identified by root cause**, **corrected** and **communicated** to affected users.

- **§3.6.7 -** All necessary measures **shall** be taken to **monitor compliance** with the quality management system in place.

- **§3.6.7 - Demonstration** of compliance of the QMS **shall** be **by audit**. If nonconformity is identified, … action to correct its cause shall be determined and taken without undue delay.

Aeronautical information exchange model

Use of automation (*Annex 15 §3.5*)

- **§3.5.1 - Automation shall** be applied in order to ensure the **quality**, **efficiency** and **cost-effectiveness** of aeronautical information services.

- **§3.5.3 -** In order to meet the data quality requirements, **automation shall**:

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

b) **use aeronautical information exchange models** and d**ata exchange models** designed to be **globally interoperable**.

Aeronautical information exchange model

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Aeronautical information exchange model

Digital data sets (*Annex 15 §5.3*)

- **§5.3.1.1 - Digital data shall** be in the form of the following data sets:

a) **AIP** data set;

b) **terrain** data sets;

c) **obstacle** data sets;

d) **aerodrome mapping** data sets; and

e) **instrument flight procedure** data sets.

Aeronautical information exchange model

information model & data exchange model (*PANS-AIM §5.3.1*)

- **§5.3.1.5 -** The aeronautical **information model** used should .. Use **UML** …include data **value constraints** and data **verification rules** … include provisions for **metadata** … include a **temporality** model.

- **§5.3.1.6** The aeronautical **data exchange model** used should … apply a **commonly** used data **encoding format** (XML, GML, JSON) … cover all the **classes**, **attributes**, data **types** and **associations** of aeronautical information model.

Terrain data sets

Terrain data sets (*Annex 15 §5.3.3.3*)

- **Terrain data** sets **shall** contain the **digital representation** of the terrain surface in the form of **continuous elevation values** at all intersections (points) of a defined grid, referenced to common datum … **shall** be provided for **Area 1**.

- For aerodromes used by international civil aviation, terrain data **shall** be provided for a) **Area 2a** … b) the **take-off flight path area** … and c) an **area** bounded by the **lateral extent** of the aerodrome **obstacle limitation surfaces**.

*Ref: 10066 App. 1, 6, 8 for **Numerical** requirements, **attributes**, data **collection surfaces***

Obstacle data sets

Obstacle data sets (*Annex 15 §5.3.3.4*)

- **Obstacle data** sets **shall** contain the **digital representation** of the **vertical** and **horizontal extent** of obstacles … **shall not** be included in **terrain data sets**.

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

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

*Ref: 10066 App. 1, 6, 8 for **Numerical** requirements, **attributes**, data **collection surfaces***