



*International Civil Aviation Organization*

**MIDANPIRG/18 and RASG-MID/8 Virtual Meeting**

*(15-22 February 2021)*

**Agenda Item 5:** MIDANPIRG Work Programme (MIDANPIRG/18)  
5.2.6 Specific Air Navigation issues: AIM

**UAE AIP DIGITAL DATASET ACTIVITIES**

*(Presented by United Arab Emirates)*

**SUMMARY**

This paper outlines UAE AIM activities for implementing AIP Datasets to comply with the new requirements specified in Annex 15 and Doc 10066 PANS-AIM.

**REFERENCES**

- ICAO Annex 15 “*Aeronautical Information Services*” (16<sup>th</sup> edition) Amendment 40
- 1<sup>st</sup> edition of Doc. 10066 “*Procedures for Air Navigation Services – Aeronautical Information Management*” (PANS-AIM)

**1. INTRODUCTION**

1.1 From the perspective of transposing Annex 15/PANS-AIM requirements, the most demanding activity for a State AIS is the operational implementation of the digital datasets. The challenge resides with different factors, namely institutional, financial and technical issues.

1.2 This paper outlines UAE AIM high-level plan with the main activities to set up the stage for the operational and technical implementation of ICAO Digital Datasets as part of the strategic GCAA plan for enhancing AIM system capabilities.

1.3 Enhancing AIM system capabilities are improvement stages and the natural result of UAE AIM continuous services development process. These have created a solid platform of functionalities allowing better, quality-controlled and standardized interaction with other internal and external (third party) stakeholder systems.

1.4 The main driver for Phased approach employed by the UAE and described in this paper, is the regulatory compliance and alignment of UAE AIM with ICAO SARPs (Annex 15 and PANS-AIM) as well as with the revised MID Region AIM Implementation Roadmap.

## 2. DISCUSSION

2.1 To a large extent, ICAO Digital Datasets are Recommended Practices (“should”) i.e. their implementation is left at the discretion of the Member States.

2.2 By analyzing the DAIM Thread<sup>i</sup> based on the Priority level as well as considering the ICAO datasets “*shall*” vs. “*should*” requirements, subsequent consideration for UAE AIM strategic approach was deemed necessary as follows:

- UAE AIP Datasets (Block B1/2);
- Terrain Area 1 & 4 and complete Area 2 (Block B1/3);
- Obstacles Area 1 & 4 and complete Area 2 (Block B1/4);

2.2.1 According to the draft MID region DAIM Thread Block prioritization, AIP Dataset is categorized as Priority 2. However, UAE AIM decided to proceed with implementation activities for UAE AIP dataset by considering a strong pilot-case due to (1) existing AIM SWIM interfaces and (2) availability of UAE AIP aeronautical data in AIXM format.

2.2.2 UAE GCAA issued a regulation that the UAE Airports are responsible for collecting/provision of entire Area 2 i.e. sub-area 2a, 2b, 2c and 2d (with Area 1 requirements). This national requirement extends the UAE ANSPs and Airport Authorities accountability for TOD Area 2 data provision beyond the minimum dataset required by ICAO.

2.3 The remaining Digital Datasets i.e. AMDB (B1/5), IFPD (B1/6) as well as NOTAM Improvements (B1/7) would be considered for a later stage.

2.4 Specifically, the UAE AIP datasets is envisaged for implementation in two (2) phases:

- (1) Set the stage phase (one year) – including detailed Implementation Plan, Operational and Technical Specifications, adapting data capture process for temporary information (AIP SUPPs), SWIM Service definition, mapping AIP to PANS-AIM, test sample file and full file testing;
- (2) Operational phase (SWIM Service) - including a Transition Period i.e. co-existence of AIP paper/electronic format together with digital files.

2.5 Decision Matrix (High level Plan) for Datasets Provisions:

UAE AIP Dataset Plan			
Section	Elements	Tech Specs/ Implementation Plan	Description
<b>How</b>	Implementation Scenarios	Implementation Plan	<ul style="list-style-type: none"> <li>✓ In-house/stand-alone application;</li> <li>✓ Prepare the Dataset as data mart (new AIM product);</li> <li>✓ Query AIM system (SWIM interface);</li> <li>✓ Expose as SWIM service;</li> </ul>
	Content	UAE AIP Dataset Technical Specification	<ul style="list-style-type: none"> <li>✓ Resolve PANS-AIM inconsistencies i.e. filling the gaps;</li> <li>✓ Mapping PANS-AIM to AIXM 5.1.1 database;</li> <li>✓ Separate Technical Specs for mapping, metadata and database AIXM 5.1.1 Business Rules;</li> <li>✓ “Upgrade/Enlarging” content list in two-way manner;</li> <li>✓ Over minimum list of properties/sub-properties based on Aeronautical Data Catalogue;</li> <li>✓ Content adapted to specific UAE AIP content;</li> <li>✓ Every data integrity class added in AIM Database;</li> <li>✓ Consistency assured between AIP dataset file vs. #AIP-DS#;</li> </ul>
	Completeness	UAE AIP Dataset Technical Specification	Full UAE AIP dataset, not sub-set or data grouping; AIP SUPPs are encoded in AIM Database (TempDelta);
	Delivery mechanism (SWIM)	UAE AIP Dataset Technical Specification	<ul style="list-style-type: none"> <li>✓ <b>Request/reply</b> for accessing UAE AIP Dataset as complete “information package”;</li> <li>✓ <b>Pub/Sub</b> pattern for regularly notification of consumers;</li> <li>✓ Advanced SWIM interface capability i.e. <b>query/retrieve</b> at feature level (at later stage).</li> <li>✓ Initially, AIP Dataset will be posted parallel as SWIM service + GCAA extranet website;</li> <li>✓ Service Overview;</li> <li>✓ Service Registry;</li> </ul>
<b>When</b>	<b>Datasets</b>	<b>Timeframe</b>	<b>Description</b>
	UAE AIP	2021	Set the stage for implementation
	Digital Data	2022	Expected Implementation (in operations)

**Transition Plan**

Section	Elements	Timeframe	Description
Transition	Time	2022 - 2024	<ul style="list-style-type: none"> <li>✓ Transition period for provision of eAIP <u>in parallel</u> with AIP Datasets;</li> <li>✓ The AIP content removal done in close coordination with the users;</li> <li>✓ Co-existing time of EAIP format with Datasets files will be decided based on an assessment (national survey &amp; questionnaire);</li> <li>✓ Envisaged transition period estimated to be min. 1½ - 2 years.</li> </ul>
Publication	AIC	TBD	<ul style="list-style-type: none"> <li>✓ UAE AIM alignment with ICAO SARPS;</li> <li>✓ Duration of the “grace period” (AIP Datasets &amp; UAE AIP);</li> </ul>
	GEN 3.1.6 Notification	TBD	<ul style="list-style-type: none"> <li>✓ Brief description in UAE AIP following PANS-AIM, Appendix 2;</li> </ul>

**Regulatory Approval**

Documents	Deadline	Actions
UAE AIP Dataset Plan	Q4/2021	Final version of listed documents will be shared with the UAE Regulator for endorsement.
UAE AIP Tech Specifications	Q4/2021	

### 3. ACTION BY THE MEETING

#### 3.1 The meeting is invited to:

Note and consider UAE AIP Datasets Implementation Activities while preparing their own plans.

Key Areas	Strategic Achievements
<b>Technical</b>	In-house developed tool, no dependency on supplier;
	All-inclusive mapping PANS-AIM to UAE AIP;
	Resolving gaps/inconsistencies in PANS-AIM i.e. AIP sections versus minimum data subjects;
	Source additional properties/sub-properties: ADC;
	Content: Relevant AIP Amendment + AIP SUPP (dataset series);
	Full AIP dataset i.e. No subsets or data grouping;
	Metadata at dataset level;
<b>Inter-operability</b>	AIXM 5.1.1 interchange model;
	Timeslice: Baseline, PermDelta and Dataset Series (long duration AIP SUPP);
	SWIM Service: Overview and Registry;
	SWIM Interface: Query/Reply and Pub/Sub, consumer notification
<b>ICAO SARPS Compliance</b>	Above and beyond ICAO SARPS compliancy;
	Attempt to be ahead of Global and Regional implementation date;
<b>Financial</b>	No direct costs;
	Indirect savings for investment on external project;
	Technical solution may be “exported” (regional)
<b>Strategic</b>	Placing UAE GCAA as implementation “promoter” in MID Region;
	Having the “solution”: SARPS implementation i.e. “what” versus lack of “how”
	AIP Dataset “Proof of concept” pioneered by UAE;

- END -

<sup>i</sup> AIM SG/7- REPORT -- DRAFT MID REGION DAIM THREAD BLOCK 1 PRIORITIZATION – Appendix 4A