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ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 31: Aviation Safety and Air Navigation Standardization

UAE AIP DATASET IMPLEMENTATION PLAN

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY	
This paper outlines UAE Aeronautical Information Publication (AIP) Dataset implementation plan to comply with the new requirements specified in Annex 15 and Doc 10066 PANS-AIM.	
<i>Strategic Objectives:</i>	This information paper relates to the implementation of the AIP Dataset to support the transition from aeronautical information service (AIS) to aeronautical information management (AIM) in line with MID Regional AIM implementation roadmap.
<i>Financial implications:</i>	N/A
<i>References:</i>	ICAO Annex 15 — <i>Aeronautical Information Services</i> , (16 th edition) Amendment 42 Doc 10066, <i>Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM)</i> Amendment 2 Doc 9750, <i>Global Air Navigation Plan</i> , 6 th Edition MID Doc. 002 MID Region Air Navigation Strategy MID Doc. 008 Guidance For AIM Planning and Implementation in the MID Region

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 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:

- a) UAE AIP datasets (Block B1/2);
- b) Terrain area 1 & 4 and complete Area 2 (Block B1/3); and
- c) 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 the required 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 (2d with Area 1 requirements). This national requirement extends the UAE ANSPs and Airport Authorities accountability for TOD Area 2 data provision.

2.3 The remaining digital datasets i.e. AMDB (B1/5), IFPD (B1/6), in addition NOTAM Improvements (B1/7) would be considered for a later stage.

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

- a) 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; and
- b) operational phase (SWIM Service) - including a Transition Period i.e. co-existence of full AIP in 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
How	Implementation Scenarios	Implementation Plan	<ul style="list-style-type: none"> • In-house/stand-alone application; • Prepare the Dataset as data mart (new AIM product); • Query AIM system (SWIM interface); • Expose as SWIM service;
	Content	UAE AIP Dataset Technical Specification	<ul style="list-style-type: none"> • Resolve PANS-AIM inconsistencies i.e. filling the gaps; • Mapping PANS-AIM to AIXM 5.1.1 database; • Separate Technical Specs for mapping, metadata and database AIXM 5.1.1 Business Rules; • “Upgrade/Enlarging” content list in two-way manner; • Over minimum list of properties/sub-properties based on Aeronautical Data Catalogue; • Adapted to specific UAE AIP content; • Every data integrity class added in AIM Database; • Consistency assured between AIP dataset file vs. #AIP-DS#;
	Completeness	UAE AIP Dataset Technical Specification	<ul style="list-style-type: none"> • Full UAE AIP dataset, not sub-set or data grouping; • Specific AIP SUPPs are encoded in AIM Database (TempDelta);
	Delivery	UAE AIP Dataset	<ul style="list-style-type: none"> • Request/reply for accessing UAE AIP

	mechanism (SWIM)	Technical Specification	Dataset as complete “information package”; <ul style="list-style-type: none"> • Pub/Sub pattern for regularly notification of consumers; • Advanced SWIM interface capability i.e. query/retrieve at feature level (at later stage). • Initially, AIP Dataset will be posted parallel as SWIM service and GCAA website; • Service Overview; • Service Registry;
When	Datasets	Timeframe	Description
	UAE AIP Digital Data	Q4-2021	Set the stage for implementation
		Q4-2022	Expected Implementation (in operations)
Current Progress	Activity	Status	Date
	Implementation Plan	Completed	Q1-2021
	UAE AIP Dataset Technical Specification	Completed	Q2-2021
	AIP Dataset Sample	Completed	Q4-2021

Transition Plan

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

3. **IMPLEMENTATION CHALLENGES (DEEP-DIVE)**

3.1 Cross-border data: FIR BDRY significant points, FIR geographical borders, common route segments (data) consistency.

3.1.1 Possible solution: Coordination (SLA) required to decide who is the authoritative source for what data and how to transpose into digital data.

3.2 User impacts:

- a) data provision in different formats (AIXM, ARINC 424, csv);
- b) handling of cross-border data received from various sources e.g. authoritative source, referential integrity, etc.; and
- c) “mixed mode” processes e.g. significant points (ENR 4.4) digital dataset and ENR 3.x from (e) AIP, digital data sets vs. charts, etc.

3.2.1 Possible solution: Regional initiative in harmonizing data exchange formats (AIXM 5.1);

3.3 Data set provision:

- a) data set or data sets? i.e. one file, separate files (by data type), logical groups, mapping AIP sections (GEN 2.5, ENR 2.1, ENR 4.4, AD 2.19, etc.).

3.3.1 Possible solution: Based on ICAO guidance, specify and implement the decision into the national AIM processes.

4. **ACTION BY THE MEETING**

4.1 Note and consider UAE experience.

4.2 ICAO to consider a mechanism to identify the authority responsible for encoding cross border common route segment, FIR boundary, designated point data to resolve any inconsistency.

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