INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE ELEVENTH MEETING OF THE AIM SUB-GROUP

AIM SG/11 Meeting

(Amman, Jordan, 22 – 23 January 2025)

The views expressed in this Report should be taken as those of the MIDANPIRG AIM Sub-Group and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be published in due course as a Supplement to the Report

Approved by the Meeting
and published by authority of the Secretary General

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PART I - HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Eleventh Meeting of the MIDANPIRG AIM Sub-Group (AIM SG/11) was graciously hosted by IATA AME and CARC Jordan in Amman, Jordan from 22 to 23 January 2025.

2. OPENING

2.1 The meeting was opened by Mr. Abdalla Al Rashidi, Director of AIM at GCAA, United Arab Emirates, who welcomed the participants and wished them a successful and productive sessions.

2.2 Mr. Radhouan Aissaoui, Regional Officer for Information Management at the ICAO Middle East Office, welcomed all attendees to the AIM SG/11 meeting. He expressed his appreciation for their participation and wished them a successful and fruitful discussion.

3. ATTENDANCE

3.1 The meeting was attended by a total of forty-one (41) participants from seven (7) States (Egypt, Iraq, Jordan, Libya, Oman, Saudi Arabia and UAE) and three (3) Organizations/Industries (ADL, IATA, NGL). The list of participants is at **Attachment A.**

4. OFFICERS AND SECRETARIAT

4.1 The AIM SG/11 meeting was chaired by Mr. Abdalla Al Rashidi, Director AIM, GCAA, UAE. Mr. Radhouan Aissaoui, Regional Officer, Information Management was the Secretary of the meeting.

5. LANGUAGE

5.1 The discussions were conducted in English. Documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda

Agenda Item 2: Follow-up on MIDANPIRG/21 Conclusions and Decisions relevant to AIM

Agenda Item 3: Global/Regional developments related to AIM and SWIM

Agenda Item 4: AIM Planning and Implementation in the MID Region

Agenda Item 5: Review of Air Navigation Deficiencies in the AIM Field

Agenda Item 6: Future Work Programme

Agenda Item 7: Any other Business

7. CONCLUSIONS AND DECISIONS – DEFINITION

7.1 The MIDANPIRG records its actions in the form of Conclusions and Decisions with the following significance:

a) **Conclusions** deal with matters that, according to the Group's terms of reference, merit directly the attention of States, or on which further action will be initiated by the Secretary in accordance with established procedures; and

b) **Decisions** relate solely to matters dealing with the internal working arrangements of the Group and its Sub-Groups

8. LIST OF CONCLUSIONS AND DECISIONS

DRAFT CONCLUSION 11/1: PUBLICATION OF THE PCR IN STATES AIPS

DRAFT CONCLUSION 11/2: PUBLICATION OF GNSS-RELATED INFORMATION IN STATES' AIPS

DRAFT CONCLUSION 11/3: AIM-ING FOR EXCELLENCE WORKSHOP

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

1.1 The subject was addressed in WP/1 presented by the Secretariat. The meeting reviewed and adopted the Agenda as at Para.6 of the History of the Meeting.

REPORT ON AGENDA ITEM 2: FOLLOW-UP ON MIDANPIRG/21 CONCLUSIONS AND DECISIONS RELEVANT TO AIM

2.1 The subject was addressed in WP/2 presented by the Secretariat. The meeting noted the status of the MIDANPIRG/21 Conclusions and Decisions relevant to AIM and the follow-up actions taken by concerned parties as at **Appendix 2A**.

REPORT ON AGENDA ITEM 3: GLOBAL/REGIONAL DEVELOPMENTS RELATED TO AIM AND SWIM

3.1 The subject was addressed in PPT/3 presented by the Secretariat.

Outcomes of the 3rd meeting of the Information Management Panel (IMP/3)

3.2 The meeting noted the outcomes of the third meeting of the Information Management Panel (IMP/3), which was held in Montreal, 30 September to 4 October 2024. The meeting was apprised of the deliverables of the IMP/3, including the updates to Annex 15 and PANS-AIM regarding Trigger NOTAM validity period and other minor maintenance and consistency amendments, updates to the Doc 8697 Aeronautical Chart Manual in alignment with ADOP work on replacement of PCN by PCR and to the Doc 9991 Aeronautical Information Management Competency-Based Training and Assessment.

3.3 The meeting noted also that the first edition (2024) of ICAO Doc 10203 Manual on System-wide Information Management (SWIM) and the first edition (2024) of ICAO Doc 10199 PANS-IM are available on ICAO-NET portal.

3.4 The meeting was apprised of the amendment 1 to the Aeronautical Information Services Manual (Doc 8126), 7th edition, effective as of 30 July 2024, which includes changes to publication of PCR in AIP Specimen in AD 2.8 and AD 2.12. This amendment consists of 50 pages and introduces new specifications for AIP Amendments, AIP Supplements, and Aeronautical Information Circulars, as well as some changes in the origination and use of trigger NOTAMs. It also includes updates to Appendix A (Explanatory Notes on the Specimen Aeronautical Information Publication) and Appendix F (Use of NOTAM Code and Abbreviations).

Outcomes of the 14thAir Navigation Conference (ANConf/14) related to AIM

3.5 The meeting noted that the Fourteenth Air Navigation Conference (AN-Conf/14) was held during 26 August –6 September 2024, in the Assembly Hall of the Headquarters of the International Civil Aviation Organization (ICAO) in Montréal, Canada.

3.6 The meeting noted also that AN-Conf/14 made 22 Recommendations (104 actions) on matters related to its approved agenda. Most of the Recommendations consist of two parts; calls for action addressed directly to States, with some also addressed to international organizations; and calls for action by ICAO. The meeting was apprised of the outcomes of the AN-Conf/14, particularly:

- Recommendation 3.1/3 – Enabling successful deployment of trajectory-based operations
- Recommendation 3.1/6 – Addressing the safe integration of space transport operations into the airspace system
- Recommendation 3.2/2 – Transition to flight and flow – information for a collaborative environment services and cessation of ICAO 2012 flight plan by 2034
- Recommendation 4.2/1 – Aviation cybersecurity

Moving from a Magnetic to a True North Reference System for Heading and Tracking in Aviation Operations

3.7 The meeting was provided with a brief overview of the ICAO survey results on moving from a Magnetic to a True North Reference System for Heading and Tracking in Aviation Operations.

3.8 The meeting noted that if True North reference for aircraft heading is implemented, it would mean the discontinuation of the existing practice of converting aeronautical data from its original

format in true reference into magnetic reference. It would simplify charting and aircraft operations, improve operational safety, and may result in considerable cost savings for air operators, air navigation service providers (ANSPs), aerodromes, avionics manufacturers, and flight procedure designers.

3.9 The meeting was provided with a brief overview of the ICAO survey results regarding the transition from a Magnetic to a True North reference system for heading and tracking in aviation operations. It was noted that ICAO has circulated a survey, through State Letter AN 11/57-22/87, to seek feedback from States and their aviation industry on the level of support for ICAO to commence work on changing from a Magnetic to True North reference for heading and track in air operations. The aim of the survey is also to identify any concerns or challenges that may need to be addressed during any transition to True North. The findings from the survey will assist ICAO in determining the viability of moving to True North and may be used to guide ICAO in developing plans and strategies for a future transition.

3.10 The meeting invited States to:

- acknowledge the transition from magnetic north to true north is an upcoming ICAO-mandated change with significant operational, technical, and regulatory implications;
- begin assessing and addressing the impact of this transition on air navigation, airport operations, and associated systems in order to establish their national plans; and
- actively engage with the ICAO MID to share experiences, best practices, and challenges associated with the change.

3.11 It was highlighted that several significant challenges that States need to overcome for a transition to True North to be viable, including:

- managing the one-time implementation cost vs. the ongoing costs over time of managing MAGVAR;
- lack of concept of operations (CONOPS) and Transition Plan unless provided by ICAO;
- potential unmanaged safety risks introduced during the transition to True North.

3.12 The meeting noted that the Fourteenth Air Navigation Conference (AN-Conf/14) report has been published as ICAO Doc 10209, AN-Conf/14. The document is available and can be accessed on the ICAO Secure Portal at https://portallogin.icao.int/ . The meeting encouraged States to review it for reference and updates related to air navigation developments.

3.13 The meeting invited States to follow-up and keep abreast of the Global activities related to AIM and SWIM.

REPORT ON AGENDA ITEM 4: AIM PLANNING AND IMPLEMENTATION IN THE MID REGION

MID Region AIM Implementation Roadmap

4.1 The subject was addressed in WP/4 presented by the Secretariat.

4.2 The meeting recalled that the MIDANPIRG/18 endorsed the MID Region AIM Implementation Roadmap through Conclusion 18/19 and considering the major changes of the MID Region AIM Implementation Roadmap, urged States to provide the ICAO MID Office with their updated National AIM Implementation Roadmap, using a standard Template. In addition, the meeting recalled that in line with the AIM SG responsibilities towards MIDANPIRG, the AIM SG meeting should review and provide continuous updates (as appropriate) of the Regional AIM Roadmap.

4.3 The meeting noted that all MID States provided their National AIM Implementation Roadmap except Syria and Yemen. The meeting urged those States to submit their National AIM Implementation Roadmap without delay and requested the Secretariat to assist Syria and Yemen to develop their National AIM Implementation Roadmaps.

4.4 The meeting noted with appreciation that Saudi Arabia provided its 2025 AIM Implementation Roadmap.

4.5 The meeting recalled that the Roadmap for the Transition from AIS to AIM was developed in 2009, when yet the AIM Concept was not fully defined. Consequently the existing Roadmap falls short in guiding stakeholders towards a full AIM; it rather directs States and Industry towards a “digitalized AIS”. Conversely transitioning to AIM is more than digitalization; it is a complete change of processes, procedures, products and services to better satisfy the need of the information consumers.

4.6 It was noted that since 2009 there have been many developments in ICAO that will assist in conducting an effective revision of the Roadmap, including the last Edition of the Global Air Navigation Plan (GANP), the 16th edition of Annex 15 and the new PANS-AIM Doc10066.

4.7 The meeting recalled that the MID Region AIM Implementation Roadmap, initially developed based on the 2009 global Roadmap, has served as a valuable guide for advancing AIM implementation across the region. However, with the significant advancements in aviation technology and evolving priorities outlined in the latest edition of the GANP, it is essential to amend and update the Roadmap, aligning it with the latest GANP ensures consistency with global objectives, integrates emerging technologies, and addresses new challenges, enabling a seamless transition from AIS to AIM that meets the current and future needs of the aviation community.

4.8 Considering the above, the meeting agreed that the MID Region AIM Implementation Roadmap for the Transition from AIS to AIM should be revised to guide stakeholders towards full AIM environment, in compliance with the latest ICAO plans and provisions. A detailed mapping of the previous Roadmap against the latest GANP Edition is crucial. This will help identify gaps, integrate emerging technologies, and address new challenges, enabling the Region to meet the current and future needs of the aviation community effectively.

4.9 The meeting acknowledged that the Aeronautical Information Management Working Group (IMP WG-A) of the ICAO Information Management Panel (IMP) has established a Focus Group on the AIM Roadmap. This Group is actively developing what is now recognized as the ICAO Roadmap for the Transition to Digital AIM, aimed at guiding the global aviation community toward a fully digital aeronautical information management system.

4.10 The meeting noted that the Global Roadmap is expected to be finalized by 2027 at the latest. Consequently, the meeting agreed to initiate the update of the Regional Roadmap following the endorsement of the Global Roadmap to ensure alignment.

NOTAM template for GNSS RFI

4.11 The subject was addressed in WP/5 presented by the Secretariat.

4.12 The meeting recalled that the MIDANPIRG/20 endorsed through Conclusion 20/18 a NOTAM template for GNSS interference.

4.13 The meeting noted that, in recent times, the Middle East Region has experienced an uptick in GPS spoofing events, raising concerns about potential security threats and navigational disruptions. These incidents involve the broadcast of GNSS-like signals that cause avionics to calculate erroneous positions and provide false guidance.

4.14 The meeting acknowledged that based on the recent new entry of GNSS Spoofing, the MIDANPIRG/21 meeting, through Conclusion 21/30, invited ICAO and IATA in coordination with AIM SG Chairpersons to develop revised NOTAM template for GNSS interference including jamming and spoofing considering the global and regional developments.

4.15 The meeting noted also that the AN-Conf/14 requested ICAO to develop guidance material to facilitate the exchange of GNSS RFI information through a centralized repository, to the extent feasible, as well as the notification about GNSS harmful interference from military authorities to civil aviation, and introduction of additional NOTAM codes for GNSS interference events.

4.16 The meeting reviewed and endorsed the revised GNSS Radio Frequency Interference (RFI) NOTAM template, at **Appendix 4A**. The Template describes the different fields and values, except the NOTAM codes, that shall be used in a GNSS NOTAM in compatibility with ICAO formatting rules.

4.17 As per the MIDANPIRG/21 Conclusion 21/30, the meeting requested the Secretariat to finalize the NOTAM Template for GNSS interference, as soon as the NOTAM codes for GNSS interference events became available and circulate the revised Template through State Letter for implementation by States.

PBN SID and STAR Charting

4.18 The subject was addressed in WP/6 presented by the Secretariat on behalf of the PBN SIDs and STARs Charting Ad-Hoc working Group.

4.19 The meeting recalled that the MIDANPIRG/21 meeting had identified discrepancies in PBN SID/STAR charts published in the Aeronautical Information Publications (AIPs) of MID States. These discrepancies, highlighted through a comprehensive data collection campaign, included issues related to chart titles, chart identification, and the PBN Box. Recognizing that the lack of harmonization in PBN SID/STAR charts creates significant challenges for Airspace Users (AUs), leading to potential confusion for both pilots and Air Traffic Control (ATC), the MIDANPIRG/21 meeting, through Decision 21/8, resolved to establish a PBN SID and STAR Charting Ad Hoc Working Group. This Group, was tasked with developing standardized guidance and specimen PBN SID and STAR charts to address these challenges and promote consistency across the MID Region.

4.20 The meeting was briefed on the outcomes of the PBN SID and STAR Charting Ad-Hoc Working Group. It was noted that, following close coordination and collaboration with Eurocontrol, the Group reviewed the work conducted in the EUR/NAT Region and agreed to adopt the factsheet as a regional guideline.

4.21 The meeting noted that the PBN SG/9 meeting was briefed on the outcomes of the PBN SID and STAR Charting Ad-Hoc Working Group and with a view to streamlining efforts, promoting Inter-regional harmonization, and aligning with ongoing initiatives, the PBN SG/9 meeting agreed to the following draft Conclusion:

DRAFT CONCLUSION 9/2: PBN SID/STAR CHARTS HARMONISED AIP PUBLICATION

That, ICAO MID office:

*a) promotes the PBN SID and STAR Charting factsheet at **Appendix 4B** to enhance harmonization in the publication of these procedures across the MID Region, ensuring their widespread dissemination among member states and*
b) monitors the implementation status of PBN SID/STAR charts and the harmonized AIP publication and provides progress reports to the relevant subsidiary bodies of MIDANPIRG.

4.22 The meeting took note also that a detailed explanatory guidance for MID States on the factsheet for PBN SID/STAR charts was developed by Oman as at **Appendix 4C** aiming to support States in understanding the key components and best practices for effective implementation, thereby enhancing the consistency, accuracy, and overall quality of PBN charting across the MID Region.

4.23 The meeting reviewed and discussed the PBN SID and STAR Charting Factsheet, alongside the explanatory guidance and agreed to the PBN SG/9 Draft Conclusion 9/2.

ACR/PCR implementation Status in MID

4.24 The subject was addressed in WP/7 presented by the Secretariat.

4.25 The meeting recalled that in 2020, ICAO adopted with Amendment 15 to Annex 14, Volume I Aerodromes — Aerodrome Design and Operations, a new method for expressing and calculating the bearing strength of a pavement, called the Aircraft Classification Rating (ACR) - Pavement Classification Rating (PCR). A transition period of 4 years had been set by ICAO and the new method has become applicable on 28 Nov 2024, replacing the current Aircraft Classification Number (ACN) - Pavement Classification Number (PCN) method.

4.26 The meeting noted that ICAO MID has developed and disseminated through SL File Ref.: ME 3/2.5 – 24/172 dated 7 November 2024, a Survey on the implementation/publication of the new Aircraft Classification Rating (ACR) - Pavement Classification Rating (PCR) method . This survey aimed to gather valuable feedback from Member States on the status of implementation/publication of the new ACR-PCR method.

4.27 The meeting was briefed on the findings of a comprehensive survey analysis, which offered a detailed overview of the implementation status of ACR/PCR (Aircraft Classification Rating/Pavement Classification Rating) across the MID Region. The analysis focused on critical aspects, including the endorsement, determination, and provision of ACR/PCR by airport operators, the current publication status of relevant data, and the estimated timelines for achieving full implementation. The following key findings were highlighted:

- Most States (9 out of 10) have endorsed the new ACR-PCR. Only one State has not endorsed it.
- Several States (7 out of 10) have confirmed that airport operators are determining and providing the PCR. Three States have not yet reached this stage.
- Only one State (Qatar) has completed the publication of the PCR and three States (Egypt, Saudi Arabia and UAE) have started publication process.
- Estimated Time for Publication:

  - Five States estimate a timeline of 1-2 years for publication.

  - One State estimates a longer timeline of more than 2 years for publication.

4.28 It was pointed out that that, in order to achieve effective implementation, it is essential for Civil Aviation Authorities (CAAs) and Aeronautical Information Service Providers (AISPs) to take immediate action to address the identified gaps and accelerate progress. These actions should focus on:

States Should:

1. Ensure effective coordination between the Aeronautical Information Service Providers (AISP) and Airport Operators (AP) regarding the implementation and publication of the ACR-PCR method.
2. Establish a well-coordinated National ACR-PCR Implementation and Publication Plan, providing necessary support to all relevant stakeholders throughout the process.
3. Submit a detailed action plan for the implementation and Publication of the new ACR-PCR method to the ICAO MID Office. Additionally, States should regularly update the MID Office on the progress and status of implementation.

AISP should:

1. Ensure that all relevant AIS personnel are formally updated about the content of the relevant provisions concerning the PCR values to be published in the AIP (AD 2.8 and AD 2.12), and on the aerodrome charts, and update the applicable AISP operating procedures and the formal arrangements with AP, as necessary;
2. Ensure that any software tools used for data handling and aeronautical product publication purposes are able to accommodate the new pavement strength method.
3. Receive the PCR values by the aerodrome operators and prepare the relevant information for publication.
4. Report any delay concerning PCR data originated by aerodrome operators to the CAA.
5. Ensure that PCR information is published for all aerodromes with priority be given to International Aerodromes.

4.29 To promote and foster the effective implementation and publication of the ACR/PCR methodology in a timely and uniform manner across the MID Region, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 11/1: PUBLICATION OF THE PCR IN STATES AIPS

That, States be urged to :

a) ensure effective coordination between the Aeronautical Information Service Providers (AISP) and Airport Operators (AOs) regarding the implementation and

publication of the ACR-PCR method;

b) establish a well-coordinated National ACR-PCR Implementation and Publication Plan, providing necessary support to all relevant stakeholders throughout the process; and

c) Submit a detailed action plan for the implementation and Publication of the new ACR-PCR method to the ICAO MID Office; and regularly update the MID Office on the progress achieved and status of implementation.

and AISPs be urged to:

a) ensure that all relevant AIS personnel are formally updated about the content of the relevant provisions concerning the PCR values to be published in the AIP (AD 2.8, AD 3.8 and AD 2.12), and on the aerodrome charts, and update the applicable AISP operating procedures and the formal arrangements with AP, as necessary;

b) ensure that any software tools used for data handling and aeronautical product publication purposes are able to accommodate the new pavement strength method;

c) receive the PCR values by the aerodrome operators, and prepare the relevant information for publication;

d) report any delay concerning PCR data to be originated by aerodrome operators to the CAA; and

e) ensure that PCR information is published for all aerodromes with priority given to International Aerodromes.

Cross-Border Coordination and Exchange of Aeronautical Data and Information

4.30 The subject was addressed in WP/8 presented by the Secretariat.

4.31 The meeting recalled that the Tenth Meeting of the MIDANPIRG AIM Sub-Group (AIM SG/10) held in Egypt, Cairo at ICAO MID Office from 28 to 29 February 2024, discussed cross-border coordination and exchange of aeronautical data and information centred on enhancing collaboration and harmonization among States across MID Region.

4.32 It was noted that the AIM SG/10 meeting acknowledged the importance of establishing standardized procedures and protocols to facilitate seamless data exchange, ensuring accuracy, consistency, and timeliness of aeronautical information shared between States. The meeting requested the Secretariat to develop a template of Cross-Border Formal Agreement which aims at facilitating cross-border coordination and collaboration among aviation authorities and stakeholders. This Agreement will serve as a framework for establishing harmonized procedures and protocols for the exchange of aeronautical data and information across international borders within MID member States.

4.33 The meeting reviewed and agreed to the Sample Model Agreement, developed by the Secretariat and provided in **Appendix 4D**. This Agreement is designed to serve as a flexible and standardized template, which can either be utilized as a standalone document or seamlessly integrated into the Common Format of a Letter of Agreement (LoA) between Air Traffic Services Units (ATSUs).

GNSS Elements in MID States AIPs

4.34 The subject was addressed in PPT/9 presented by the Secretariat. The presentation provided information concerning the publication of GNSS elements in MID States' AIPs.

4.35 The meeting recalled the ICAO Standards and Guidelines for Publishing GNSS Information in State AIP particularly in AIP parts AD 2.19 Radio Navigation and Landing Aids and ENR 4.3 Global Navigation Satellite System (GNSS). It was also recalled that ICAO Doc 9849, GNSS Manual, indicates that a State Aeronautical Information Publication (AIP) covering the implementation and uses of GNSS should include the following aspects:

- a clear statement of terms and conditions, procedures and such things as training requirements;
- background information about GNSS technology and its operational applications;
- current information that can assist AOs in planning for the acquisition of avionic;
- information updates; and
- WGS-84 coordinate system.

4.36 The meeting noted that the Secretariat conducted a review of several MID States' AIPs and found that only one State had published the relevant GNSS information. Furthermore, there is a lack of uniformity in how States present GNSS data, with inconsistencies observed across different sections of the AIPs.

4.37 To foster harmonization and consistency in the publication of GNSS-related information within MID States' Aeronautical Information Publications (AIPs), the meeting strongly urged States that have not yet done so to promptly publish GNSS information in the relevant sections of their AIPs, including AD 2.19 (Radio Navigation and Landing Aids) and ENR 4.3 (Global Navigation Satellite System - GNSS), ensuring full compliance with ICAO Standards and Recommended Practices (SARPs) and associated guidelines.

4.38 To promote and foster the harmonization and consistency in the publication of GNSS-related information within MID States' Aeronautical Information Publications (AIPs) across the MID Region, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 11/2: PUBLICATION OF GNSS-RELATED INFORMATION IN STATES' AIPS

That,

a) States that have not yet done so are urged to promptly publish GNSS information in the relevant sections of their AIPs, including AD 2.19 (Radio Navigation and Landing Aids) and ENR 4.3 (Global Navigation Satellite System - GNSS), ensuring full compliance with ICAO Standards and Recommended Practices (SARPs) and associated guidelines.

b) ICAO MID monitor the publication status of GNSS-related information in States' AIPs and regularly report progress to the relevant subsidiary bodies of MIDANPIRG.

The Need for Guidance Material on publishing Remote Digital Aerodrome Air Traffic Services

4.39 The subject was addressed in PPT/14 presented by Saudi Arabia. The meeting was informed that Saudi Arabia has taken a significant step forward by successfully implementing a Virtual Tower System (VTS) at Al-Ula Aerodrome (OEAO). The provision of an aerodrome ATS from a remote location using digital video or surveillance technologies is covered under ASBU element RATS-B1/1 - Remotely Operated Aerodrome Air Traffic Services of ICAO GANP. This initiative marks the first phase of a pioneering project to provide Air Traffic Services (ATS) remotely from a Remote Control Centre situated at the Jeddah ATC Tower facility (OEJN). This innovative approach

demonstrates Saudi Arabia's commitment to leveraging advanced technology to enhance operational efficiency, safety, and flexibility in air traffic management, setting a benchmark for future implementations in the region and beyond.

4.40 In the absence of ICAO guidance on the publication of Remote Digital Aerodrome Air Traffic Services (RDATS), the meeting acknowledged the need for comprehensive and standardized guidance in this area. This guidance should address the inclusion of remote ATC/AFIS data in the Aeronautical Information Publication (AIP) and on aeronautical charts, as well as the development of standardized symbols to represent remote ATC/AFIS and mobile tower operations on aerodrome charts. Such measures are essential to ensure clarity, consistency, and operational safety, supporting the growing implementation of remote and digital aerodrome services in the MID Region.

4.41 The meeting requested Saudi Arabia to share user feedback on the implementation of its Remote Digital Aerodrome Air Traffic Services (RDATS). Additionally, the meeting tasked the Secretariat with exploring the availability of relevant guidance materials in consultation with the appropriate ICAO ANC Panels.

AIP Digital Dataset Technical Specification

4.42 The meeting noted that the UAE has developed the Aeronautical Information Publication (AIP) Digital Dataset Technical Specification to establish a structured framework for managing and disseminating aeronautical information in a digital format. This specification ensures compliance with global standards, enhances interoperability across aviation systems, and facilitates the seamless exchange of aeronautical data. The UAE AIP Digital Dataset Technical Specification is provided in **Appendix 4E.**

4.43 It was stated that the Dataset technical specification document is organized into four primary sections, each addressing specific aspects of digital dataset management and interoperability. In addition to the datasets outlined in the provided list, supplementary datasets are required to support publication in the Aeronautical Information Exchange Model (AIXM) version 5.1 or higher. These additional datasets cater to the enhanced requirements for advanced data modeling, exchange, and integration, ensuring seamless compatibility with modern aviation systems and facilitating the transition to a fully digital aeronautical information environment.

4.44 Following the discussions, the meeting tasked the UAE and Saudi Arabia, as the Champion for the development of the MID Regional Plan for the Implementation of Digital Data Sets, to explore the possibility of incorporating the best practices presented during the meeting as guidance for States within the regional plan.

Collaborative Exchange: States, International Organizations, and Industry Share Experiences and Lessons Learned

4.45 The meeting expressed its sincere gratitude to all States, international organizations, and industry stakeholders for their active participation and valuable contributions. Special appreciation was extended to those who delivered insightful presentations, sharing their experiences, best practices, and lessons learned, notably Egypt, Jordan, Oman, Saudi Arabia, and the UAE, as well as to IATA AME, ADL (member of IFAIMA), and NGA. These contributions significantly enriched the discussions, fostering a collaborative environment for knowledge exchange and continuous improvement.

New AIM automation system in Egypt

4.46 The subject was addressed in PPT/10 presented by Egypt. The meeting was apprised of Egypt's new Aeronautical Information Management (AIM) Automation System, a state-of-the-art solution designed to significantly enhance the publication of the Aeronautical Information Publication (AIP), enable automated charting, and streamline the management of Notices to Airmen (NOTAMs). Looking ahead, the system has the potential to be expanded to include an integrated database and a System Wide Information Management (SWIM) environment, further advancing Egypt's aeronautical information capabilities and aligning with global aviation modernization efforts.

4.47 The meeting noted that the delivery of the system's output is expected within the next two quarters. However, it was highlighted that the migration of existing data remains a significant challenge, as it is not covered under the current contract. Addressing this issue will be critical to ensuring a seamless transition and the full operationalization of the new AIM system, enabling Egypt to maximize the system's benefits and maintain the highest standards of aeronautical information management.

Provision of Terrain and Obstacle Data (TOD) in Jordan

4.48 The subject was addressed in PPT/11 presented by Jordan. The meeting was apprised of two significant developments presented by the Jordan Civil Aviation Regulatory Commission (CARC):

AIS to AIM GAP Analysis: Jordan has completed a comprehensive GAP analysis focused on Aeronautical Information Domains, which has provided critical insights into their current state of readiness for the implementation of Aeronautical Information Management (AIM). This analysis serves as a foundational step toward identifying areas for improvement and aligning with international standards.

Contract for FPD and eTOD Implementation: CARC has engaged specialists to oversee Flight Procedure Design (FPD) for two international airports. The contract's scope includes the implementation of electronic Terrain and Obstacle Data (eTOD). While full eTOD implementation has been successfully achieved at one airport, only a limited survey has been conducted at the second airport, indicating ongoing progress.

4.49 Additionally, the meeting noted that CARC is collaborating with the National Geodetic Agency to acquire Area 1 data for both terrain and obstacle features, further supporting the enhancement of aeronautical data accuracy and compliance with global standards. These initiatives underscore Jordan's commitment to advancing its aeronautical information capabilities and ensuring the highest levels of safety and efficiency in aviation operations.

The electronic aeronautical information package (eAIP) in Oman

4.50 The subject was addressed in PPT/12 presented by Oman. The meeting was apprised of the progress made by the Civil Aviation Authority (CAA) of Oman in implementing the electronic Aeronautical Information Publication (eAIP) package, with the first publication successfully released in May 2024. The eAIP package is designed to enhance the accessibility, accuracy, and usability of aeronautical information, ensuring alignment with international standards and best practices.

4.51 As part of this initiative, it was acknowledged that the eAIP is now available to stakeholders in three formats—HTML, PDF, and Aeronautical Information Exchange Model (AIXM)—accessible through the CAA AIM website. This achievement marks a significant milestone in Oman's efforts to modernize its Aeronautical Information Services (AIS), facilitating seamless data exchange and supporting more efficient and safe aviation operations. These advancements underscore Oman's commitment to embracing digital transformation and enhancing its aeronautical information

management capabilities.

Publication of Aerodrome Reference Code in the State AIP

4.52 The subject was addressed in PPT/13 presented by Saudi Arabia. The presentation provided a comprehensive overview of Saudi Arabia's approach to the publication of the Aerodrome Reference Code (ARC) text and its integration into the Aeronautical Information Exchange Model (AIXM). It detailed the methodologies adopted by Saudi Arabia to ensure the alignment of ARC information with AIXM standards, emphasizing the critical importance of consistency, accuracy, and interoperability in aeronautical data exchange. Furthermore, the presentation outlined a two-phase recommendation for the publication of the Aerodrome Reference Code (ARC) in the Aeronautical Information Publication (AIP):
Phase 1: Publication of the ARC as text in the remarks section of AD 2.2.
Phase 2: Publication of the ARC within the AIP dataset to facilitate seamless integration and data exchange.

KSA Datasets Provision

4.53 The subject was addressed in PPT/15 presented by Saudi Arabia. The meeting noted that the Kingdom of Saudi Arabia (KSA) has taken significant steps in advancing its aeronautical information management capabilities. As part of a test case initiative, KSA has issued the Draft Data Set (DDS) for the Aeronautical Information Publication (AIP) data. Furthermore, the Data Product Specification (DPS) for the AIP data set has been published, providing comprehensive details on its usage, functionality, and suitability from the perspective of end users.

4.54 To ensure consistency and compliance with international standards, the meeting noted that the frequency of updates to the data set is aligned with the Aeronautical Information Regulation and Control (AIRAC) cycle. These initiatives highlight KSA's commitment to enhancing the accuracy, accessibility, and usability of aeronautical information, supporting safer and more efficient aviation operations.

UAE AIM Strengthening Data Integrity

4.55 The subject was addressed in WP/18 presented by UAE. The paper highlighted the UAE GCAA's experience in enhancing Aeronautical Information Management (AIM) data integrity, particularly through the transition from MD5 hashing to the more advanced SHA-512 hashing algorithm. This transition was undertaken to strengthen cryptographic security, mitigating vulnerabilities associated with older hashing methods.

4.56 The paper underscored the critical importance of adopting SHA-512, emphasizing its superior capability to safeguard data integrity, protect against cyber threats, and ensure a more robust and secure aeronautical information environment. The SHA-512 Secure Hashing Algorithm, used for authenticating and verifying the integrity of UAE aeronautical information, is provided in **Appendix 4F**.

4.57 The meeting noted that previously, hash functions were shared only during publication updates, which posed a limitation for new subscribers seeking to verify data integrity. To address this, hash lists are now directly accessible from the Aeronautical Information Publication (AIP), which is continuously available on the website. This improvement ensures that all users, regardless of when they access the system, can verify the integrity of the data at any time, enhancing transparency and trust in the published information. The transition to SHA-512 not only aligns with modern cryptographic standards but also significantly strengthens the data integrity of published aeronautical information. By

adopting this advanced hashing algorithm, the UAE AIP provides users with a higher degree of confidence and assurance in the reliability and security of the data.

4.58 The meeting encouraged States to consider integrating similar data integrity procedures into their planning and implementation processes, emphasizing the importance of robust cryptographic practices to ensure the reliability and security of aeronautical information. Additionally, the meeting requested the UAE to share its guidance and best practices on this matter with other States, fostering collaboration and supporting the adoption of advanced data integrity measures across the MID Region.

IATA User' perspective on AIM Planning and Implementation

4.59 The subject was addressed in PPT/19, presented by IATA. The meeting acknowledged that, in light of double-digit traffic growth, the rising prevalence of long-haul flights, and the widespread adoption of new-generation aircraft, the Global Air Navigation System (GANS) must be efficient, globally harmonized, and interoperable. These attributes are critical to achieving safe and on-time operations, improving predictability, and reducing the carbon footprint of aviation activities.

4.60 The meeting noted that the Global Air Navigation Plan (GANP) - Doc 9750 as a worldwide policy framework, establishing clear connections between operational benefits and technological advancements, this plan enables all ICAO Member States to enhance their air navigation capacities in alignment with their specific operational needs.

4.61 In parallel, IATA has developed the User Requirements for Air Traffic Services (URATS), which serves as a comprehensive reference for airlines and Air Navigation Service Providers (ANSPs) when defining infrastructure requirements and capabilities for air navigation services. The URATS document complements the ICAO GANP by outlining IATA's positions on communication, navigation, and surveillance (CNS) technologies, as well as Air Traffic Management (ATM) concepts. Specifically, the URATS - ATM volume provides guidance for ANSPs' investment plans and the adoption of new cockpit technologies, ensuring alignment with industry needs and operational efficiency.

4.62 It was pointed out that many future concepts in the Global Air Navigation Plan (GANP), such as Trajectory-Based Operations (TBO), FF-ICE, and SWIM, rely on timely, accurate, and quality-assured digital aeronautical information. AIM is the backbone of these advancements, ensuring the efficiency, safety, and interoperability of future operations.

4.63 The meeting acknowledged that the AIM plays a key role in a digital/electronic landscape to ANS in the quest for interoperability and enhanced data quality. It was emphasized the critical need to implement an effective Quality Management System (QMS) to enhance and maintain data accuracy (alignment with reality), resolution (appropriate decimal precision), and integrity (quality, timeliness, and trustworthiness), while ensuring compliance with industry standards. Additionally, the importance of proper training for officers and data originators was highlighted to ensure the consistent maintenance of high-quality data and information. The adoption of standardized formats and templates was also stressed to prevent diverging descriptions that could disrupt automated processes.

4.64 The meeting noted that IATA supports the effective implementation of ICAO defined Aeronautical Information Management with the following minimum main requirements:

- Implementation of an effective certified quality management system for aeronautical information managers and service providers ensuring continuous review and improvement.
- Implementation of robust aeronautical information management regulation that supports and

enables aeronautical information originators, managers and users in the origination, production, supply, and access to data.

- Implementation of effective aeronautical information management processes across the aeronautical information data chain ensuring timely and equitable access to aeronautical information that conforms to defined data quality attributes and user requirements.
- Implementation of globally harmonized standardized templates/formats for aeronautical information products and services.
- Implementation of electronic data management and exchange based on the defined Aeronautical Information Exchange Model (AIXM).
- Advocates for the implementation of globally agreed governance principles and communication infrastructure (see URATS Vol 2 CNS).
- Implementation of a transition AIS/AIM process characterized by the increasing application of the SWIM interoperable services.

Verification and validation of the Aeronautical Data and Information

4.65 The subject was addressed in PPT/20 presented by NGA. It was highlighted that the verification and validation are critical components of the Quality Management System (QMS) in aeronautical information management, ensuring the accuracy, reliability, and suitability of data for its intended operational use. In addition, the meeting noted the following:

Validation: This process confirms that the data aligns with operational requirements and adheres to established business rules. Techniques such as metadata validation and plausibility checks are employed to ensure data integrity and relevance.
Verification: This step ensures the correctness of the data and its compliance with technical standards. Methods such as digital error detection, feedback testing, and independent redundancy are utilized to achieve this.

4.66 The meeting acknowledged that to support these processes, automated model validators, such as those available on platforms like AIXM Data Verification, are utilized. These tools apply predefined business rules and data bounds/limits, significantly enhancing the efficiency and effectiveness of validation and verification activities. These measures are essential for maintaining the highest standards of data quality and operational safety in aeronautical information management.

AIS Sudan During the Handover and Resumption of Operations

4.67 The meeting took note of the information paper submitted by Sudan, which provides an overview of the Aeronautical Information Services (AIS) operations during the handover and resumption of activities.

REPORT ON AGENDA ITEM 5: REVIEW OF AIR NAVIGATION DEFICIENCIES IN THE AIM FIELD

5.1 The subject was addressed in WP/21 presented by the Secretariat.

5.2 The meeting recalled that MIDANPIRG/21 meeting (Abu Dhabi, UAE, 4 – 8 March 2024), reviewed and updated the list of deficiencies in the AIM, AOP, ATM, CNS, SAR and MET fields as reflected in the MID Air Navigation Deficiency Database (MANDD). The total number of air navigation deficiencies recorded in MANDD was 98 deficiencies compared to 116 deficiencies in MIDANPIRG/20. The AIM field accounts for the largest share, representing 46% of the total deficiencies, underscoring its critical importance in addressing systemic challenges.

5.3 It was noted that MIDANPIRG/21 meeting agreed to remove the deficiencies reported against Iraq related to AIP and aeronautical charts and two deficiencies against Saudi Arabia related to terrain and obstacle data set; the total number of AIM deficiencies is forty-five (45); thirty-nine (39) priority "A" and six (6) priority "B". Twenty (20) deficiencies related to eTOD (based on the agreement to include new deficiencies related to the non-provision of TOD for Area 2a/TOFP and OLS); five (5) related to QMS; five (5) related to AIXM; six (6) related to WAC; three (3) related to pre-flight information services; one (1) related to AIP and aeronautical charts; three (3) related to AIRAC adherence; and two (2) related to WGS-84.

5.4 The number of air navigation deficiencies by state in the AIM field is presented in the Table below:

	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen	Total
AIM	0	2	3	6	3	0	4	5	3	0	0	2	9	0	8	**45**

5.5 The meeting noted with appreciation that Oman has successfully implemented an AIXM-based AIS Database and Iraq has effectively established a QMS in AIS. Consequently, it was emphasized that Oman and Iraq should submit a Formal Letter to the ICAO MID Regional Office, providing evidence of the implemented mitigation measures to address and eliminate the identified deficiencies, thereby facilitating their removal.

5.6 The meeting strongly urged States to:

- implement the provisions of the MIDANPIRG/15 Conclusion 15/35 and provide updates on the status of their deficiencies using MANDD; and
- submit CAP for each deficiency.

5.7 The meeting noted that most deficiencies have remained on the list for over 10 years, with many States yet to update their Corrective Action Plans (CAPs). After discussions, it was agreed to organize a workshop in close coordination with IATA and Boeing/Jeppesen. This workshop will enhance awareness among States and provide practical guidance to support efforts in addressing and resolving the identified deficiencies. The key objectives are:

- Provide an in-depth understanding of ICAO Standards and Recommended Practices (SARPs) related to AIM;

- Identify and address AIM deficiencies to improve compliance and operational efficiency;
- Explore regulatory frameworks governing aeronautical information management;
- Examine the aeronautical information data chain and its role in aviation safety;
- Review aeronautical information publications and products to ensure accuracy and reliability; and
- Building Effective Safety Oversight of Aeronautical Information Management (AIM).

5.8 Therefore, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 11/03: AIM-ING FOR EXCELLENCE WORKSHOP: ADVANCING AERONAUTICAL INFORMATION SERVICES

That the ICAO MID Office, in collaboration with IATA, Boeing/Jeppesen, and Member States, organize a workshop to strengthen States' understanding and capabilities in Aeronautical Information Services, address existing deficiencies, enhance the effectiveness of AIM, and promote regional cooperation through best practices and knowledge sharing.

IATA view on MID Air Navigation Deficiencies in AIM Field

5.9 The subject was addressed in PPT/22 presented by IATA. The meeting recalled that the MIDANPIRG/21 identified 45 deficiencies in the Aeronautical Information Management (AIM) field within the region. These deficiencies are categorized under either Basic Building Blocks (BBB) or Standards and Recommended Practices (SARPs), highlighting areas requiring immediate attention and improvement.

5.10 To effectively assess and address these deficiencies, the meeting noted the following recommended methods:

- Self-Assessment: encouraging States to evaluate their own AIM systems and processes.
- Peer Review: facilitating collaborative reviews among States to share best practices and identify gaps.
- User Reports: leveraging feedback from end users to pinpoint operational challenges and areas for enhancement.

5.11 It was emphasized that addressing these deficiencies is critical for achieving future advancements in aviation safety, efficiency, and sustainability, ensuring that the region’s AIM systems align with global standards and support the evolving needs of the aviation industry.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 The subject was addressed in WP/23 presented by the Secretariat.

6.2 The meeting reviewed and updated the AIM SG Terms of References (TORs) as at **Appendix 6A**.

6.3 The meeting agreed that the AIM SG/12 meeting is tentatively scheduled to be held during Q1 2026. The venue will be the ICAO MID Regional Office in Cairo, unless a State is willing to host the meeting.

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 Under Any Other Business, the meeting discussed the importance of establishing a dedicated platform, such as Microsoft Teams, for Aeronautical Information Management (AIM) experts in the MID Region to facilitate communication, share knowledge, and address concerns. Such a platform would enable AIM professionals to ask questions, receive answers, and raise issues related to AIM practices, fostering collaboration and continuous improvement. In this regard, the meeting requested ICAO MID and IATA to explore potential solutions for creating a centralized platform where AIM experts can exchange ideas, discuss subjects of interest, and resolve challenges collectively.

APPENDICES

FOLLOW-UP ON MIDANPIRG/21 CONCLUSIONS & DECISIONS

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
C.21/2	**MID REGION AIR NAVIGATION STRATEGY, EDITION, FEBRUARY 2024**					**Completed**
	That, the MID Region Air Navigation Strategy, Edition February 2024 (ICAO MID DOC 002), is endorsed and be published by the ICAO MID Office.	To harmonize the implementation within the Region	Revised version of MID Doc 002	ICAO MID	Feb 2024	ICAO MID DOC 002 posted at https://www.icao.int/MID/MIDANPIRG/Documents/eDocuments/MID%20Doc%20002%20-%20MID%20Air%20Navigation%20Strategy%20-%20Apr%202024.pdf
C.21/3	**NATIONAL AIR NAVIGATION PLAN (NANP)**					**Actioned to be closed**
	That, the MID States with support of ICAO MID Office develop their National Air Navigation Plan (NANP) by end of December 2024.	Implementation of RANP within the MID Region	National Air Navigation Plans	MID States	Dec 2024	Kuwait ANP developed Jordan ANP ongoing Requests from Iran and Qatar
C.21/4	**MID AIR NAVIGATION REPORT - 2023**					**Completed**
	That, the MID Air Navigation Report-2023 is endorsed and be published by the ICAO MID Office.	Reflect the implementation Status of RANP within the MID Region	MID Air Navigation Report 2023	ICAO MID	March 2024	ANR 2023 posted at https://www.icao.int/MID/MIDANPIRG/Documents/Air%20Navigation%20Report/MID%20AN%20Report-2023%20rev.%20Apr%202024.pdf

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
C.21/8	**PBN SID AND STAR CHARTING AD HOC WORKING GROUP**					**Completed**
	That a PBN SID and STAR Charting Ad Hoc Working Group, *a) be established to develop guidance/Specimen of PBN SID and STAR Charts, in coordination with the AIM Sub Group.* *b) be composed of:* *— Chairpersons of the PBN SG and the AIM SG* *— Mr. Taha Mohamed Taha (Egypt)* *— Rohallah Salehi (Iran)* *— Mohammad Mahanpour (Iran)* *—Mr. Raed Ghazawi (Jordan)* *— Mr. Sulaiman Selmi (Oman)* *— Mr. Suwarn Raj Upadhyay (Oman)* *— Mrs. Pamela Erice (Qatar)* *— Mr. Muhammad Aljuhani (KSA)* *— Mr. Ayed Murfat (KSA)* *— Mr. Saqr Obaid Al Marashda (UAE)* *— Mr. Kedari Manthanwar (UAE)* *— ICAO Secretariat* *c) presents its outcome to the PBN SG/9 and AIM SG/11 meetings.* *d) be dissolved upon the successful completion of its assigned tasks.*	To develop guidance/Specimen of PBN SID and STAR Charts to promote harmonization and consistency in the publication of PBN charts	Guidance/Specimen of PBN SID and STAR Charts	*PBN SID and STAR Charting Ad Hoc Working Group*	2024	
D21/29	**AERONAUTICAL INFORMATION MANAGEMENT DIGITALIZATION & PLANNING TASK FORCE (AIMDP TF)**					**Actioned to be closed**
	That, *a) Aeronautical Information Management Digitalization & Planning Task Force (AIMDP* *TF) be established to ensure alignment of the DAIM thread/elements with GANP latest* *Edition, develop appropriate monitoring tables for inclusion in ICAO eANP Vol.III and* *to ensure a synchronized and harmonized deployment of digital AIM products in the* *MID Region;*	To ensure alignment of the DAIM thread/elements with GANP latest Edition, develop appropriate monitoring tables for inclusion in ICAO eANP Vol. III. This task force,	Regional and National Plan of Digital Datasets Implementation	AIMDP TF	2025	

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
	b) the terms of reference of the AIMDP TF be developed during the first meeting of Task Force; and *c) States support the AIMDP Task Force through:* *i. assignment of Focal Point to contribute to the work of the Task Force; and* *ii. sharing states' experience, challenges and best practices related to Aeronautical Information Management Digitalization and Planning.*	will also be entrusted to ensure a synchronized and harmonized deployment of digital AIS datasets in the MID Region				
C.21/30	**REVISED NOTAM TEMPLATE FOR GNSS INTERFERENCE**					**On going**
	That, *a) ICAO and IATA in coordination with AIM SG Chairpersons to develop revised NOTAM template for GNSS interference including jamming and spoofing considering the global and regional developments; by Q4 2024 and* *b) ICAO MID Office circulate the revised NOTAM Template for GNSS interference through State Letter for implementation by States.*	To provide States with a standard NOTAM template to be used for GNSS Interference to facilitate operators in filtering and searching through the NOTAM on GNSS Interference	NOTAM template for GNSS RFI	ICAO and IATA	2024	
C21/31	***Risk Communication Model To Disseminate Information Related To Risks To CivilAviation Over Or Near Conflict Zones***					**Completed**
	That, the guidance contained in the Appendix G of the ICAO Doc 10084, Risk Assessment Manual on Civil Aircraft Operations Over or Near Conflict Zones, Third Edition, 2023, be used to disseminate information regarding the nature and extent of threats arising from the conflict and its consequences for civil aviation.	To support the regional effort for exchange and promulgation of information regarding the nature and extent of threats arising from the conflict and its consequences for	The guidance contained in the Appendix G of the ICAO Doc 10084, Risk Assessment Manual on Civil Aircraft Operations Over	ICAO	May 2024	

No.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/REMARKS
		civil aviation	or Near Conflict Zones			
C.21/27	**GNSS RFI Mitigation**					**On going**
	That, *a) States affected with GNSS RFI take necessary mitigation measures and provide update to the ICAO MID Office by **30 May 2024**; and* b) *the ATM SG in coordination with AIM, CNS and PBN SGs to address the reported occurrences and review the MID RSA 014 on GNSS Vulnerabilities as deemed necessary to be presented to MIDANPIRG/22 – RASG-MID/12 for endorsement*	Safety risk associated with GNSS interference	Revise MID RSA014	States	2025	
D.21/33	**MIDANPIRG REVISED STRUCTURE**					**Completed**
	That, the revised MIDANPIRG Structure 2024 is endorsed to be included in MIDANPIRG Procedural Handbook.	Consistency in establishment of experts groups	Revised MIDANPIRG structure	MIDANPIRG	2025	

APPENDIX 4A

NOTAM TEMPLATE FOR GNSS INTERFERENCE

Item Q – Qualifier: the following qualifiers shall be mentioned in item Q:

Qualifier FIR: This Item shall contain the ICAO location indicator of the FIR within which the flights may be impacted by the RFI. If more than one FIR of the same country is impacted, the ICAO nationality letters of that country (e.g. OE) should be followed by 'XX'.

Qualifier NOTAM CODE: the following NOTAM code qualifiers (second and third letter) shall be used as appropriate for GNSS RFI event notification in the case of:

TBD (additional NOTAM codes for GNSS interference events)

Qualifier TRAFFIC: the « IV » should be used as a traffic qualifier, indicating that both IFR and VFR traffic may be impacted by the RFI

Qualifier PURPOSE: the code NBO should be used to notify RFI events:

Qualifier SCOPE: Depending on the impacted area, one of the following codes should be used:

- A = if the event only impacts aerodrome(s) operations (used QGA)
- E = if the event only impacts en-route traffic (used QWA)
- AE = if the event impacts both Aerodrome and En-route traffic (used QWA)

Qualifier LOWER/UPPER: Depending on the jamming range and the traffic in the impacted area.

Qualifier GEOGRAPHICAL REFERENCE – Coordinates: this qualifier indicates the coordinates of the interference source or weighted centre point of the impacted area. For NOTAM with 'Scope' 'A' the Aerodrome Reference Point (ARP) coordinates should be inserted. For NOTAM with 'Scope' 'AE' or 'E' the centre of a circle whose radius encompasses the whole area of interference should be inserted.Qualifier 'GEOGRAPHICAL REFERENCE' – Radius*: The radius of the impacted area should be inserted in this field.

Item A – Location

All FIR location indicators affected by the information should be entered in Item A), each separated by a space. In the case of a single FIR, the Item A) entry must be identical to the 'FIR' qualifier entered in Item Q). When an aerodrome indicator is given in Item A), it must be an aerodrome/heliport situated in the FIR entered in Item Q).

Item B – Start of Activity

A ten-digit date-time group giving the year, month, day, hour and minutes, at which the NOTAM comes into force, should be mentioned in Item B).

Item C – End of Validity

A ten-digit date-time group giving the year, month, day, hour and minute, at which the NOTAM ceases to be in force and becomes invalid, should be mentioned in Item C). This date and time should be later than that given in Item B).

Item E – NOTAM Text

The following standard text should be used according to Q-code:

JAMMING :

GNSS JAMMING REPORTED. GNSS MAY BE UNUSABLE WITHIN …. INSTANCES OF GNSS JAMMING SHOULD IMMEDIATELY BE REPORTED TO ATC.

SPOOFING :

GNSS SPOOFING REPORTED. GNSS MAY BE MISLEADING WITHIN… INSTANCES OF GNSS SPOOFING SHOULD IMMEDIATELY BE REPORTED TO ATC.

GNSS INTERFERANCE

GNSS INTERFERENCES REPORTED. GNSS MAY BE UNUSABLE WITHIN …. INSTANCES OF GNSS INTERFERENCES SHOULD IMMEDIATELY BE REPORTED TO ATC.

WITHIN: specify route / geographical area (coordinates / waypoints)

AIM SG/11-REPORT
APPENDIX 4B

EUROCONTROL

PBN SID/STAR charts Harmonised AIP Publication

v2.0, 28 November 2024

CONSORTIUM COORDINATOR sesar DEPLOYMENT MANAGER
FOUNDING MEMBER sesar JOINT UNDERTAKING
NETWORK MANAGER

Introduction

EUROCONTROL monitors the implementation of Performance-Based Navigation (PBN) procedures in ECAC using the PBN Map tool, integrating data from national AIPs and implementation plans derived from PBN Transition plans produced by ATM/ANS providers.

Each AIRAC cycle prompts a thorough examination of national AIPs, with a specific focus on identifying new PBN procedures, particularly Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs).

It was identified that PBN information is dispersed across various sections of SID/STAR charts, varying by country or airport, contrary to the specific promulgation principles outlined by ICAO. This inconsistency prompted EUROCONTROL to address the lack of harmonization in European PBN SID/STAR charts in various stakeholder groups. The need for harmonization was agreed, with the support for creating a factsheet, especially given the mandate by the European PBN implementing regulation (EU 1048/2018) that necessitates the implementation of PBN SID/STAR at every instrument runway where these procedures are published.

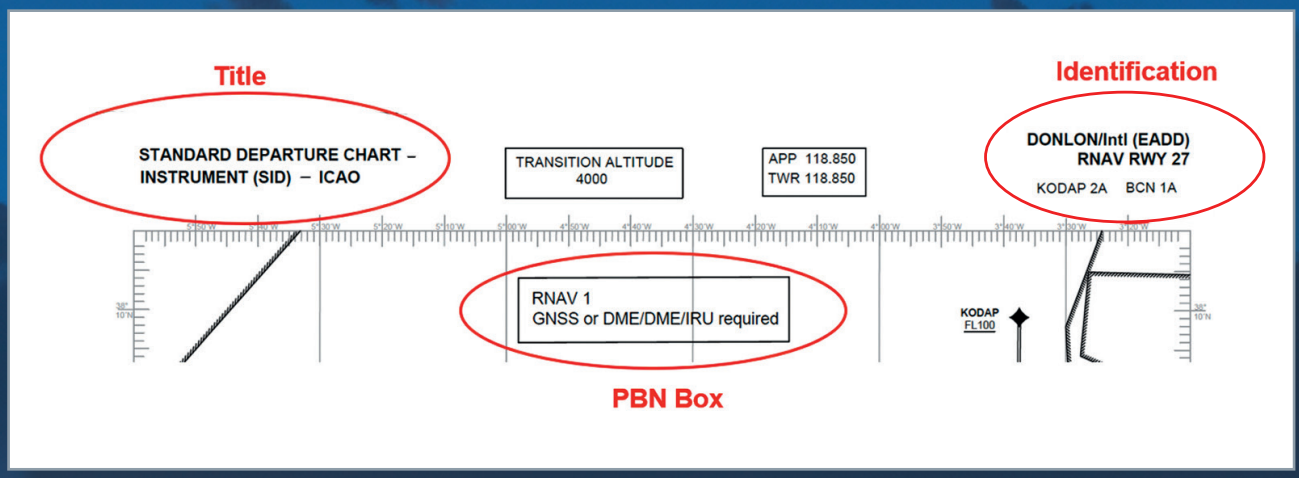
This factsheet, designed for specialists responsible for chart origination, includes illustrative examples and corresponding references to ICAO documentation. It is essential to note that this resource is intended to enhance understanding and promote harmonization but does not seek to replace or override state regulations or ICAO requirements regarding AIP publication and charting.

Objective

The development of this factsheet aims to heighten awareness regarding the charting of PBN SID/STAR in accordance with ICAO principles. The primary objective is to foster harmonization in the publication of these procedures across Europe, especially in anticipation of the increased number of PBN SID/STAR charts due to the PBN Implementing Regulation (EU 1048/2018).

Specifically, this factsheet concentrates solely on three key chart elements:

- Title
- Identification
- PBN box



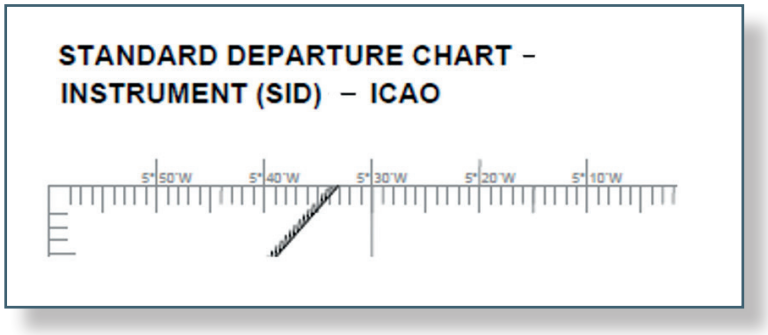
PBN SID/STAR - Chart Title

According to ICAO Doc 8697 Aeronautical Chart Manual, chapter 7.9 (SID):

Title

*"The title must be "**Standard Departure Chart - Instrument (SID) - ICAO**". Such title must not include "ICAO" unless the chart conforms with all Standards specified in Annex 4, Chapters 2 and 9. The chart title is placed at the top left corner of the chart in bold upper-case type".*

Example:

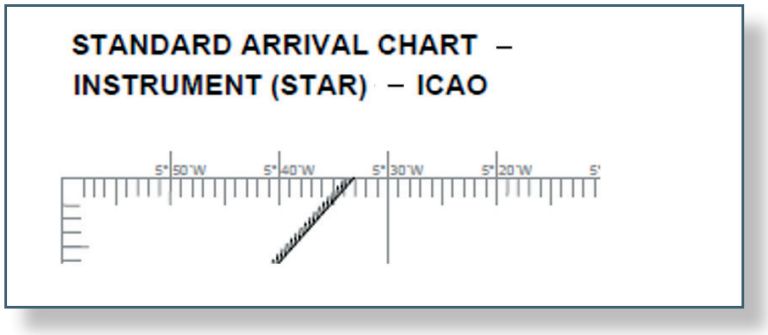


According to ICAO Doc 8697 Aeronautical Chart Manual, chapter 7.10 (STAR):

Title

*"The title must be "**Standard Arrival Chart - Instrument (STAR) - ICAO**". Such title must not include "ICAO" unless the chart conforms with all Standards specified in Annex 4, Chapters 2 and 10. The chart title is placed at the top left corner of the chart in bold upper-case type."*

Example:



PBN SID/STAR - Chart Identification

According to ICAO Doc 8168 PANS-OPS Vol II, Part III, Section 5, Chapter 1.3.2 "Chart Identification":

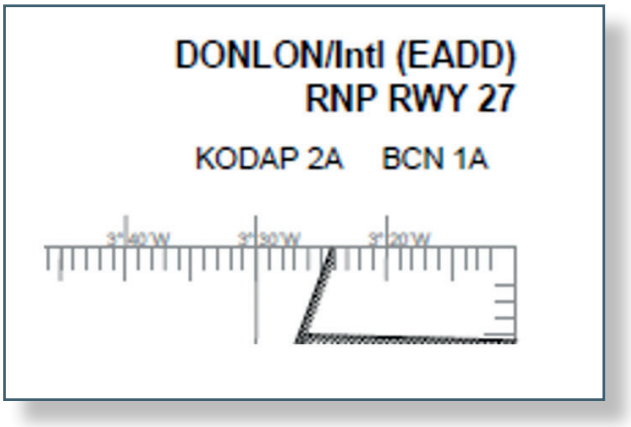
"The chart shall be identified in accordance with Annex 4, 9.5 for departures and 10.5 for arrivals and ***shall include the term RNAV or RNP, depending on the navigation specification****."*

According to ICAO Doc 8697 Aeronautical Chart Manual, chapter 7.9 (SID) and 7.10 (STAR) "Identification":

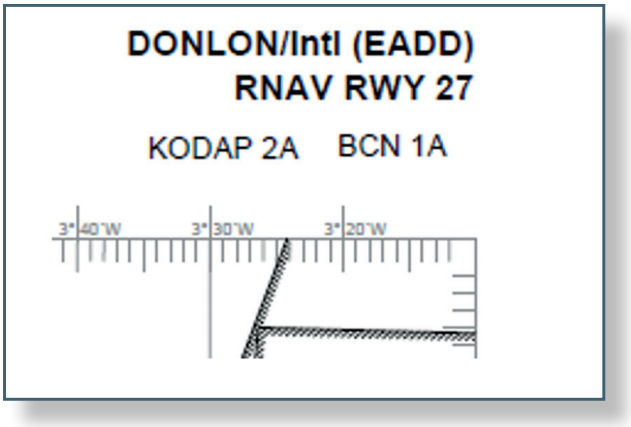
"The chart must be identified by the name of the city or town, or area, that the aerodrome serves, the name of the aerodrome, and the identification of the standard departure/arrival route(s) — instrument as established in accordance with the PANS-OPS, Volume II, Part I, Section 3. The identification of the standard departure/arrival route(s) — instrument is provided by the procedures specialist.

The ICAO location indicator may also be included with the name of the aerodrome. ***The chart identification is placed at the top right corner of the chart in bold upper-case type****."*

Example for PBN SID/STAR based on RNP:



Example for PBN SID/STAR based on RNAV:

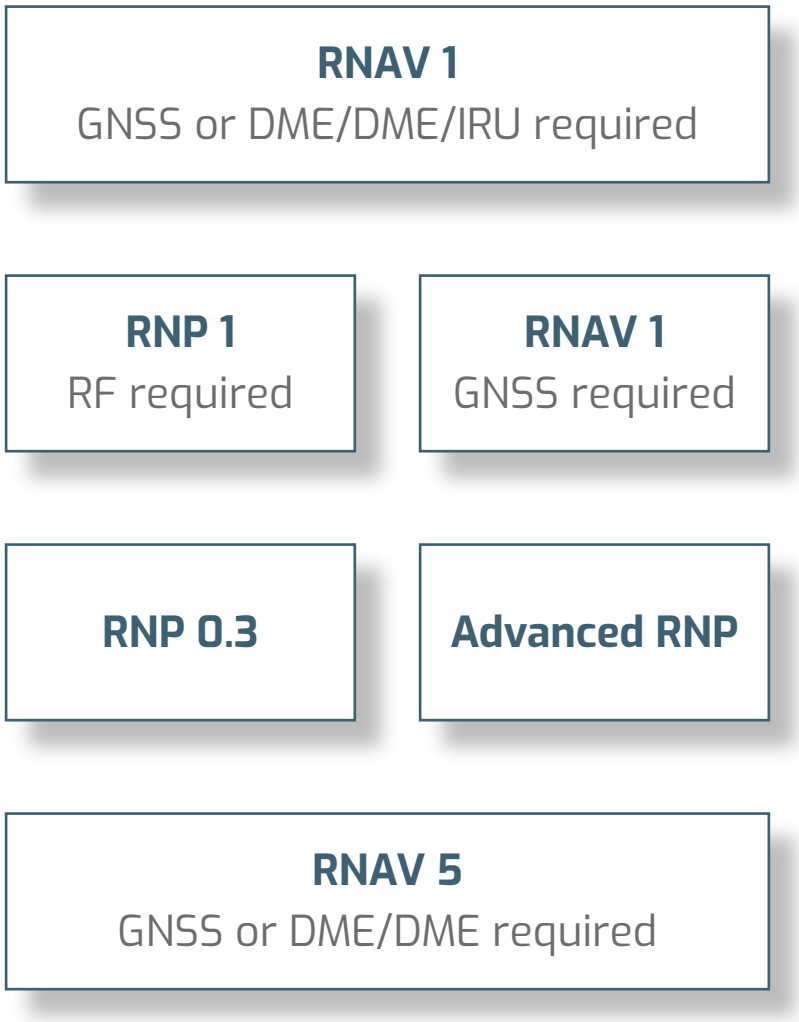


PBN SID/STAR - PBN BOX

According to ICAO Doc 8168 PANS-OPS Vol II, Part III, Section 5, Chapter 1.3.4 "Chart notes":

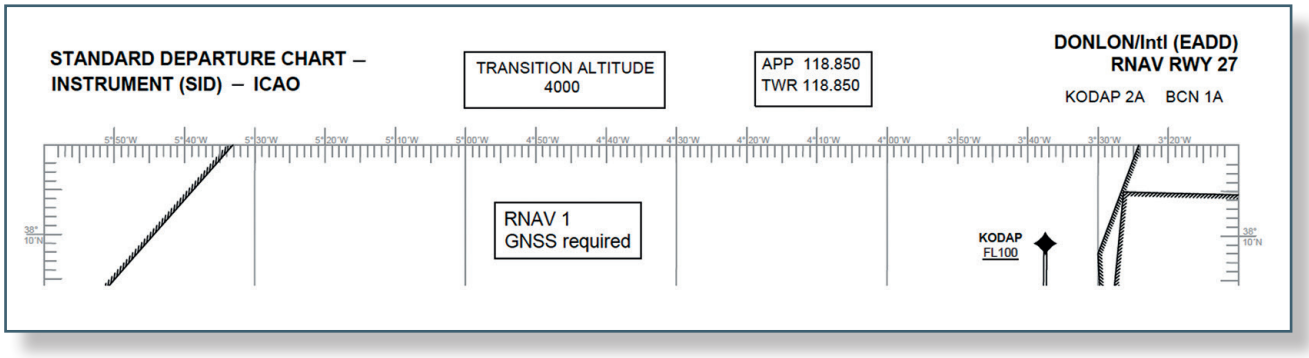
"Additional procedure requirements shall be provided as chart notes. ***PBN items shall be separated out and published in a PBN requirements box and shall include the identification of the navigation specification used in the procedure design, as well as any additional functionality*** *that is optional within the navigation specification, but required for the specific procedure.* ***When a limitation to the sensors allowed within the navigation specification exists, the sensor limitation shall also be identified within the PBN requirements box (e.g. GNSS required, GNSS or DME/DME/IRU required)****."*

Examples of PBN boxes:

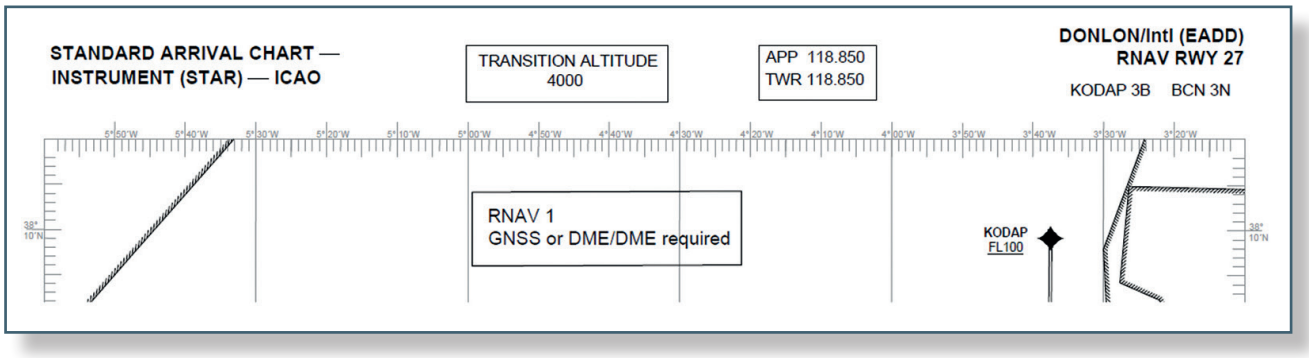


PBN SID/STAR EXAMPLES

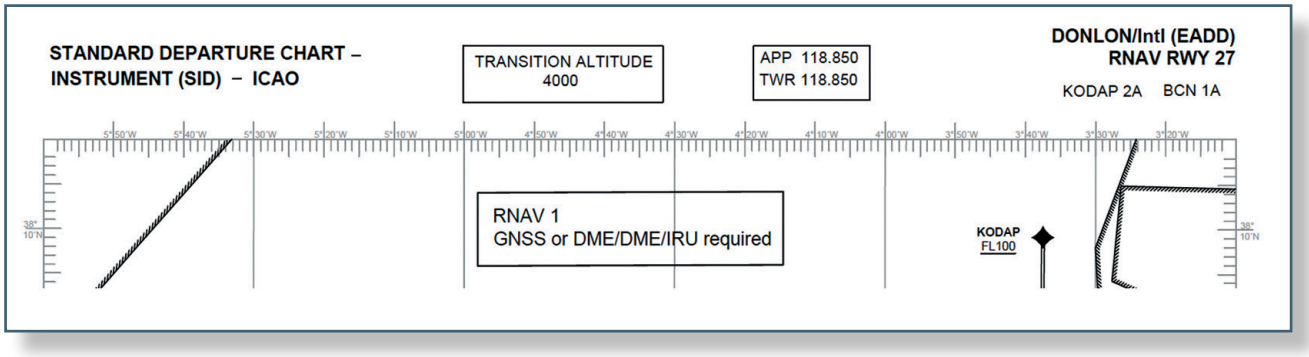
Navigation specification: ***RNAV 1***
Navigation sensor limitations: ***GNSS required*** *(DME/DME is not available)*
Functional requirement: ***None***



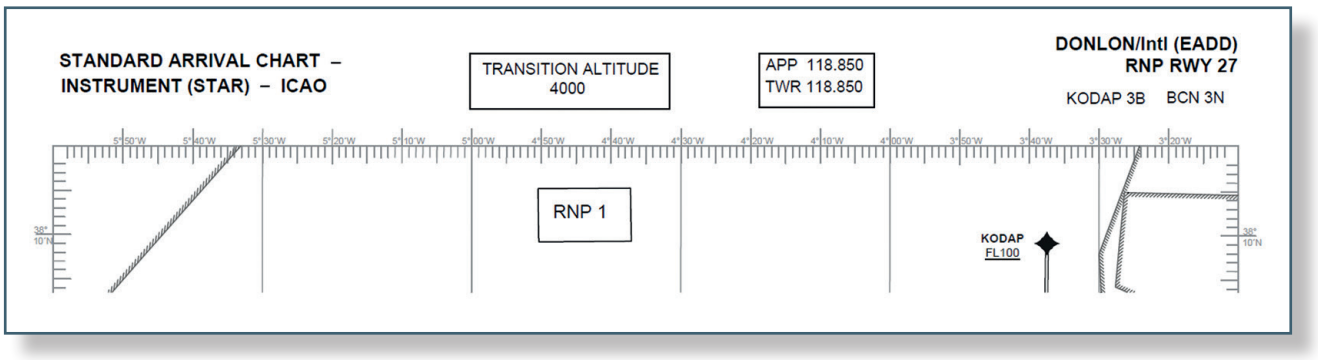
Navigation specification: ***RNAV 1***
Navigation sensor limitations: ***None*** (GNSS and DME/DME are available)
Functional requirement: ***None***



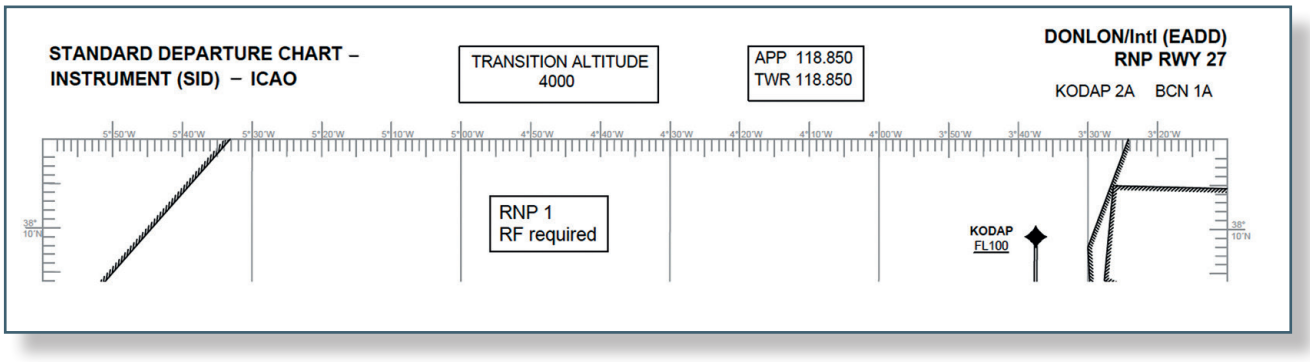
Navigation specification: ***RNAV 1***
Navigation sensor limitations: ***GNSS or DME/DME/IRU required****.*
Functional requirement: ***None***



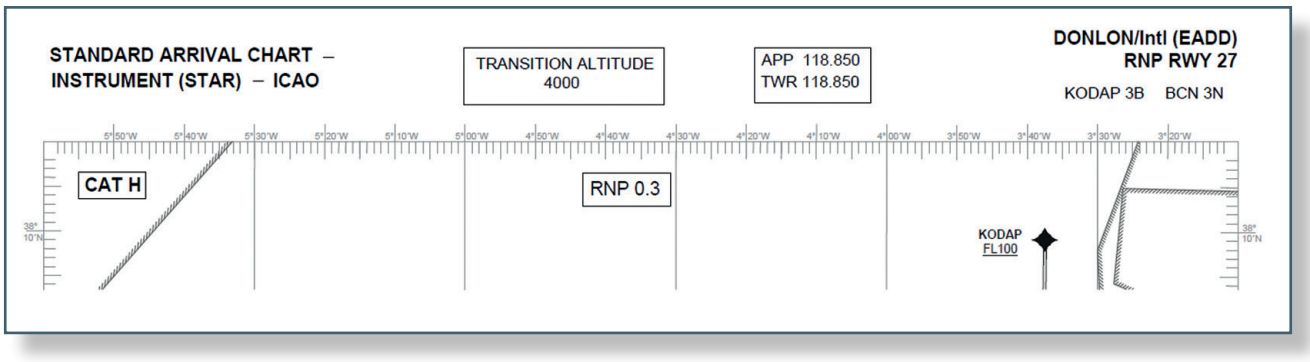
Navigation specification: ***RNP 1***
Navigation sensor limitations: ***None*** *(GNSS required)*
Functional requirement: **None**



Navigation specification: ***RNP 1***
Navigation sensor limitations: ***None*** *(GNSS required)*
Functional requirement: ***RF required***



Navigation specification: ***RNP 0.3*** *(CAT H)*
Navigation sensor limitations: ***None*** *(GNSS required)*
Functional requirement: ***None***



Glossary

AIP Aeronautical information publication
ANS Air navigation services
ATM Air traffic management
DME Distance measuring equipment
GNSS Global navigation satellite system
IRU Inertial reference unit
PBN Performance-based navigation
RF Radius to fix
RNAV Area navigation
RNP Required navigation performance
SID Standard instrument departure
STAR Standard instrument arrival

Further Information

The EUROCONTROL Navigation Steering Group (NSG) coordinates the activities necessary for the implementation of PBN procedures in ECAC.

For more information, please contact kleber.arguello@eurocontrol.int or visit our website:
https://www.eurocontrol.int/communications-navigation-and-surveillance

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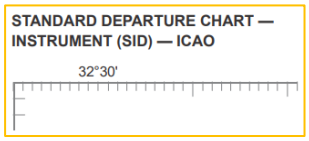
APPENDIX 4C

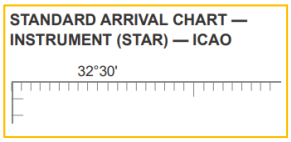
ICAO Charting Provisions

1. ICAO Provisions for Chart Titles:

References: ICAO Annex 4, Doc 8697 and Doc 8168 Vol. II

a. Chart shall be titled in accordance with Annex 4 specifications.
b. The chart title shall not include "ICAO" unless the chart conforms with all ICAO Standards mentioned in the Annex.
c. The title must be "Standard Departure Chart — Instrument (SID) — ICAO" for SID and "Standard Arrival Chart — Instrument (STAR) — ICAO" for STAR.
d. The chart title is placed at the top left corner of the chart in bold upper-case type.

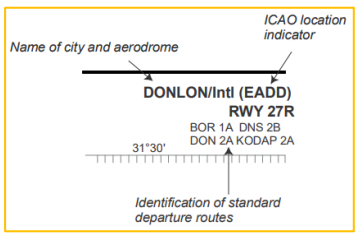


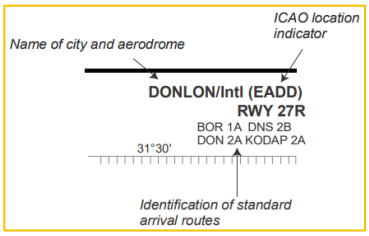


2. ICAO Provisions for Chart Identifications:

References: ICAO Annex 4, Doc 8697 and Doc 8168 Vol. II

a. The chart shall be identified in accordance with Annex 4 requirements and shall include the term RNAV or RNP, depending on the navigation specification.
b. The chart should include an identifier which is unique for that aerodrome and which may include reference to either a runway, fix or NAVAID.
c. The chart shall be identified by the name of the city or town or area which the aerodrome serves, the name of the aerodrome, and the identification of the SID or STAR.
d. The ICAO location indicator may also be included with the name of the aerodrome.
e. The chart identification is placed at the top right corner of the chart in bold upper-case type.





3. ICAO Provisions for PBN Requirement Boxes:

Reference: Doc 8168 Vol. II

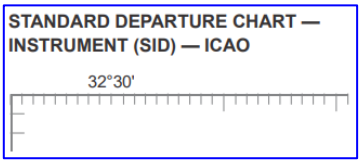
a. The provision of PBN requirement boxes is missing in Annex 4 and Aeronautical Chart Manual and specification charts except for those in Doc 8168, Vol. II.
b. PBN items shall be published in a PBN requirements box.
c. The PBN requirements box shall include:
   - the identification of the navigation specification used in the procedure design, such as RNAV 5, RNAV 2, RNAV 1, A-RNP, RNP AR and RNP 1.
   - any navigation sensor limitations, such as GNSS required, DME/DME required.
   - any required functionalities that are described as options in the navigation specification, such as RF required.

Guidance for Chart Harmonization:

1. Standardizing Chart Titles:

a. Ensure all SID charts are titled as "Standard Departure Chart - Instrument (SID) - ICAO" and all STARs charts as "Standard Arrival Chart - Instrument (STAR) - ICAO".
b. The title should be placed at the top left corner of the chart in bold upper-case type.
c. Do not use ICAO in the chart title if the chart does not meet the Annex 4 charting criteria.
d. Do not use any other things, such as PBN, RNAV, RNP or DEP/ARR, in the chart titles.

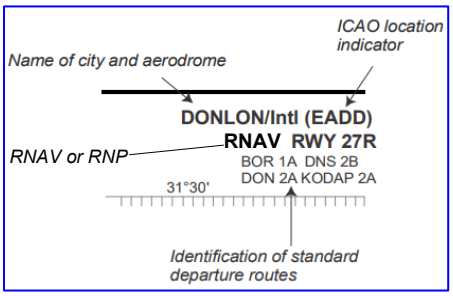
Example:



2. Consistent Chart Identification:

a. Identify charts by the name of the city or town, the aerodrome name, and the identification of the standard departure/arrival routes.
b. Include the ICAO location indicator with the name of the aerodrome.
c. The chart identification should be placed at the top right corner of the chart in bold upper-case type.
d. Use 'RNAV' or 'RNP' based on the navigation specification used in designing the SIDs or STARs. For example, use 'RNAV' for an RNAV1 SID or STAR, and use 'RNP' for an RNP1 SID or STAR, before the runway designation.

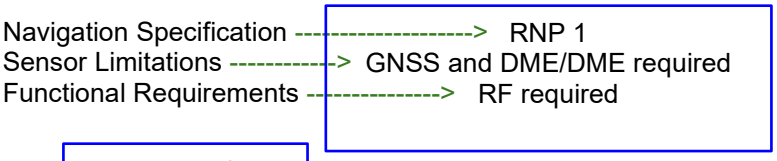
Example:



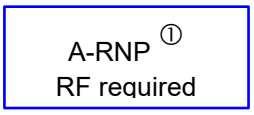
3. Requirements for PBN Boxes:

a. Include PBN items in the PBN requirements box, preferably on the plan view of the chart, not obscuring the chart information. Do not use such information in any places other than PBN requirement box.
b. The PBN box should contain the navigation specification (e.g., RNAV 1, RNP 1 or A-RNP) that is used for the design of PBN SID or STAR.
c. Clearly specify any sensor limitations (e.g., GNSS required or DME/DME required) within the PBN box, as required.
d. Include any additional functional requirements (e.g., RF required) in the PBN requirement box, as applicable.

Example 1: With sensor limitation and functional requirement

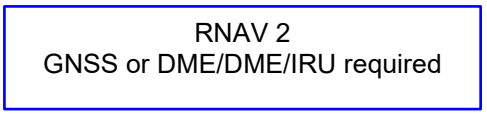


Example 2: No sensor limitations, but with a functional requirement

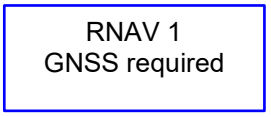


Note: Callouts ① can be used in the PBN Box to elaborate the details in chart margin. As an example, in this case callout ① can be elaborated as "No sensor limitations"

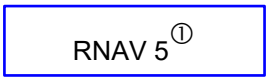
Example 3: GNSS or DME/DME/IRU only allowed



Example 4: GNSS only allowed



Example 5: All sensors allowed, with no functional requirement



Note: Callouts ① can be used in the PBN Box to elaborate the details in chart margin. As an example, in this case callout ① can be elaborated as "All sensors allowed, with no functional requirement"

APPENDIX 4D

CROSS-BORDER MODEL AGREEMENT
Between [State A] and [State B] For the Facilitation of Cross-Border Coordination and Collaboration in Aviation in the exchange of aeronautical data and information

Preamble:
Recognizing the importance of safe, efficient, and harmonized air traffic management across international borders, the undersigned parties agree to establish a framework for cross-border coordination and collaboration in the exchange of aeronautical data and information.

Article 1: Objectives
The objectives of this Agreement are to:

a) Facilitate seamless cross-border air traffic management within the FIRs of the participating states.
b) Establish harmonized procedures for the exchange of aeronautical data and information.

Article 2: Scope of Application
This Agreement applies to the exchange of aeronautical data and information, including NOTAMs, AIP (Aeronautical Information Publication), and other relevant data.
Coordination of airspace management activities, including temporary restricted areas, military exercises, and other special activities.

Article 3: Responsibilities of the Parties
3.1 State A Responsibilities:
Ensure timely and accurate provision of aeronautical data and information relevant to the shared FIR.
Notify State B of any planned activities (e.g., NOTAMs, airspace restrictions) that may affect State B's airspace.
3.2 State B Responsibilities:
Provide reciprocal notification of aeronautical data and information relevant to the portion of airspace in question.
Collaborate with State A to resolve any operational or technical issues arising from cross-border activities.
3.3 Joint Responsibilities:
Develop and maintain harmonized procedures for the exchange of aeronautical data and information.
Conduct regular reviews of the Agreement to ensure its continued relevance and effectiveness.

Article 4: Exchange of Aeronautical Data and Information

- Both States must mutually agree on the content before publishing all relevant information related to the portion of airspace in question.
- NOTAMs: Each state shall notify the other of any NOTAMs affecting the shared FIR at least [X] days in advance. NOTAMs shall be issued in accordance with ICAO Annex 15 standards and in a mutually agreed format.
- AIP Amendments: Changes to AIPs affecting the shared FIR shall be communicated to the other state at least [X] days in advance.

Article 5: Coordination of Special Activities

Military Exercises and Temporary Restricted Areas:
Any planned military exercises or temporary restricted areas affecting the portion of airspace in question shall be communicated to the other state at least [X] days in advance.

Article 6: Amendments and Review

This Agreement may be amended by mutual consent of the parties.
A review of the Agreement shall be conducted every [X] years to ensure its continued relevance and effectiveness.

Article 7: Entry into Force
This Agreement shall enter into force upon signature by both parties.

Signatures

For	[State	A]:
Name:		_____
Title:		_____
Date: _____		
For	[State	B]:
Name:		_____
Title:		_____
Date: _____		

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Technical Specifications

Air Navigation Services

BUSINESS UNIT: AIMD/OPSU

Document ID: ANS-AIM-Tech Specs – AIP Dataset-0027

UAE AIP Data set

(Subject to Enhancement & updates)

Edition V 3.0

27 01 2025

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Document Change Record

The following table records the complete history of the successive editions of the present document.

Amendments			
Edition	**Date**	**Reference Section**	**Amendment Content**
V 1.0.	01 July 2021	V 1.0.	New Document`
V 2.0	22 May 2024		Updated Template and specifications
V 3.0	27 Jan 2025		Updated AIXM Version

Table of Contents

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UAE AIP Data set

1.1 Introduction

The revised **ICAO Annex 15, 16th Edition**, complemented by a new ICAO Doc. 10066 **PANS-AIM** document, was effective on 8th of November 2018. This marks the final AIS transition towards the provision of digital data sets, which will gradually replace the provision of paper documents. One of the key elements of the new PANS-AIM document is the definition of an "**AIP Data Set**", which comprises a minimal list of features (such as Navigational Aids, Points, Airports, Airspace, Routes, etc.) and their properties that all States worldwide should be able to provide in the coming years.

1.1.1 ICAO Doc. 10066 PANS-AIM

1.1.1.1 PANS – AIM: Paragraph 5.2.1.1.3

As of 4 November 2021, when the AIP data set (as specified in 5.3.3.1.1) is provided, the following sections of the AIP may be omitted and reference to the data set availability shall be provided:

a)	GEN 2.5	List of radio navigation aids;
b)	ENR 2.1	FIR, UIR, TMA and CTA;
c)	ENR 3.1	Conventional navigation routes;
d)	ENR 3.2	Area navigation routes;
e)	ENR 3.5	Other routes;
f)	ENR 3.6	En-route holding;
g)	ENR 4.1	Radio navigation aids — en-route;
h)	ENR 4.2	Special navigation systems;
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 5.3.2	Other potential hazards;
o)	ENR 5.5	Aerial sporting and recreational activities;
p)	AD 2.17	Air traffic services airspace;
q)	AD 2.19	Radio navigation and landing aids;
r)	AD 3.16	Air traffic services airspace (Heliports);
s)	AD 3.18	Radio navigation and landing aids (Heliports);

The section ENR 5.6 is not listed in PANS AIM, paragraph 5.2.1.1.3, we consider this as "missing information" in ICAO guidance document, and therefore decision is made to add to the UAE AIP Data set digital file when available, for the information completeness regarding AIP ENR 5 "Navigation Warnings".

t)	ENR 5.6	Bird migration and areas with sensitive fauna

The below mentioned sections are not listed in ICAO Doc 10066 PANS AIM, paragraph 5.2.1.1.3; we consider this as "inconsistency" in ICAO guidance document. For the purpose of compliancy with paragraph 5.3.3.1.1 and the ICAO Doc 10066 PANS AIM Aeronautical Data Catalogue (Table A1-1), the whole or part of sections has been decided to be added to the UAE AIP Data set digital file.

(1)	AD 1.3	Index to Aerodromes/Heliports
(2)	AD 1.5	Status of certification of aerodromes
(3)	AD 2.1	Aerodrome location indicator and name
(4)	AD 2.2	Aerodrome geographical and administrative data
(5)	AD 2.11	Meteorological Information Provided
(6)	AD 2.12	Runway Physical Characteristics
(7)	AD 2.13	Declared Distances
(8)	AD 2.14	Approach and Runway Lighting
(9)	AD 2.15	Other Lighting, Secondary Power Supply
(10)	AD 2.16	Helicopter Landing Area
(11)	AD 3.1	Heliport location indicator and name
(12)	AD 3.2	Heliport geographical and admin data

1.1.1.2 PANS – AIM: Paragraph 5.3.3.1.1

The AIP data set shall include data about the following subjects, with the properties indicated in brackets being included as a minimum (if applicable):

a) Air traffic services (ATS) Airspace (type, name, lateral limits, vertical limits, class of airspace);

b) Special activity airspace (type, name, lateral limits, vertical limits, restriction, activation);

c) ATS route and other route (designator, flight rules);

d) Route segment (navigation specification, from point, to point, track, length, upper limit, lower limit, minimum en-route altitude (MEA), minimum obstacle clearance altitude (MOCA), direction of cruising level, required navigation performance);

e) Waypoint – en-route (identification, location, formation);

f) Aerodrome/Heliport (ICAO location indicator, name, designator IATA, served city, certified ICAO, certification date, certification expiration date, control type, field elevation, reference temperature, magnetic variation, reference point);

g) Runway (designator, nominal length, nominal width, surface type, strength);

h) Runway Direction (designator, true bearing, threshold, take off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA), landing distance available (LDA));

i) Final approach and take-off (FATO) (designation, length, width, threshold point);

j) Touchdown and left-off (TLOF) (designator, centre point, length, width, surface type);

k) Radio navigation aid (type, identification, name, aerodrome/heliport served, hours of operation, magnetic variation, frequency/channel, position, elevation, magnetic bearing, true bearing, zero bearing direction).

All lines a) to k) supplemented by the below (1) & (2) are considered as part of mapping – for details, refer to the paragraph that follows.

(1) Aeronautical Ground Lights (type, designator, name, intensity, characteristics, hours of operations, position)

(2) En-route Holding (fix, waypoint, inbound track, turn direction, speed, minimum/maximum holding level, time/distance outbound, special instruction, controlling unit name/frequency)

Note: The highlighted lines are the AIP sections (paragraph 1.1.1.1 of this document) and list of properties (paragraph 1.1.1.2 of this document) respectively that are identified during internal "gap analysis" in order to assure the consistency in information and content with UAE AIP when delivering the digital AIP Data set files.

1.2 Mapping PANS AIM and AIP Data set to AIXM 5.1/AIXM 5.1.1 Model

The mapping is divided into several parts based on the AIP Data Set subjects (sub-domain) defined in the ICAO Doc. 10066 PANS-AIM and its Aeronautical Data Catalogue (Appendix 1). All data items (properties and sub-properties of the subjects), which are considered relevant for an AIP Data Set, are mapped to the corresponding AIXM 5.1/AIXM 5.1.1 features/attributes.

1.2.1 ATS airspace

From UAE electronic AIP, the mapping will be for the content of sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 2.1 FIR, UIR, TMA and CTA - *line b);*

AD 2.17 ATS Airspace - *line p);*

AD 3.16 ATS Airspace*, line r) (when applicable Heliport operations in UAE);*

1.2.1.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type	Airspace.type, and/or Airspace.localType
Name	Airspace.name, and/or Airspace.designator

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Lateral Limits	(Airspace.AirspaceVolume.horizontalProjection.Surface, Airspace.AirspaceVolume.horizontalProjection.Surface.horizontalAccuracy) or (Airspace.AirspaceVolume.centreline.Curve, Airspace.AirspaceVolume.centreline.Curve.horizontalAccuracy, Airspace.AirspaceVolume.width)
Vertical Limit – Upper Limit	Airspace.AirspaceVolume.upperLimit, Airspace.AirspaceVolume.upperLimitReference
Vertical Limit – Lower Limit	Airspace.AirspaceVolume.lowerLimit, Airspace.AirspaceVolume.lowerLimitReference
Class of Airspace	Airspace.class.AirspaceLayerClass.classification
Class – Upper Limit	Airspace.class.AirspaceLayerClass.associatedLevels.AirspaceLayer.upperLimit
Class – Lower Limit	Airspace.class.AirspaceLayerClass.associatedLevels.AirspaceLayer.lowerLimit

PANS-AIM	AIXM 5.1/AIXM 5.1.1
ATS Unit	(SearchRescueService.clientAirspace, SearchRescueService.serviceProvider) and/or (InformationService.clientAirspace, InformationService.serviceProvider) and/or (AirTrafficControlService.clientAirspace, AirTrafficControlService.serviceProvider)
ATS Unit Name	Unit.name and/or (SearchRescueService.name) and/or (InformationService.name) and/or (AirTrafficControlService.name)

PANS-AIM	AIXM 5.1/AIXM 5.1.1
ATS Unit Call sign	SearchRescueService.call-sign.CallsignDetail.callSign and/or InformationService.call-sign.CallsignDetail.callSign and/or AirTrafficControlService.call-sign.CallsignDetail.callSign
ATS Unit Language	SearchRescueService.call-sign.CallsignDetail.language and/or InformationService.call-sign.CallsignDetail.language and/or AirTrafficControlService.call-sign.CallsignDetail.language
ATS Unit Applicability	SearchRescueService.annotation.Note and/or InformationService.annotation.Note and/or AirTrafficControlService.annotation.Note and/or Airspace.annotation.Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Frequency	AirTrafficControlService.radioCommunication and/or InformationService.radioCommunication and/or SearchRescueService.radioCommunication
Frequency Value	RadioCommunicationChannel.frequencyTransmission and/or RadioCommunicationChannel.frequencyReception
Frequency Purpose	RadioCommunicationChannel.rank
SATVOICE number	AirTrafficControlService.annotation.Note and/or InformationService.annotation.Note and/or SearchRescueService.annotation.Note
SATVOICE number value	AirTrafficControlService.annotation.Note and/or InformationService.annotation.Note and/or SearchRescueService.annotation.Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
SATVOICE number purpose	AirTrafficControlService.annotation.Note and/or InformationService.annotation.Note and/or SearchRescueService.annotation.Note
ATS Unit hour of service	SearchRescueService.availability.ServiceOperationalStatus.timeInterval and/or InformationService.availability.ServiceOperationalStatus.timeInterval and/or AirTrafficControlService.availability.ServiceOperationalStatus.timeInterval
Hours of applicability	Airspace.activation.AirspaceActivation.timeInterval
Transition altitude	AirportHeliport.transitionAltitude
Nav Spec	Airspace.annotation[purpose='OTHER:NAV_SPEC'].Note
Remarks	Airspace.annotation

1.2.2 Special Activity Airspace

From UAE AIP the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 5.1 Prohibited, restricted and danger areas – *line k);*

ENR 5.2 Military exercise and training areas/Air Defence Identification Zone (ADIZ) - *line l);*

ENR 5.3.1 Other activities of a dangerous nature – *line m);*

ENR 5.3.2 Other potential hazards – *line n)*;

ENR 5.5 Aerial sporting and recreational activities – *line o);*

ENR 5.6 “Bird migration and areas with sensitive fauna” – line t*),*

Note: To date, UAE does not have permanent activities regarding NAVIGATION WARNINGS other those areas published in ENR 5.1, ENR 5.2 and ENR 5.5; therefore, the UAE AIP section ENR 5.3 does not contain any information.

The section ENR 5.6 is not listed in ICAO Doc 10066 PANS AIM, paragraph 5.2.1.1.3, we consider this as "inconsistency" in ICAO guidance document, and therefore decision is made to add to the UAE AIP Data set digital file for information completeness regarding AIP ENR 5 "Navigation Warnings".

1.2.2.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type	Airspace.type and/or Airspace.localType And/or *for Bird Migration* Airspace[type='OTHER:BIRD_MIGRATION'].type Airspace[localType='BIRD_MIGRATION'].localType
Identification/Designator	Airspace.designator
Name	Airspace.name
Lateral Limits	(Airspace.AirspaceVolume.horizontalProjection.Surface, Airspace.AirspaceVolume.horizontalProjection.Surface.horizontalAccuracy) Or (Airspace.AirspaceVolume.centreline.Curve, Airspace.AirspaceVolume.centreline.Curve.horizontalAccuracy, Airspace.AirspaceVolume.width)
Vertical Limits – Upper Limit	Airspace.AirspaceVolume.upperLimit, Airspace.AirspaceVolume.upperLimitReference

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Vertical Limits – Lower Limit	Airspace.AirspaceVolume.lowerLimit, Airspace.AirspaceVolume.lowerLimitReference
Restriction	Airspace.activation.AirspaceActivation.activity
Activation	Airspace.annotation[propertyName='activation'].Note
Time of activity	Airspace.activation.AirspaceActivation.timeInterval
Risk of interception	Airspace.annotation.Note
Advisory measures	Airspace.annotation.Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Authority responsible for provision of information	**Option 1:** AuthorityForAirspace.assignedAirspace AuthorityForAirspace.responsibleOrganisation **Option 2:** Airspace.activation.AirspaceActivation.user **Option 3** (*in case Frequency needs to be encoded*): (SearchRescueService.clientAirspace, SearchRescueService.serviceProvider, SearchRescueService.radioCommunication) Or (InformationService.clientAirspace, InformationService.serviceProvider, InformationService.radioCommunication) Or (AirTrafficControlService.clientAirspace, AirTrafficControlService.serviceProvider, AirTrafficControlService.radioCommunication)

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Operator	**Option 1:** Airspace.activation.AirspaceActivation.user, OrganisationAuthority.contact.ContactInformation.phoneFax.TelephoneContact.voice **Option 2** (*in case Frequency has to be defined*): (AirTrafficControlService.clientAirspace, AirTrafficControlService.groundCommunication.ContactInformation.phoneFax.TelephoneContact.voice) Or (InformationService.clientAirspace, InformationService.groundCommunication.ContactInformation.phoneFax.TelephoneContact.voice) Or (SearchRescueService.clientAirspace, SearchRescueService.groundCommunication.ContactInformation.phoneFax.TelephoneContact.voice)

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Birds migration and areas of sensitive fauna	RulesProcedures[category='RULE'][title='OTHER:AIP_BIRD_MIGRATION_AND_AREAS_WITH_SENSITIVE_FAUNA'].content Or RulesProcedures[category='LAW'][title='OTHER:AIP_BIRD_MIGRATION_AND_AREAS_WITH_SENSITIVE_FAUNA'].content Or RulesProcedures[category='PROCEDURE'][title='OTHER:AIP_BIRD_MIGRATION_AND_AREAS_WITH_SENSITIVE_FAUNA'].content Or RulesProcedures[category='PRACTICE'][title='OTHER:AIP_BIRD_MIGRATION_AND_AREAS_WITH_SENSITIVE_FAUNA'].content, Airspace[type='OTHER:BIRD_MIGRATION'] Airspace[localType='BIRD_MIGRATION']

1.2.3 ATS Route and other routes

From UAE electronic AIP the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 3.1 Conventional navigation routes – *line c);*

ENR 3.2 Area navigation routes – *line d);*

ENR 3.5 Other routes – *line e);*

Note: UAE routes network is RNAV only, and also VFR routes are not coded).

1.2.3.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator (ATS Route), Designator (Other Route)	Route.designatorPrefix and/or (Route.designatorSecondLetter, Route.designatorNumber) and/or RouteSegment.designatorSuffix and/or Route.multipleIdentifier
Flight rules	Route[flightRule='IFR'] .flightRule
ATS Routes, Other Route	Route[type='ATS'].type, Route[contains(type, 'OTHER:')].type
Remarks	Route.annotation

1.2.4 Route segment

From UAE electronic AIP, the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 3.1 Conventional navigation routes – *line c);*

ENR 3.2 Area navigation routes – *line d);*

ENR 3.5 Other routes – *line e);*

Note: UAE routes network is RNAV only and also VFR routes are not coded).

1.2.4.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Navigation Specification	RouteSegment.navigationType
Navigation Performance	RouteSegment.requiredNavigationPerformance

PANS-AIM	AIXM 5.1/AIXM 5.1.1
From point – Designator	RouteSegment.start.EnRouteSegmentPoint.pointChoice_navaidSystem or RouteSegment.start.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint or RouteSegment.start.EnRouteSegmentPoint.pointChoice_airportReferencePoint
From point – Reporting	RouteSegment.start.EnRouteSegmentPoint.reportingATC
To point – Designator	RouteSegment.end.EnRouteSegmentPoint.pointChoice_navaidSystem or RouteSegment.end.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint or RouteSegment.end.EnRouteSegmentPoint.pointChoice_airportReferencePoint
To point – Reporting	RouteSegment.end.EnRouteSegmentPoint.reportingATC
Track	RouteSegment.trueTrack and/or RouteSegment.reverseTrueTrack and/or RouteSegment.magneticTrack and/or RouteSegment.reverseMagneticTrack

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Length	RouteSegment.length, RouteSegment.pathType
Upper limit	RouteSegment.upperLimit, RouteSegment.upperLimitReference
Lower limit	RouteSegment.lowerLimit, RouteSegment.lowerLimitReference
Minimum En route Altitude	RouteSegment.minimumEnrouteAltitude
Minimum Obstacle Clearance Altitude	RouteSegment.minimumObstacleClearanceAltitude
Minimum flight altitude	RouteSegment.minimumObstacleClearanceAltitude or RouteSegment.minimumEnrouteAltitude
Lateral Limits	RouteSegment.widthLeft, RouteSegment.widthRight
Direction of cruise levels – Forward	RouteSegment.availability.RouteAvailability[direction='FORWARD'].levels.AirspaceLayer.discreteLevelSeries.series
Direction of cruise levels – Backward	RouteSegment.availability.RouteAvailability[direction='BACKWARD'].levels.AirspaceLayer.discreteLevelSeries.series
Class of airspace	RouteSegment.availability.RouteAvailability.levels.AirspaceLayer.annotation[purpose='OTHER:CLASS'].Note
PBN requirements - Sensor requirements	RouteSegment.annotation[purpose='OTHER:PBN'].Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Controlling unit	(SearchRescueService.clientRoute.RoutePortion, SearchRescueService.serviceProvider) and/or (InformationService.clientRoute.RoutePortion, InformationService.serviceProvider) and/or (AirTrafficControlService.clientRoute.RoutePortion, AirTrafficControlService.serviceProvider)
Controlling unit – Name	(InformationService.serviceProvider and/or AirTrafficControlService.serviceProvider), Unit.name

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Controlling unit – Channel	(AirTrafficControlService.radioCommunication, and/or InformationService.radioCommunication, and/or SearchRescueService.radioCommunication) and (RadioCommunicationChannel.frequencyTransmission, and/or RadioCommunicationChannel.frequencyReception, and/or RadioCommunicationChannel.channel)
Controlling unit - Logon address	Unit.contact.ContactInformation
Change over point	ChangeOverPoint.distance, ChangeOverPoint.applicableRoutePortion, ChangeOverPoint.location_position
Restrictions	RouteSegment.annotation,
Availability	RougeSegment.availability.RouteAvailability.timeInterval, RouteSegment.availability.RouteAvailability.status

1.2.5 Waypoint – en-route

From UAE AIP, the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 4.4 Name Code Designators for Significant Point – *line i);*

1.2.5.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	**AIXM 5.1/AIXM 5.1.1**
Identification	DesignatedPoint.designator, DesignatedPoint.name
Position	DesignatedPoint.location, DesignatedPoint.location.horizontalAccuracy
Formation – Navaid	AngleIndication.pointChoice_navaidSystem and/or DistanceIndication.pointChoice_navaidSystem
Formation – Bearing	AngleIndication.angle and/or AngleIndication.angleType and/or AngleIndication.trueAngle and/or AngleIndication[indicationDirection='FROM'].fix, and/or AngleIndication.annotation[propertyName='angle'].Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Formation – Distance	DistanceIndication.distance, and/or DistanceIndication.fix, and/or DistanceIndication.annotation[propertyName='distance'].Note
Reference to route	RouteSegment.routeFormed, RouteSegment.start.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint, RouteSegment.end.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint
Terminal Area	DesignatedPoint.annotation

1.2.6 Aerodrome / Heliport

From UAE electronic AIP, the mapping will be for the whole or part of content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

AD 1.3 “Index to Aerodromes/Heliports” – new line (1), see Note;

AD 1.5 “Status of certification of aerodromes” – new line (2), see Note;

AD 2.1 “Aerodrome location indicator and name” – new line (3), see Note;

AD 2.2 “Aerodrome geographical and administrative data” – new line (4), see Note;

AD 2.11 “Meteorological Information Provided” – new line (5), see Note;

AD 2.15 “Other Lighting, Secondary Power Supply” – new line (9), see Note;

AD 3.1 “Heliport location indicator and name” – new line (11);

AD 3.2 “Heliport geographical and admin data” – new line (12);

1.2.6.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator - ICAO location indicator	AirportHeliport.locationIndicatorICAO, AirportHeliport.designator
Designator - Designator IATA	AirportHeliport.designatorIATA, AirportHeliport.designator

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator – Other	AirportHeliport.designator
Name	AirportHeliport.name
Served city	AirportHeliport.servedCity.City.name, AirportHeliport.servedCity.annotation
Administrative authority	AirportHeliport.responsibleOrganisation.theOrganisationAuthority, OrganisationAuthority.name, OrganisationAuthority.designator, OrganisationAuthority.contact
Control type	AirportHeliport.controlType
Certified ICAO	AirportHeliport.certifiedICAO
Certification date	AirportHeliport.certificationDate
Certification expiration date	AirportHeliport.certificationExpirationDate Or AirportHeliport.annotation[propertyName='certificationExpirationDate'].Note
Field elevation – Elevation	AirportHeliport.fieldElevation, AirportHeliport.fieldElevationAccuracy Or AirportHeliport.ARP.ElevatedPoint.elevation
Field elevation - Geoid undulation	AirportHeliport.ARP.ElevatedPoint.geoidUndulation
Reference temperature	AirportHeliport.referenceTemperature
Magnetic variation – Angle	AirportHeliport.magneticVariation, AirportHeliport.magneticVariationAccuracy
Magnetic variation – Date	AirportHeliport.dateMagneticVariation
Magnetic variation - Annual change	AirportHeliport.magneticVariationChange
Airport reference point – Position	AirportHeliport.ARP.ElevatedPoint, AirportHeliport.ARP.ElevatedPoint.horizonalAccuracy, AirportHeliport.ARP.Annotation
Airport reference point – Site	AirportHeliport.annotation[propertyName='arp'].Note
Airport reference point – Direction	AirportHeliport.annotation[propertyName='arp'].Note
Airport reference point – Distance	AirportHeliport.annotation[propertyName='arp'].Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type of Traffic Permitted - IFR/VFR/International/National/Schedule/Non Schedule/Private	AirportHeliport.availability.AirportHeliportAvailability.usage.AirportHeliportUsage.selection.ConditionCombination.flight.FlightCharacteristic.rule, AirportHeliport.availability.AirportHeliportAvailability.usage.AirportHeliportUsage.selection.ConditionCombination.flight.FlightCharacteristic.military, AirportHeliport.availability.AirportHeliportAvailability.usage.AirportHeliportUsage.selection.ConditionCombination.flight.FlightCharacteristic.origin, AirportHeliport.availability.AirportHeliportAvailability.usage.AirportHeliportUsage.selection.ConditionCombination.flight.FlightCharacteristic.purpose
Aerodrome Grouping	AirportHeliport.availability.AirportHeliportAvailability.usage.AirportHeliportUsage.selection.ConditionCombination.annotation[propertyName='flight'].Note
Metrological information	InformationService[type='TAF'], InformationService.clientAirport
Associated MET Office	Unit.name, InformationService.serviceProvider
Hours of Service	InformationService.availibility.ServiceOperationalStatus
MET Office outside hours	InformationService.annotation[purpose ='OTHER:METOffice'].Note
Office Responsible for TAF Preparation	InformationService.serviceProvider
Period of Validity	InformationService.annotation[purpose='OTHER:Validity'].Note
Trend forecast and Interval of issuance	InformationService.annotation[purpose='TrendForecast'].Note
Briefing/consultation provided	InformationService[voice='YES'], InformationService.annotation[propertyName='voice'][purpose='OTHER:BRIEFING_CONSULTATION_METHOD'].Note
Flight documentation Language(s) used	RulesProcedures[category='RULE'][title='OTHER:AIP_FLIGHT_DOCUMENTATION'].content Or RulesProcedures[category='LAW'][title='OTHER:AIP_FLIGHT_DOCUMENTATION'].content Or RulesProcedures[category='PROCEDURE'][title='OTHER:AIP_FLIGHT_DOCUMENTATION'].content Or RulesProcedures[category='PRACTICE'][title='OTHER:AIP_FLIGHT_DOCUMENTATION'].content

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Charts and other information available for briefing or consultation	RulesProcedures[category='RULE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='LAW'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='PROCEDURE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='PRACTICE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content
Supplementary equipment available for providing information	RulesProcedures[category='RULE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='LAW'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='PROCEDURE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content Or RulesProcedures[category='PRACTICE'][title='OTHER:AIP_CHARTS_OTHER_INFO_FOR_BRIEFING'].content
ATS units provided with information	InformationService.annotation[purpose='OTHER:ATS_Units'].Note
Additional information (limitation of service, etc.)	InformationService.annotation.Note
ABN/IBN location, characteristics and operational hours	AeronauticalGroundLight[type='IBN'] Or AeronauticalGroundLight[type='ABN'], AeronauticalGroundLight.location.ElevatedPoint, AeronauticalGroundLight.colour, AeronauticalGroundLight.flashing, AeronauticalGroundLight.annotation, AeronauticalGroundLight.aerodromeBeacon

PANS-AIM	AIXM 5.1/AIXM 5.1.1
LDI location and LGT	AirportHeliport.annotation[propertyName='landingDirectionIndicator'][purpose='DESCRIPTION'].Note
Anemometer location and LGT	AirportHeliport.annotation[pupose='OTHER:Anemometer'].Note
WDI	AirportHeliport.annotation[propertyName='windDirectionIndicator'][purpose='DESCRIPTION'].Note
TWY lighting	TaxiwayLightSystem[position='EDGE'] Or TaxiwayLightSystem[position='CL'] Or TaxiwayLightSystem[position='OTHER:floodlight'], TaxiwayLightSystem.intensityLevel, TaxiwayLightSystem.colour, TaxiwayLightSystem.position, TaxiwayLightSystem.element.LightElement.type, TaxiwayLightSystem.lightedTaxiway and Taxiway.designator, Taxiway.width, Taxiway.surfaceProperties.SurfaceCharacteristics.composition, Taxiway.surfaceProperties.SurfaceCharacteristics.classPCN, Taxiway.surfaceProperties.SurfaceCharacteristics.pavementTypePCN, Taxiway.surfaceProperties. SurfaceCharacteristics.pavementSubgradePCN, Taxiway.surfaceProperties. SurfaceCharacteristics.maxTyrePressurePCN, Taxiway.surfaceProperties. SurfaceCharacteristics.evaluationMethodPCN, Taxiway.associatedAirportHeliport
Secondary power supply/switch-over time	AirportHeliport.annotation[propertyName='secondaryPowerSupply'][purpose='DESCRIPTION'].Note
Remarks	AirportHeliport.annotation.Note

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1.2.7 Runway

From UAE electronic AIP, the mapping will be for the whole or part of content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

AD 2.12 “Runway Physical Characteristics” – new line (6), see Note;

AD 2.14 “Approach and Runway Lighting” – new line (8), see Note;

Note: By structure, from AIXM 5.1/AIXM 5.1.1 model perspective, the “Runway” feature is covering partially the AIP AD 2.12 and AD 2.14 content i.e. it is inheriting only properties that are common to both runway directions. Therefore, from AIP information viewpoint, the sections AD 2.12, AD 2.13 and AD 2.14 are covered thru AIXM “Runway’ and “RunwayDirection” features together. For this purpose, the mapping needs to add supplementary properties/sub-properties from ADC, Table A1-1.

1.2.7.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator	Runway.designator
Nominal length	Runway.nominalLength, Runway.lengthAccuracy
Nominal width	Runway.nominalWidth, Runway.widthAccuracy
Strength - Allowable pressure	Runway.surfaceProperties.SurfaceCharacteristics.maxTyrePressurePCN
Strength - Evaluation method	Runway.surfaceProperties.SurfaceCharacteristics.evaluationMethodPCN
Strength - Pavement type	Runway.surfaceProperties.SurfaceCharacteristics.pavementTypePCN
Strength – PCN	Runway.surfaceProperties.SurfaceCharacteristics.classPCN
Strength - Subgrade category	Runway.surfaceProperties.SurfaceCharacteristics.pavementSubgradePCN
Surface type	Runway.surfaceProperties.SurfaceCharacteristics.composition
Shoulder - Width	Runway.widthShoulder
Runway geometry	RunwayElement[type=’NORMAL’], RunwayElement.associatedRunway, RunwayElement.extent
Strip Length	Runway.lengthStrip
Strip Width	Runway.widthStrip

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Shoulder Type	RunwayElement[type='SHOULDER'], RunwayElement.associatedRunway
Shoulder Geometry	RunwayElement[type='SHOULDER'], RunwayElement.associatedRunway, RunwayElement.extent
Runway Remarks	Runway.annotation
OFZ	RunwayProtectArea[type='OFZ'], RunwayProtectArea.annotation
Runway Approach light intensity, type & length	ApproachLightingSystem.intensityLevel, ApproachLightingSystem.type, ApproachLightingSystem.length, ApproachLightingSystem.servedRunwayDirection
Threshold colour	RunwayDirectionLightSystem[position='THR'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.associatedRunwayDirection
Threshold wing bar	RunwayDirectionLightSystem[position='END'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.annotation[purpose= 'OTHER:WING_BAR_DESC'].Note RunwayDirectionLightSystem.associatedRunwayDirection
Visual approach slope indicator systems type, position, slope & Minimum eye height over threshold	VisualGlideSlopeIndicator.type, VisualGlideSlopeIndicator.position, VisualGlideSlopeIndicator.slopeAngle, VisualGlideSlopeIndicator.minimumEyeHeightOverThreshold, VisualGlideSlopeIndicator.runwayDirection

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Runway Touchdown zone light system	RunwayDirectionLightSystem[position='TDZ'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.intensityLevel, RunwayDirectionLightSystem.annotation, RunwayDirectionLightSystem.associatedRunwayDirection
Runway Center Line Light system	RunwayDirectionLightSystem[position='CL'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.intensityLevel, RunwayDirectionLightSystem.annotation, RunwayDirectionLightSystem.associatedRunwayDirection
Runway Edge Light System	RunwayDirectionLightSystem[position='EDGE'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.intensityLevel, RunwayDirectionLightSystem.annotation, RunwayDirectionLightSystem.associatedRunwayDirection
RWY End LGT colour WBAR	RunwayDirectionLightSystem[position='END'], RunwayDirectionLightSystem.colour, RunwayDirectionLightSystem.intensityLevel, RunwayDirectionLightSystem.annotation[purpose= 'OTHER:WING_BAR_DESC'].Note, RunwayDirectionLightSystem.associatedRunwayDirection

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Stopway Light System	RunwayProtectAreaLightSystem[position='CL'] Or RunwayProtectAreaLightSystem[position='END'] Or RunwayProtectAreaLightSystem[position='EDGE'], RunwayProtectAreaLightSystem.colour, RunwayProtectAreaLightSystem.intensityLevel, RunwayProtectAreaLightSystem.annotation, RunwayProtectAreaLightSystem.lightedArea
Runway Direction Light System Remarks	RunwayDirectionLightSystem.annotation

1.2.8 Runway Direction

From UAE electronic AIP, the mapping will be for the whole or part of content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

AD 2.12 "Runway Physical Characteristics" - new line (6), see Note;

AD 2.13 "Declared Distances" – new line (7), see Note;

Note: By structure, from AIXM 5.1/AIXM 5.1.1 model perspective, the "RunwayDirection" feature is covering partially the AIP AD 2.12 and AD 2.13 content i.e. it is inheriting only properties that are related to single runway directions. Therefore, from AIP information viewpoint, the sections AD 2.12, AD 2.13 and AD 2.14 are covered thru AIXM "Runway' and "RunwayDirection" features together. For this purpose, the mapping needs to add supplementary properties/sub-properties from ADC, Table A1-1.

1.2.8.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator	RunwayDirection.designator
True bearing	RunwayDirection.trueBearing, RunwayDirection.trueBearingAccuracy
MagneticBreaing	RunwayDirection.magneticBearing

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Threshold - Position	RunwayCentrelinePoint.location.ElevatedPoint, RunwayCentrelinePoint.location.ElevatedPoint.horizontalAccuracy
Threshold - Elevation	RunwayCentrelinePoint.location.ElevatedPoint.elevation, RunwayCentrelinePoint.location.ElevatedPoint.verticalAccuracy
Threshold - Geoid undulation	RunwayCentrelinePoint.location.ElevatedPoint.geoidUndulation, RunwayCentrelinePoint.location.ElevatedPoint.verticalAccuracy
Threshold - Type	RunwayCentrelinePoint[role='DISTHR'].role Or RunwayCentrelinePoint[role='THR'].role Or RunwayCentrelinePoint[role='END'].role Or RunwayCentrelinePoint[role='TDZ'].role
Runway Slope	RunwayDirection.annotation[purpose='OTHER:RWY_SLOPE'].Note
Stopway Slope	RunwayDirection.annotation[purpose= 'OTHER:SWY_SLOPE'].Note
Threshold - Displacement	RunwayCentrelinePoint[role='DISTHR'].associatedDeclaredDistance.RunwayDeclaredDistance[type='DTHR'].declaredValue.RunwayDeclaredDistanceValue.distance, RunwayCentrelinePoint[role='DISTHR'].associatedDeclaredDistance.RunwayDeclaredDistance[type='DTHR'].declaredValue.RunwayDeclaredDistanceValue.distanceAccuracy
Declared distance - TORA	RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='TORA'].declaredValue.RunwayDeclaredDistanceValue.distance, RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='TORA'].declaredValue.RunwayDeclaredDistanceValue.distanceAccuracy
Declared distance - TODA	RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='TODA'].declaredValue.RunwayDeclaredDistanceValue.distance, RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='TODA'].declaredValue.RunwayDeclaredDistanceValue.distanceAccuracy

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Declared distance - ASDA	RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='ASDA'].declaredValue.RunwayDeclaredDistanceValue.distance, RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='ASDA'].declaredValue.RunwayDeclaredDistanceValue.distanceAccuracy
Declared distance - LDA	RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='LDA'] .declaredValue.RunwayDeclaredDistanceValue.distance, RunwayCentrelinePoint.role.associatedDeclaredDistance.RunwayDeclaredDistance[type='LDA'] .declaredValue.RunwayDeclaredDistanceValue.distanceAccuracy
Declared distances - Remarks	RunwayCentrelinePoint.associatedDeclaredDistance.RunwayDeclaredDistance.annotation Or RunwayCentrelinePoint.associatedDeclaredDistance.RunwayDeclaredDistance.declaredValue.RunwayDeclaredDistanceValue.annotation
STOPWAY	RunwayProtectArea[type =’STOPWAY’].width, RunwayProtectArea[type =’STOPWAY’].length, RunwayProtectArea[type =’STOPWAY’].lighting, RunwayProtectArea[type =’STOPWAY’].surfaceProperties, RunwayProtectArea[type =’STOPWAY’].protectedRunwayDirection
CLEARWAY	RunwayProtectArea[type =’CWY’].width, RunwayProtectArea[type =’CWY’].length, RunwayProtectArea[type =’CWY’].lighting, RunwayProtectArea[type =’CWY’].surfaceProperties, RunwayProtectArea[type =’CWY’].protectedRunwayDirection

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Runway End safety Area	RunwayProtectArea[type ='RESA'].width, RunwayProtectArea[type ='RESA'].length, RunwayProtectArea[type ='RESA'].lighting, RunwayProtectArea[type ='RESA'].surfaceProperties, RunwayProtectArea[type ='RESA'].protectedRunwayDirection
Runway Obstacle free zone	RunwayProtectArea[type ='OFZ'].width, RunwayProtectArea[type ='OFZ'].length, RunwayProtectArea[type ='OFZ'].lighting, RunwayProtectArea[type ='OFZ'].surfaceProperties, RunwayProtectArea[type ='OFZ'].protectedRunwayDirection
Arresting System	RunwayDirection.annotation[purpose ='OTHER:ARRESTING-SYSTEM'].Note

1.2.9 FATO (Final Approach and Take Off)

From UAE electronic AIP, the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

AD 2.16 "Helicopter Landing Area" – new line (10), see Note;

Note: The AIP AD 2.16 section is missing in paragraph 5.2.1.1.3; it has been added in order to comply with the content of paragraph 5.3.3.1.1, *line i)*.

1.2.9.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator	Runway.designator, Runway.associatedAirportHeliport, RunwayDirection.designator, RunwayDirection.usedRunway

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type	Runway[type='FATO']
Length	Runway.nominalLength, Runway.lengthAccuracy
Width	Runway.nominalWidth
Surface Characteristics	Runway.surfaceProperties.SurfaceCharacteristics.composition, Runway.surfaceProperties.SurfaceCharacteristics.classPCN, Runway.surfaceProperties.SurfaceCharacteristics.pavementTypePCN, Runway.surfaceProperties.SurfaceCharacteristics.pavementSubgradePCN, Runway.surfaceProperties.SurfaceCharacteristics.maxTyrePressurePCN, Runway.surfaceProperties.SurfaceCharacteristics.evaluationMethodPCN
True Bearing	RunwayDirection.trueBearing, RunwayDirection.trueBearingAccuracy
Magnetic Bearing	RunwayDirection.magneticBearing
Threshold point	RunwayCentrelinePoint[role = 'THR']
Threshold point - Position	RunwayCentrelinePoint[role='THR'].location.ElevatedPoint , RunwayCentrelinePoint[role='THR'].location.ElevatedPoint.horizontalAccuracy
Threshold point - Elevation	RunwayCentrelinePoint[role='THR'].location.ElevatedPoint.elevation, RunwayCentrelinePoint[role='THR'].location.ElevatedPoint.verticalAccuracy
Threshold point - Geoid undulation	RunwayCentrelinePoint[role='THR'].location.ElevatedPoint.geoidUndulation, RunwayCentrelinePoint[role='THR'].location.ElevatedPoint.verticalAccuracy

PANS-AIM	AIXM 5.1/AIXM 5.1.1
FATO Approach Light System	ApproachLightingSystem.intensityLevel, ApproachLightingSystem.type, ApproachLightingSystem.length, ApproachLightingSystem.servedRunwayDirection
Remarks	Runway.annotation

1.2.10 TLOF (Touchdown and Lift-Off Area)

From UAE electronic AIP, the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

AD 2.16 “Helicopter Landing Area” – new line (10), see Note;

Note: The AIP AD 2.16 section is missing in paragraph 5.2.1.1.3; it has been added in order to comply with the content of paragraph 5.3.3.1.1, *line j)*.

1.2.10.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Designator	TouchDownLiftOff.designator
Centre point - Position	TouchDownLiftOff.aimingPoint.ElevatedPoint, TouchDownLiftOff.aimingPoint.ElevatedPoint.horizontalAccuracy
Centre point - Elevation	TouchDownLiftOff.aimingPoint.ElevatedPoint.elevation, TouchDownLiftOff.aimingPoint.ElevatedPoint.verticalAccuracy
Centre point - Geoid undulation	TouchDownLiftOff.aimingPoint.ElevatedPoint.geoidUndulation, TouchDownLiftOff.aimingPoint.ElevatedPoint.horizontalAccuracy
Length	TouchDownLiftOff.length, TouchDownLiftOff.annotation[propertyName='length'].Note
Width	TouchDownLiftOff.width, TouchDownLiftOff.annotation[propertyName='width'].Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Slope	TouchDownLiftOff.slope
Markings	TouchDownLiftOffMarking.markingICAOStandard, TouchDownLiftOffMarking.condition, TouchDownLiftOffMarking.element.MarkingElement.colour, TouchDownLiftOffMarking.element.MarkingElement.style, TouchDownLiftOffMarking.element.MarkingElement.extent_surfaceExtent.ElevatedSurface, TouchDownLiftOffMarking.markedTouchDownLiftOff
Surface type	TouchDownLiftOff.SurfaceCharacteristics.composition, TouchDownLiftOff.surfaceProperties.SurfaceCharacteristics.classPCN, TouchDownLiftOff.surfaceProperties.SurfaceCharacteristics.pavementTypePCN, TouchDownLiftOff.surfaceProperties.SurfaceCharacteristics.pavementSubgradePCN, TouchDownLiftOff.surfaceProperties.SurfaceCharacteristics.maxTyrePressurePCN, TouchDownLiftOff.surfaceProperties.SurfaceCharacteristics.evaluationMethodPCN
Remarks	TouchDownLiftOff.annotation

1.2.11 Radio Navigation Aid

From UAE electronic AIP, the mapping will be for the content of the following sections (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

GEN 2.5 “List of radio navigation aids” – *line a);*

ENR 4.1 “Radio navigation aids — en-route” – *line g);*

ENR 4.2 “Special navigation systems” – *line h), to date, no special navigation systems in UAE;*

AD 2.19 “Radio navigation and landing aids” – *line q)*;

AD 3.18 “Radio navigation and landing aids” – *line s) (where applicable as related to HEL)*.

1.2.11.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type	Navaid.type
Identification	Navaid.designator and/or (VOR.designator Or DME.designator Or Glidepath.designator Or Localizer.designator Or NDB.designator Or MarkerBeacon.auralMorseCode)

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PANS-AIM	AIXM 5.1/AIXM 5.1.1
Name	Navaid.name and/or VOR.name Or DME.name Or Glidepath.name Or Localizer.name Or NDB.name
Aerodrome served	Navaid.servedAirport

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Hours of operation	Navaid.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval and/or VOR.availability.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval Or DME.availability.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval Or Glidepath.availability.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval Or Localizer.availability.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval Or NDB.availability.NavaidOperationalStatus[operationalStatus='OPERATIONAL'].timeInterval

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Magnetic variation - Angle	VOR.magneticVariation Or DME.magneticVariation Or Glidepath.magneticVariation Or Localizer.magneticVariation Or NDB.magneticVariation, VOR.magneticVariationAccuracy Or DME.magneticVariationAccuracy Or Glidepath.magneticVariationAccuracy Or Localizer.magneticVariationAccuracy Or NDB.magneticVariationAccuracy

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Magnetic variation - Date	VOR.dateMagneticVariation Or DME.dateMagneticVariation Or Glidepath.dateMagneticVariation Or Localizer.dateMagneticVariation Or NDB.dateMagneticVariation

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Frequency	Localizer.frequency or Glidepath.frequency or VOR.frequency or MarkerBeacon.frequency or NDB.frequency or SDF.frequency Or DME.ghostFrequency
Channel	TACAN.channel or DME.channel or Azimuth.channel

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Position	(Navaid.location.ElevatedPoint, Navaid.location.ElevatedPoint.horizontalAccuracy) and/or (VOR.location.ElevatedPoint, VOR.location.ElevatedPoint.horizontalAccuracy) Or (DME.location.ElevatedPoint, DME.location.ElevatedPoint.horizontalAccuracy) Or (Glidepath.location.ElevatedPoint, Glidepath.location.ElevatedPoint.horizontalAccuracy) Or (Localizer.location.ElevatedPoint, Localizer.location.ElevatedPoint.horizontalAccuracy) Or (NDB.location.ElevatedPoint, NDB.location.ElevatedPoint.horizontalAccuracy)

Elevation	Navaid.location.ElevatedPoint.elevation, Navaid.location.ElevatedPoint.verticalAccuracy, Navaid.location.ElevatedPoint.verticalDatum, (DME.location.ElevatedPoint.elevation, DME.location.ElevatedPoint.verticalAccuracy, DME.location.ElevatedPoint.verticalDatum) Or (Glidepath.location.ElevatedPoint.elevation, Glidepath.location.ElevatedPoint.verticalAccuracy, Glidepath.location.ElevatedPoint.verticalDatum) Or (Localizer.location.ElevatedPoint.elevation, Localizer.location.ElevatedPoint.verticalAccuracy, Localizer.location.ElevatedPoint.verticalDatum) Or (NDB.location.ElevatedPoint.elevation, NDB.location.ElevatedPoint.verticalAccuracy, NDB.location.ElevatedPoint.verticalDatum)

PANS-AIM	AIXM 5.1/AIXM 5.1.1
	Or (VOR.location.ElevatedPoint.elevation, VOR.location.ElevatedPoint.verticalAccuracy, VOR.location.ElevatedPoint.verticalDatum)
Magnetic bearing /True bearing	Localizer.magneticBearing, Localizer.magneticBearingAccuracy, Localizer.trueBearing, Localizer.trueBearingAccuracy
Zero bearing direction	VOR.zeroBearingDirection
Purpose (A, E)	Navaid.purpose
Runway served	Navaid.runwayDirection
Type of supported Operations (e.g. ILS CAT)	Navaid.signalPerformance
Course Quality	Navaid.courseQuality
Integrity Level	Navaid.itegrityLevel
Collection	Navaid.NavaidComponent.collocationGroup
Station declination (angle) for ILS and VORDME;	Localizer.declination
Declination	VOR.declination
Azimuth remarks	Azimuth.annotation
Angle i.e. GP angle	Glidepath.slope
RDH	Glidepath.rdh

PANS-AIM	AIXM 5.1/AIXM 5.1.1
DOC(designated operational coverage)	RadioFrequencyArea, RadioFrequencyArea.equipment_navaidEquipment, VOR.annotation Or DME.annotation Or Glidepath.annotation Or Localizer.annotation Or NDB.annotation

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Remarks	Navaid.annotation, VOR.annotation Or DME.annotation Or Glidepath.annotation Or Localizer.annotation Or NDB.annotation

1.2.12 Aeronautical Ground Light

From UAE electronic AIP, the mapping will be for the content of the following section (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 4.5 “Aeronautical Ground Lights — En-route” – *line j), see Note;*

Note: The paragraph 5.3.3.1.1 does not contain any list of minimal properties for this feature. Therefore, for compliancy reason and to solve the inconsistency, we selected the elements following ICAO Doc 10066 PANS AIM Aeronautical Data Catalogue (Table A1-5) as well as by validating with the table heading/content of UAE AIP section 4.5.

1.2.12.1 AIXM 5.1/AIXM 5.1.1 Mapping details

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Type	AeronauticalGroundLight.type
Name	AeronauticalGroundLight.name
Intensity	AeronauticalGroundLight.annotation.Note

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Characteristics	AeronauticalGroundLight.colour, AeronauticalGroundLight.flashing, AeronauticalGroundLight.annotation.Note
Hours of operations	AeronauticalGroundLight.annotation.Note
Position	AeronauticalGroundLight.location.ElevatedPoint

1.2.13 En-Route Holding

From UAE electronic AIP, the mapping will be for the content of the following section (ICAO Doc. 10066 PANS-AIM paragraph 5.2.1.1.3) respectively:

ENR 3.6 "En - Route Holding" – *line f), see Note;*

Note: The paragraph 5.3.3.1.1 does not contain any list of minimal properties for this feature. Therefore, for compliancy reason and to solve the inconsistency, we selected the elements following ICAO Doc 10066 PANS AIM Aeronautical Data Catalogue (Table A1-3) as well as by validating with the table heading/content of UAE AIP section 3.6.

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Identification	N/A
Type	HoldingPattern[type='ENR'].type
Fix	HoldingPattern.holdingPoint.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint Or HoldingPattern.holdingPoint.EnRouteSegmentPoint.pointChoice_navaidSystem
Waypoint	HoldingPattern.holdingPoint.EnRouteSegmentPoint.pointChoice_fixDesignatedPoint Or HoldingPattern.holdingPoint.EnRouteSegmentPoint.pointChoice_navaidSystem
Inbound track	HoldingPattern.inboundCourse
Turn Direction	HoldingPattern.turnDirection
Speed	HoldingPattern.speedLimit

PANS-AIM	AIXM 5.1/AIXM 5.1.1
Level - Minimum holding level	HoldingPattern.lowerLimit, HoldingPattern.lowerLimitReference
Level - Maximum holding level	HoldingPattern.upperLimit, HoldingPattern.upperLimitReference
Time/distance outbound	HoldingPattern.outboundLegSpan_endTime.HoldingPatternDuration.duration Or HoldingPattern.outboundLegSpan_endDistance.HoldingPatternDistance.length
Special holding entry procedure	HoldingPattern.instruction
Controlling Unit	AirTrafficControlService.Name, AirTrafficControlService.call-sign, AirTrafficControlService.radioCommunication, AirTrafficControlService.clientHolding, RadioCommunicationChannel.frequencyTransmission

1.3 Metadata to be included in AIP Data set File

1.3.1 Scope

Metadata shall be collected for aeronautical data processes and exchange points throughout the aeronautical information data chain, from origination to distribution to the next intended user.

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 are traceable throughout the aeronautical data chain in order to allow any data anomalies or errors detected to be identified by root cause, corrected and communicated to affected users.

1.3.2 Metadata requirements for UAE AIP Data set

Generally, AIS has the responsibility to verify the collected data from the surveyor/originator. Moreover, AIS has the obligation to provide data sets to the next intended user.

Metadata is essential in the understanding, processing and delivery of information by using an information service. Metadata should enable information service consumers to evaluate the originating source of information, the quality of service and information before consuming the information service.

Information service providers should specify the origins and/or sources of the data and they should also provide information on any subsequent modifications applied in the *Source of Information* metadata field of the information Service Overview.

If an information service provider does not make the source of information available, the *Source of Information* metadata field shall specify “NIL”.

Information service providers shall provide a description of the geographic coverage of the data and information exchanged in the information service payload in the *Geographical Extent of Information* metadata field of the information Service Overview to allow information service consumers understand the geographical coverage of the information being provided.

The geographic coverage should be expressed in terms of ICAO region, FIR, Aerodrome, polygon, etc. More granular information such as coverage at Airport X, FIR Y should be provided as it may facilitate search responses when provided.

The *Figure* below is summarizing the ICAO Annex 15 requirements regarding the metadata thru the data chain in general, but the specific metadata requirements are shown in the “ICAO Data Set” section of the Figure. These should be supplemented by the need to use the ISO 19100 series as the reference framework, the need for data protection and the need to include specific requirements for geographical information metadata (ref. ISO Standards 19115).

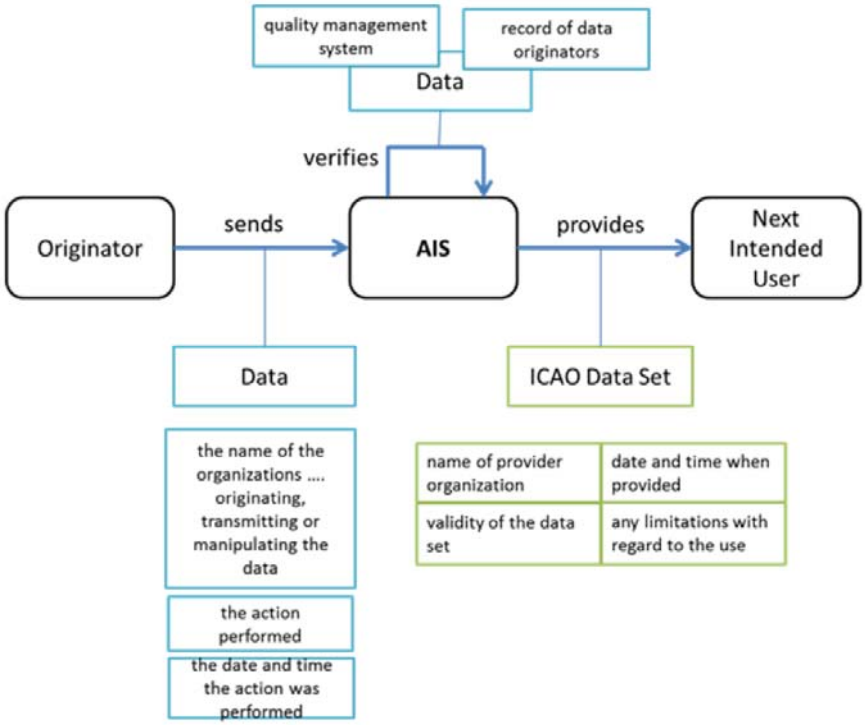
The metadata to be collected shall include, as a minimum (ICAO Doc. 10066 PANS-AIM):

a) The names of the organizations or entities providing the data set;

b) The date and time when the data set was provided;

c) Period of validity of the data set (not required, validity of each feature lifetime will be present with each feature);

d) Any limitations with regard to the use of the data set;



Below is a sample Metadata code and value list highlighted in "yellow" that will be included in UAE AIP Data set.

Important Note: Metadata will be present at Message Level.

```
<gmd:MD_Metadata>
  <gmd:characterSet>
    <gmd:MD_CharacterSetCode
codeList="http://www.aixm.aero/schema/5.1/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode"
                codeListValue="utf8">utf8</gmd:MD_CharacterSetCode>
  </gmd:characterSet>
  <gmd:contact/>
  <gmd:dateStamp>
    <gco:DateTime>2019-12-15T08:25:15.914Z</gco:DateTime>
  </gmd:dateStamp>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
```

```
<gmd:CI_Citation>
  <gmd:title>
    <gco:CharacterString>Publisher identifier</gco:CharacterString>
  </gmd:title>
  <gmd:date>
    <gmd:CI_Date>
      <gmd:date>
        <gco:DateTime>2019-12-15T08:25:15.914Z</gco:DateTime>
      </gmd:date>
      <gmd:dateType>
        <gmd:CI_DateTypeCode
codeList="http://www.aixm.aero/schema/5.1/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#CI_DateTypeCode"
                             codeListValue="creation">creation</gmd:CI_DateTypeCode>
      </gmd:dateType>
    </gmd:CI_Date>
  </gmd:date>
</gmd:CI_Citation>
</gmd:citation>
<gmd:abstract/>
<gmd:pointOfContact>
  <gmd:CI_ResponsibleParty>
    <gmd:organisationName>
      <gco:CharacterString>General Civil Aviation Authority AIM Department
</gco:CharacterString>
    </gmd:organisationName>
    <gmd:contactInfo>
      <gmd:CI_Contact>
        <gmd:phone>
          <gmd:CI_Telephone>
            <gmd:voice>
              <gco:CharacterString>00971 2 599 6895</gco:CharacterString>
            </gmd:voice>
            <gmd:facsimile>
              <gco:CharacterString>00971 2 599 6889</gco:CharacterString>
            </gmd:facsimile>
```

```
            </gmd:CI_Telephone>
          </gmd:phone>
          <gmd:address>
            <gmd:CI_Address>
              <gmd:city>
                <gco:CharacterString>Abu Dhabi</gco:CharacterString>
              </gmd:city>
              <gmd:postalCode>
                <gco:CharacterString>666</gco:CharacterString>
              </gmd:postalCode>
              <gmd:country>
                <gco:CharacterString>United Arab Emirates</gco:CharacterString>
              </gmd:country>
              <gmd:electronicMailAddress>
                <gco:CharacterString>aim@szc.gcaa.ae</gco:CharacterString>
              </gmd:electronicMailAddress>
            </gmd:CI_Address>
          </gmd:address>
        </gmd:CI_Contact>
      </gmd:contactInfo>
      <gmd:role>
        <gmd:CI_RoleCode
codeList="http://www.aixm.aero/schema/5.1/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#CI_RoleCode"
                codeListValue="publisher">publisher</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:pointOfContact>
  <gmd:language>
    <gco:CharacterString>eng</gco:CharacterString>
  </gmd:language>
 </gmd:MD_DataIdentification>
</gmd:identificationInfo>
</gmd:MD_Metadata>
</aixm:messageMetadata>
```

1.4 Stages of Development

UAE AIP Data set development and testing will be performed in two (2) stages:

1. SNAPSHOT file will include metadata + Mapping properties of AIP Data set(AIP Amendments only Permanent AIXM Changes);
2. SNAPSHOT file will include metadata + Mapping properties of AIP Data set(AIP Amendments only Permanent AIXM Changes + AIP Supplements temporary AIXM changes valid more than 3 months or longer)

APPENDIX 4F

Data Integrity Monitoring and Assurance

To comply with ICAO Doc 10066 para 2.2 Data Integrity Monitoring and Assurance, Hash functions (SHA512 Secure Hashing Algorithm) is used to authenticate and verify the integrity of the provided aeronautical information.
Please note that the procedure provided is for MS Windows platform.
SHA512 Hash for eAIP zip file (YYYY-PNN.zip) is provided in the AIP update notification email and is also published on the webpage PackageHash (https://www.gcaa.gov.ae/en/ais/AIPHtmlFiles/AIP/Current/PackageHash.html)
SHA512 Hash for each file is listed in the excel file HashList.xlsx along with the Windows shell command for generating the codes for verification.
After downloading the eAIP zip file or any individual file, use the following steps to generate the SHA512 Hash and verify the downloaded file:
1. Open command prompt or Windows PowerShell from the Start menu
2. Type the command cd "folder path where the file is saved" Example: cd “c:\AIP”
3. Type the command certutil -hashfile [Enter filename to be checked] SHA512
4. Press Enter
5. After a while the SHA512 Hash is generated and displayed
6. For assurance, compare the value with the SHA512 Hash provided as specified above.

If the two SHA512 Hash are the same, you can consider your download is complete and the file is safe to use. If not, it is better to download it again to assure integrity.
The SHA512 Hash of any files inside the unzipped eAIP, can be verified by using the below procedure:
1. Go to the folder that contains the excel file (HashList.xlsx) in the unzipped folder and open the excel file
2. Copy the command in line with the file that is intended to be checked
3. Open command prompt or Windows PowerShell from the Start menu
4. Type the command cd "folder path where the excel file" Example: cd “c:\AIP”
5. Paste the copied command
6. Press Enter
7. After a while the SHA512 Hash is generated and displayed
8. For assurance, compare the value with the SHA512 Hash in the excel file

If the two SHA512 Hash are the same, the integrity of the file is assured. If not, report the issue to the publishing authority (aim@szc.gcaa.ae)
Note: If unable to run the commands, kindly coordinate with your IT staff for support, before reporting to the publishing authority (aim@szc.gcaa.ae)
You may be viewing the eAIP with the wrong character set. Set the correct encoding as follows:
• **In Firefox:** View > Character Encoding > Unicode (UTF-8)
• **In Internet Explorer:** View > Encoding > Unicode (UTF-8)

Is there any other nifty eAIP navigation stuff I don't know about?
Maybe! Did you know:
• You can see the explanation for underlined abbreviations by hovering over them with your mouse pointer?
• You can see the full name of an airport by hovering over its underlined location indicator with your mouse pointer?
• You can view the notes in ENR 3 route tables by hovering over the small note lines (they look like this: (1)) with your mouse pointer?

APPENDIX 5A

Deficiencies in the AIM field

EGYPT

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 15 : 5.3.3.4.3 5.3.3.4.5 5.3.3.4.10	-	Lack of provision of required obstacle data sets	May 2014	-	O	Phase 1: Determine the required specification for Obstacles area 1 and 4; Phase 2: provide the required specification to Consultancy office to determine the implementing entity; Phase 3: Determine the implementing entity and begin to produce new software for eTOD; Phase 4: finish the new software and begin to produce eTOD area 4 (from existing raw data from Cairo International Airport Company); Phase 5 (in parallel with phase 4): begin to produce eTOD area 1 after get raw data Terrain data sets are provided for Areas 1 and 4. Terrain data sets for area 2a, TOFP and OLS are not provided.	Egypt	Q4 2025	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

2	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3 5.3.3.3.8	-	Lack of provision of required terrain data sets	Jan 2021	-	O	Phase 1: Determine the required specification for Obstacles area 1 and 4; Phase 2: provide the required specification to Consultancy office to determine the implementing entity; Phase 3: Determine the implementing entity and begin to produce new software for eTOD; Phase 4: finish the new software and begin to produce eTOD area 4 (from existing raw data from Cairo International Airport Company); Phase 5 (in parallel with phase 4): begin to produce eTOD area 1 after get raw data Terrain data sets are provided for Areas 1 and 4. Terrain data sets for area 2a, TOFP and OLS are not provided.	Egypt	Q4 2025	A

Deficiencies in the AIM field

IRAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 15: Para. 2.3.10 and 3.5.3	-	Lack of AIXM-based AIS Database	Dec 2007	-	O	Based on the Corrective action plan it's divided into two millstones, First; Setup up new software till DEC 2022, and Second Update the database by End of July 2024.	Iran	Dec 2025	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

2	ANNEX 15 : 5.3.3.4.3 5.3.3.4.5 5.3.3.4.10	-	Lack of provision of required obstacle data sets	Jan 2021	-	O	Obstacle data sets are available for Areas 1, 4 and 2a. Obstacle data sets for TOFP and OLS are not provided.	Iran	Dec 2026	A
3	ANNEX 15 : 5.3.3.3.2 5.3.3.3.3 5.3.3.3.8	-	Lack of provision of required terrain data sets	Jan 2021	-	O	Terrain data sets are available for Areas 1, 4 and 2a. Terrain data sets for TOFP and OLS are not provided.	Iran	Dec 2026	A

Deficiencies in the AIM field

IRAQ

Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO 1:1 000 000	May 1995	-	F H S	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	B

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

2	ANNEX 15: Para. 1.2.1.1	-	Implementation of geoid undulation referenced to the WGS-84 ellipsoid	Dec 1997	-	F H O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	A
3	ANNEX 15: Para. 3.6	QMS Implementation	Lack of Implementation of QMS	Jan 2003	-	F H O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	A
4	ANNEX 15: Para. 5.5	-	Non provision of pre-flight information service at international airports	Mar 2004	-	F H O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	A
5	ANNEX 15: Para.5.3.3.4.3 5.3.3.4.5 5.3.3.4.10	-	Lack of provision of required obstacle data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

6	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3 5.3.3.3.8	-	Lack of provision of required terrain data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec 2024	A

Deficiencies in the AIM field

JORDAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO1:1 000 000	Feb 2008	-	F H	Corrective Action Plan has not been formally provided by the State	Jordan	Dec 2024	B
2	ANNEX 15: Para. 5.3.3.4.3 5.3.3.4.5 5.3.3.4.10	-	Lack of provision of required obstacle data sets	May 2014	-	F H	Corrective Action Plan has not been formally provided by the State	Jordan	Dec 2024	A

(1) Rationale for non-elimination: "F" = Financial "H" = Human Resources "S" = State (Military/political) "O" = Other unknown causes

3	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3 5.3.3.3.8	-	Lack of provision of required terrain data sets	May 2014	-	F H	Corrective Action Plan has not been formally provided by the State	Jordan	Dec 2024	A

Deficiencies in the AIM field

LEBANON

Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO1:1 000 000	May 1995	-	H	Corrective Action Plan was provided in August 2016.	Lebanon	Dec 2024	B
2	ANNEX 15: Para. 3.6	QMS Implementation	Lack of Implementation of QMS	Jan 2003	(USOAP-CMA finding)	H	Corrective Action Plan was provided in August 2016.	Lebanon	Dec 2024	A

(1) Rationale for non-elimination: "F" = Financial "H" = Human Resources "S" = State (Military/political) "O" = Other unknown causes

3	ANNEX 15: 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	Corrective Action Plan was provided in August 2016.	Lebanon	Dec 2024	A
4	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	Corrective Action Plan was provided in August 2016.	Lebanon	Dec 2024	A

Deficiencies in the AIM field

LIBYA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO 1:1 000 000	May 2014	-	O	Plan to Sign a contract with a specialized company for the production of this chart.	Libya	Dec 2025	B
2	ANNEX 15: Para. 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	Obstacle old data for six airports have been entered into the AIM system – and awaiting for a survey updates.	Libya	Dec 2025	A
3	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	Terrain old data for six airports have been entered into the AIM system – and awaiting for a survey updates.	Libya	Dec 2025	A

(1) Rationale for non-elimination: "F" = Financial "H" = Human Resources "S" = State (Military/political) "O" = Other unknown causes

4	ANNEX 15: Para. 2.3.10 and 3.5.3	-	Lack of AIXM-based AIS Database	May 2014	-	O	The installation of AIM equipment has been completed , Awaiting for Data Migration	Libya	Dec 2025	A
5	ANNEX 15: Para. 3.6	QMS Implementation	Lack of Implementation of QMS	May 2014	(USOAP-CMA finding)	O	An agreement with an International quality company is Established to assist for Progressive implementation of Quality systems within LYCAA ; AIS QMS is expected to be fully Implemented by DEC 2025	Libya	Dec 2025	A

Deficiencies in the AIM field

OMAN

Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 15: Para. 2.3.10 and 3.5.3	-	Lack of AIXM-based AIS Database	Jul 2005	-	O	Scope of work has been developed; Tender has been floated; Contract to be signed with a company to start AIP data migration and provision of the AIXM-based AIS Database	Oman	June 2024	A
2	ANNEX 15: Para. 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	TOD implementation working group has been established; TOD implementation focal points have been nominated; TOD policy to be developed; Tender to be floated; Contract to be signed with a company to provide obstacle data sets for Area 1, 2a , TOFP and OLS penetrations at aerodromes.	Oman	Dec 2025	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

3	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	TOD implementation working group has been established; TOD implementation focal points have been nominated; TOD policy to be developed; Tender to be floated; Contract to be signed with a company to provide terrain data sets for Area 1, 2a , TOFP and OLS penetrations at aerodromes.	Oman	Dec 2025	A

Deficiencies in the AIM field

SUDAN

Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 15: Para. 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Sudan	Dec 2026	A
2	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Sudan	Dec 2026	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

Deficiencies in the AIM field SYRIA										
Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO1:1 000 000	May 1995	-	F H S	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	B
2	ANNEX 15: Para 6.2	-	Lack of a system for AIRAC adherence monitoring	May 1995	-	F H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
3	ANNEX 15: Para. 1.2.1.1	-	Implementation of geoid undulation referenced to the WGS-84 ellipsoid.	Jan 2003	-	F H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
4	ANNEX 15: Para. 3.6	QMS Implementation	Lack of Implementation of QMS	Jan 2003	(USOAP-CMA finding)	F H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

5	ANNEX 15 Para. 5.2 and 6.3.1	-	Lack of consistency in AIP information and lack of regular and effective updating of the AIP.	Jul 2005	-	H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
6	ANNEX 15: Para. 2.3.10 and 3.5.3	-	Lack of AIXM-based AIS Database	Jul 2005	-	F H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
7	ANNEX 15: Para. 5.5	-	Non provision of pre-flight information service at international airports	Jul 2005	-	F H	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
8	ANNEX 15: Para. 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A
9	ANNEX 15: Para. 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec 2024	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

Deficiencies in the AIM field YEMEN										
Item No	**Identification**		**Deficiencies**				**Corrective Action**			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	ANNEX 4: Para. 16.2	-	Non-production of World Aeronautical Chart – ICAO1:1 000 000	May 1995	-	F	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	B
2	ANNEX 15: Para 6.2	-	Lack of a system for AIRAC adherence monitoring	May 1995	-	H O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A
3	ANNEX 4: Para. 11.2	-	Non-production of Instrument Approach Chart-ICAO for TAIZ Intl. Airport	Jan 2003	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2025	A
4	ANNEX 15: Para. 3.6	QMS Implementation	Lack of Implementation of QMS	Jan 2003	-	F	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A

(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

5	ANNEX 15: Para. 5.5	-	Non provision of pre-flight information service at international airports	Mar 2004	-	F H	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A
6	ANNEX 15: Para. 2.3.10 and 3.5.3	-	Lack of AIXM-based AIS Database	Jul 2005	-	F	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A
7	ANNEX 15 : Para 5.3.3.3.2 5.3.3.3.3	-	Lack of provision of required terrain data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A
8	ANNEX 15 : Para. 5.3.3.4.3 5.3.3.4.5	-	Lack of provision of required obstacle data sets	May 2014	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec 2024	A

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(1) Rationale for non-elimination: “F” = Financial “H” = Human Resources “S” = State (Military/political) “O” = Other unknown causes

APPENDIX 6A

AERONAUTICAL INFORMATION MANAGEMENT SUB-GROUP (AIM SG)

1. TERMS OF REFERENCE

1.1 The Terms of Reference of the AIM Sub-Group are:

a) ensure that the implementation of AIM in the MID Region is coherent and compatible with developments in adjacent regions, and is in line with the Global Air Navigation Plan (GANP), the Aviation System Block Upgrades (ASBU) framework and the MID Region Air Navigation Strategy;

b) monitor the status of implementation of the MID Region AIM-related ASBU Threads /elements included in the MID Region Air Navigation Strategy as well as other required AIM facilities and services; identify the associated difficulties and deficiencies and provide progress reports, as required;

c) keep under review the MID Region AIM performance objectives/priorities, develop action plans to achieve the agreed performance targets and propose changes to the MID Region AIM plans/priorities;

d) seek to achieve common understanding and support from all stakeholders involved in or affected by the AIM developments/activities in the MID Region;

e) provide a platform for harmonization of developments and deployments in the AIM domain;

f) monitor and review the latest developments in the area of AIM and procedure design issues associated to AIM, provide expert inputs for AIM-related issues; and propose solutions for meeting ATM operational requirements;

g) provide regular progress reports to the MIDANPIRG concerning its work programme; and

h) review periodically its Terms of Reference and propose amendments, as necessary.

1.2 In order to meet the Terms of Reference, the AIM Sub-Group shall:

a) monitor the status of implementation of the required AIM facilities, products and services in the MID Region;

b) assist States in the development of National AIM Plans/Roadmaps through the development and continuous update of the Regional AIM Roadmap identifying the priorities and timelines for implementation, in particular for the implementation of Digital Datasets;

c) assess and provide progress reports on the transition from AIS to AIM in the MID Region;

d) provide necessary assistance and guidance to States to ensure harmonization and interoperability in line with the GANP, the MID ANP and ASBU framework;

e) provide necessary inputs to the MID Region Air Navigation Strategy through the monitoring of the agreed Key Performance Indicators related to AIM;

f) identify and review those specific deficiencies and problems that constitute major obstacles to the provision of efficient AIM services, and recommend necessary remedial actions;

g) keep under review the adequacy of ICAO SARPs requirements in the area of AIM, taking into account, inter alia, changes in user requirements, the evolution of operational requirements and technological developments;

h) develop proposals for the updating of relevant ICAO documentation related to AIM, including the amendment of relevant parts of the MID ANP, as deemed necessary;

i) monitor and review technical and operating developments in the area of AIM and foster their implementation in the MID Region in a harmonized manner;

j) foster the integrated improvement of AIM services through proper training and qualification of the AIM personnel; and

k) Coordinate with relevant MIDANPIRG and RASG-MID Subsidiary bodies' issues with common interests.

2. COMPOSITION

1. 2.1 The Sub-Group will compose of:

a) MIDANPIRG Member States;

b) concerned International and Regional Organizations as observers; and

c) other representatives from provider States and Industry may be invited on ad hoc basis, as observers, when required.

3. WORKING ARRANGEMENTS

3.1. The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Subgroup. The Subgroup shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paper work (paperless meetings). Permanent contact shall be maintained between the Chairperson, Secretary and Members of the Subgroup to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.

3.2. Face-to-face meetings will be conducted when it is necessary to do so.

ATTACHMENT A

ICAO MID

ATTACHMENT A

AIM SG/11

(Amman, Jordan, 22 – 23 January 2025)

List of Participants

State		Name	Title
Egypt	1.	Ehab Moheyeldin Hussin Azmy	Chairman of the Board of National Air Navigation Comp.
	2.	Tarek Abdellatif Hamed	AIS General Manager
	3.	Mootaz Abdelaziz A. Elnaggar	Head of AIS Sector
	4.	Abdelaziz Mahmoud Abdelaziz	General Manager of Airspace Affairs
	5.	Sameh Samir Mohamed Ahmed	ANS Inspector
Iraq	6.	Sabreen Ali Oudah	AIS
	7.	Hassan Hammoodi Ali	AIS
Jordan	8.	Raed Ghazawi	Chief AIS HQ
	9.	Tareq Okleh Abdalah Al Momani	Chief AIS
	10.	Munther Farhan Al-Qaisi	AIS NOF Office A.Chief
	11.	Tarik Mohammed Khalil Al-Rabee	AIS Officer
	12.	Mohammad Faris M. Obeidat	AIS Officer
	13.	Natasha Hanna Haddadin	AIS Officer
	14.	Areej Al Ajou	ANS Inspector
	15.	Mohieb Khaled Mohammad Bani Melhem	AIS Officer
	16.	Salameh.Alzboon	AIS officer
	17.	Mahmoud Mohammed Al-Ramini	AIS Officer
	18.	Hamzeh BaniSalamah	AIS officer
	19.	Asem Moh'd Uweineh	AIS officer
	20.	Tuqa Alamr	AIS officer
	21.	Sara Abu Rumman	AIS officer
Libya	22.	Said Ahmed Azabi	Head of Libyan AIP Unite
	23.	Emad Miftah Elqaddafi	Head of Notam Unit
	24.	Nagi Zaghdun	Head of Libyan AIS
	25.	Abdalhadi Abdallah Arebi	AIS Officer
	26.	Samir R. Rayes	AIS Auditor
Oman	27.	Mashaal Abdul Aziz Al-Balushi	AIM Director
	28.	Samiya Salim Al-Battashi	Act. Chief of Aeronautical Data Management
	29.	Ahmed M. Othman Al-Nabbani	AIS Senior Officer

State		Name	Title
Saudi Arabia	30.	Hadi Ahmad Alghamdi	AIP Head Section
	31.	Ibrahim S. Alshaia	AIM Manager
	32.	Mohamed Ali Ben Abdessalem	AIM Strategy Specialist
	33.	Hind Abulaziz Almohaimeed	ANS Senior Inspector
	34.	Sarah Alotaibi	AIP Analyst
	35.	Osama O. Alshotairi	AIP Supervisor
UAE	36.	Abdalla Al Rashdi	Director - AIM
	37.	Hamed Ali Al Zubaidi	Assistant Manager PANS-OPS
Organization/Industries			
ADI	38.	Sumit Khinranara	MD
IATA	39.	Lindi-Lee Kirkman	Head of Operations, ATM, and Infrastructure - AME
NGA	40.	Matthew Bourvic	International Aeronautical Representative
ICAO MID	41.	Mr. Radhouan Aissaoui	Regional Officer, Information Management (IM)

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