INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE FIRST MEETING OF THE AIRSPACE MANAGEMENT WORKING GROUP

ASM WG/1

(Doha, Qatar, 1 – 2 October 2024)

The views expressed in this Report should be taken as those of the MIDANPIRG ATM 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

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1. PLACE AND DURATION

1.1 The First Meeting of the Airspace Management Working Group (ASM WG/1) was kindly hosted by Qatar Civil Aviation Authority (QCAA) in Doha, Qatar, back-to-back with the Free Route Airspace (FRA) Workshop during the period 30 September to 2 October 2024, at Qatar Air Traffic Control Centre (QATCC).

2. OPENING

2.1 The meeting was opened by Mr. Eissa Al-Meabid, Head of Air Traffic Control, Air Navigation Department, Qatar CAA, who thanked ICAO for organizing these important meetings in Qatar. He extended a warm welcome to all participants and wished them a pleasant stay in Doha.

2.2 In his opening address, Mr. Mohamed Smaoui, Deputy Regional Director, (DRD), ICAO Middle East Office, Cairo, welcomed all the participants to the meeting and highlighted the importance of the subjects addressed under the ATM SG and its subsidiary bodies. He expressed his gratitude and appreciation to QCAA for hosting the events. Mr. Smaoui extended special thanks to the organizing team for the preparation and facilitation of these events and for the excellent hospitality extended to the ICAO team and all participants. He highlighted that the support to the ICAO MID Regional Office activities is evidence of the active role of Qatar and reflects the commitment to enhancing the overall safety and efficiency of air navigation in the MID Region.

2.3 Mr. Ahmad Amireh, Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR), ICAO Middle East Office, Cairo provided the meeting with an overview of the subjects that will be addressed during the meeting and highlighted the main expected outcomes. Mr. Amireh indicated that the agenda of the meeting includes subjects related to the establishment of the Working Group, Air Navigation Plans, and other ASM related subjects. In this respect, he thanked the participants from States and international organizations for their attendance and active participation in the discussion of the subjects of the submitted working papers and presentations. Mr. Amireh wished the meeting success in its deliberations.

3. ATTENDANCE

3.1 The meeting was attended by a total of forty-nine (49) participants from eight (8) States (Bahrain, Egypt, Jordan, Libya, Oman, Qatar, Saudi Arabia and UAE) and two (2) Organizations (AFCAC and IATA). The list of participants is at **Attachment A**.

4. CHAIRPERSON AND SECRETARIAT

4.1 Mr. Saqr Obaid Al Marashda, Senior Manager Airspace Management, ANS/ATM, SZC, UAE, and Mr. Wael Ezzat, ACC Manager, Egypt, were unanimously elected as the Chairperson and the Vice Chairperson, respectively, of the Airspace Management Working Group (WP/1 refers).

4.2 Mr. Ahmad Amireh, Regional Officer, Air Traffic Management and Search and Rescue (RO/ATM/SAR) and Mr. Ahmad Kavehfirouz, Regional Officer, Air Traffic Management (RO/ATM) were the Secretaries of the meeting, supported by Mr. Mohamed Smaoui, Deputy Regional Director (DRD), ICAO MID Regional Office.

5. LANGUAGE

5.1 Discussions were conducted in English and documentation was issued in English.

6. AGENDA

6.1 The following Revised Agenda was adopted:

Agenda Item 1: Election of Chairpersons

Agenda Item 2: Adoption of the Provisional Agenda

Agenda Item 3: ASM WG Terms of Reference

Agenda Item 4: MID Air Navigation Plan

Agenda Item 5: ASM Challenges and Enhancements

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.

PART II: REPORT ON AGENDA ITEMS

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REPORT ON AGENDA ITEM 1: ELECTION OF CHAIRPERSON

1.1 The subject was addressed in WP/1, presented by the Secretariat.

1.2 The meeting recalled the procedure included in the MIDANPIRG Procedural Handbook (MID Doc 001) and unanimously elected Mr. Saqr Obaid Al Marashda, Senior Manager Airspace Management, ANS/ATM, SZC, UAE, as the Chairperson; and Mr. Wael Ezzat, ACC Manager, Egypt, as the Vice Chairperson of the Airspace Management Working Group.

REPORT ON AGENDA ITEM 2: ADOPTION OF THE PROVISIONAL AGENDA

2.1 The subject was addressed in WP/2, presented by the Secretariat. The meeting reviewed and adopted the Agenda as at paragraph 6 of the History of the Meeting.

REPORT ON AGENDA ITEM 3: ASM WG TERMS OF REFERENCE

ASM WG Terms of Reference

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

3.2 The meeting noted that the Airspace Management Working Group was established by the MIDANPIRG/21 meeting to address the challenges in Airspace Management and provide a forum for the ATM specialists in the Region to work together to improve safety and efficiency, increase airspace capacity to meet future demand requirements; and reduce the environmental impact of increasing air traffic by offering improved ATM operations.

3.3 The meeting developed and agreed on the ASM WG Terms of Reference (ToR) as at **Appendix 3A**.

3.4 The meeting encouraged the States and international organizations to support the activities of the ASM WG.

REPORT ON AGENDA ITEM 4: MID AIR NAVIGATION PLAN

Implementation Status of the ASM related ASBU Threads and Elements

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

4.2 The meeting reviewed the status of implementation of the ASBU Threads/Elements related to Airspace Management with a focus on those with low level of implementation. Accordingly, the meeting urged States that have not achieved the target level of implementation of the ASM related ASBU Threads/Elements to take necessary actions to implement the concerned priority 1 Elements:

a) FICE, B0/1 (Automated basic inter facility data exchange (AIDC)), the regional level of implementation is increased to 39.39% compared to 26.19% in 2022; and

b) NOPS, B0/1 (Initial integration of collaborative airspace management with air traffic flow management), the regional level of implementation is 41.67%, the same as the year 2022.

4.3 The meeting reviewed and agreed on the proposed changes to the MID Region Air Navigation Strategy (Table 1. MID Region ASBU Threads & Elements (Block 0 & 1) prioritization and monitoring) as at **Appendix 4A**.

Roadmap for FF-ICE Implementation

4.4 The subject was addressed in WP/5, presented by UAE.

4.5 The meeting noted that the Flight and Flow — Information for a Collaborative Environment (FF-ICE) is a transformative initiative designed to overcome the limitations of the current ICAO 2012 flight plan system (FPL 2012). FF-ICE is a key enabler of ICAO's Global Air Traffic Management Operational Concept (GATMOC), which aims to achieve an integrated, harmonized, and globally interoperable air traffic management system.

4.6 Additionally, the meeting recalled that the current flight planning mechanisms limit the efficiency of airspace management, particularly in regions with rapidly growing air traffic, such as the MID Region. The transition to FF-ICE would provide substantial benefits by offering stakeholders access to more accurate, real-time data, which will enhance decision-making and improve the efficiency of operations.

4.7 The meeting highlighted the benefits and challenges towards the implementation of FF-ICE and the need to consider the early planning for implementation at regional level as priority for the ASM WG; and encouraged the States to include FF-ICE implementation in their national planning.

4.8 Based on the above, the meeting agreed to include FF-ICE implementation in the list of priority Subjects/Items to be considered by the ASM WG when developing specific and detailed Action Plans.

REPORT ON AGENDA ITEM 5: ASM CHALLENGES AND ENHANCEMENTS

Outcomes of the FRA Workshop

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

5.2 The meeting noted with appreciation that the Free Route Airspace (FRA) implementation Workshop was successfully conducted on 30 September 2024 in Doha, Qatar. 53 participants from 10 States and 2 International Organizations attended the Workshop.

5.3 The meeting reviewed and supported the outcomes (key takeaways) of the workshop at **Appendix 5A**.

5.4 The meeting commended Qatar, Saudi Arabia and UAE for sharing their experience related to the implementation of FRA; and encouraged States to use the key takeaways to support further implementation of the FRA within the MID Region.

Flexible Use of Airspace (FUA) Implementation

5.5 The subject was addressed in PPT/8, presented by Saudi Arabia.

5.6 The meeting noted with appreciation Saudi Arabia activities and achievements related to Civil-Military Cooperation and FUA, which significantly supported the efficiency of operations.

5.7 The meeting noted that a Workshop was conducted in Jeddah during the period 4 – 5 September 2024, in coordination with the Military Authorities and participation of delegates from Oman, Qatar and UAE to enhance the cooperation and exchange the experiences related to CMC/FUA.

5.8 The meeting agreed to consider the CMC/FUA in the priority actions list as a key enabler to enhance the efficiency of operations within the MID Region, in particular, through sharing experiences and best practices.

UAS/UTM and Low-Level Flying Operations

5.9 The subject was addressed in WP/9, presented by Saudi Arabia.

5.10 The meeting noted the rapidly evolving of Unmanned Aircraft Systems (UAS) and the need to integrate its operations within the ATM systems under the ICAO Global UAS Traffic Management (UTM), considering the equitable access to all airspace users considering the Safety and Efficiency objectives.

5.11 The meeting noted that Saudi Arabia conducted a study to adopt a layered structure for low-level altitude airspace for UAS operations as follows:

a) Layer 1: Very Low Level (GND – 400 ft AGL): mostly UAS operations, supported by UTM. Occasional manned operations integrated by means of the same services;

b) Layer 2: Urban Air Mobility (600 – 1000 ft) or (500-1000 ft): both manned and UAS traffic, including eVTOL and RPAS. Services to be defined, but an initial scenario could be the establishment of corridors for point-to-point operations, thus applying segregation with dynamic management of the corridors by Saudi Air Navigation Services Provider (ANSP); and

c) Layer 3: legacy and conventional aviation flights (1200 ft and above) or (1500 ft and above): mostly manned traffic, unmanned traffic allowed if IFR compliant.

5.12 Additionally, the meeting was informed about the discussion during the AN Conf/14 related to the proposal by Saudi Arabia related to the division of Class G to sub-classes, to meet the operational demands of UAS and allow safe management and integration of variety of users. The meeting noted that the AN Conf/14 agreed to refer the subject to the appropriate Expert Groups.

5.13 The meeting highlighted that the planning for the operation/integration of new entrants such as RPAS and UAS, to the MID Region airspace is part of the ASM WG TORs and should be included in the priority list/action plan of the ASM WG in the appropriate time.

ASM Challenges and Priorities

5.14 The subject was addressed in WP/6, presented by the Secretariat.

5.15 The meeting noted that the big number of ASM subjects that need to be addressed and agreed that, as a first step, the following topics are required to be considered as ***"focus areas"***:

1. *Implementation of PBN in Enroute*
2. *Implementation of reduction of longitudinal separation*
3. *ATS route structure network (including ATS route designators and 5LNCs)*
4. *ASM improvement (CMC and FUA, FRA, RAD, TOS, FLAS & LoA)*
5. *RPAS/UTM*
6. *FF-ICE implementation*

5.16 Based on the above focus areas and the complexity of the actions, the meeting agreed on the following priorities:

a) ***Low hanging fruit/Quick-Wins:*** identified issues/subjects requiring concrete action(s) that could be implemented in the short-term, which would contribute to the improvement of safety, efficiency and/or increase the capacity.

b) ***Medium to long term:*** any identified issues/subjects requiring a more complex plan of actions and longer timelines (medium to long-term) for the completion of implementation, which would contribute to the improvement of safety, efficiency and/or increase the capacity.

ASM WG Working Methodology and Action Plan

5.17 The subject was addressed in WP/13, presented by the Secretariat.

5.18 The meeting developed a template for the action plan as the framework for the continuation of ASM WG activities. Furthermore, the proposed action plan was drafted as the way forward in **Appendix 5B**.

Cairo FIR Optimization and FUA Implementation

5.19 The subject was addressed in PPT/10, presented by Egypt.

5.20 Egypt highlighted the scope of "Cairo FIR Airspace optimization and Civil-military coordination and FUA implementation" project, including the ATS route network developments in Cairo FIR and interfaces with adjacent FIRs, to support the needs of Airspace Users.

5.21 Additionally, the modernization plan for the ATM systems in Cairo ACC, Cairo Tower and Approach Unit; and the enhanced civil-military coordination procedures.

5.22 The meeting noted with appreciation the enhancements planned within Cairo FIR, which will enhance the interface with EUR/NAT Region and support the traffic flow within the Region. and invited the neighboring States and Airspace Users/IATA to collaborate during the planning and implementation phases.

5.23 Additionally, the meeting recalled with appreciation the efforts made by Egypt during the contingency situations within the Region, and the handling of the additional traffic demand during the traffic shift to operate through Cairo FIR to avoid other Airspaces, as well as the support provided by Egypt to Libya and Sudan.

Updates from Amman FIR

5.24 The subject was addressed in PPT/11, presented by Jordan.

5.25 The meeting noted the current situation within Amman FIR and an analysis of the traffic trends, ongoing projects and challenges, including the GNSS jamming and spoofing issues within the FIR.

Updates from Tripoli FIR

5.26 The subject was addressed in PPT/12, presented by Libya.

5.27 It was highlighted that the location of Tripoli FIR was important as regional interface with EUR/NAT and WACAF, and considered as main access to the African States. The normalization of Tripoli FIR would be considered accessibility and efficiency of flights.

5.28 The meeting noted the enhancements introduced to Tripoli FIR, including the establishment of Civil Military Coordination Committee, agreement between ATS and UAV authorities, development of SAR plan, etc.

5.29 The meeting recalled the user's consultation meeting organized by the MID Office on 22 August 2024 between officials from Libyan CAA and Airspace Users/IATA, aiming to explore the ANS within Tripoli FIR. It was reported that currently 39 flights operate through Tripoli FIR.

5.30 In connection with all the above, the meeting commended the States for ASM initiatives/projects implemented and/or progressing, and encouraged them to include the ongoing projects within the ASM Action Plan, for tracking and monitoring; and to coordinate with the MID Office for the inclusion of the completed projects in the Annual Air Navigation Report.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

ASM List of Focal Points

6.1 The subject was addressed in WP/14, presented by the Secretariat.

6.2 The meeting reiterated the importance of designation of Focal Points to support the work of the ASM WG. The ASM WG List of Focal Points is at **Appendix 6A**.

Date and Venue of the ASM WG/2 Meeting

6.3 The subject was addressed in WP/15, presented by the Secretariat.

6.4 The meeting agreed that the ASM WG/2 meeting will be held during Q1/2025.

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

True-North

7.1 The meeting noted IP/3 presented by UAE, related to the outcomes of the True North Advisory Group and the discussion during the ICAO Air Navigation Conference 14 (ANC/14) held at ICAO HQ in Montreal during the period 26 October to 6 September 2024.

APPENDICES

TERMS OF REFERENCE (TOR) OF THE MIDANPIRG AIRSPACE MANAGEMENT WORKING GROUP (ASM WG)

I. TERMS OF REFERENCE

1.1 The Airspace Management Working Group was established by the MIDANPIRG/21 meeting to address the challenges in Airspace Management and to provide a forum for the ATM specialists in the Region to collaborate to improve safety and efficiency, increase airspace capacity to meet future demand requirements; reduce the environmental impact of increasing air traffic by offering improved ATM operations. Therefore, the **Airspace Management Working Group (ASM WG)** Terms of Reference are as follows:

a) Address the MID Region Airspace Management challenges:

   i. conduct a holistic review and perform gap analysis of the MID ATS Routes Network in order to assess the regional capacity, hotspots and constraints;

   ii. identify requirements and improvements for enhancing safety and achieving an efficient airspace structure within the MID Region;

   iii. support states on coordinating the identified airspace and route structure requirements with relevant stakeholders (International Organizations, airspace user representative organizations and other ICAO Regions);

   iv. address areas of hot spots highlighted in the MIDRMA Annual Safety Monitoring Report (SMR);

   v. support States in resolving interface issues with adjacent ICAO Regions;

   vi. identify the Priority 1 ASBU elements with low level of implementation and support the States to overcome the challenges for the implementation of these elements; and

   vii. address MID ATS route designators and 5LNCs challenges.

b) Support the enhancements of MID airspace structure and ATS route network:

   i. improve connectivity and accessibility (specification, trajectory, spacing, etc.), considering the ability to offer additional routing options, to support operational requests, including contingency situations;

   ii. foster a harmonized implementation of Performance Based Navigation (PBN) within the enroute environment;

   iii. coordinate with the MIDRMA and IATA/airspace users to collect and analyse traffic data related to the proposed changes to the ATS Routes Network, as required;

   iv. develop a working repository for route proposals to be used as a dynamic reference for the establishment / modification of ATS routes; and

v. support the development, coordination and submission of Proposals for Amendment (PfA) for processing to ensure the continuous and coherent development and update of the MID ANP in the respective subjects.

c) Endeavour to enhance safety and efficiency; increase capacity and reduce the environmental impact of increasing air traffic through the implementation of improved ATM operations:

i. support States to review and update their Letter of Agreement with adjacent FIRs to optimize utilization of the MID airspace in a harmonized manner;

ii. develop regional procedure to regulate and harmonize implementation of Traffic Orientation Schema (TOS), Flight Level Allocation Schema (FLAS) and Route Availability Documents (RAD);

iii. foster the implementation of reduced Longitudinal Separation between FIRs;

iv. foster the implementation of Civil-Military Cooperation (CMC) and Flexible Use of Airspace (FUA);

v. support the planning and harmonized implementation of Free Route Airspace (FRA); and

vi. foster the implementation of (FF-ICE).

d) Support the planning for the operation/integration of new entrants such as Remotely Piloted Aircraft System (RPAS)/Unmanned Traffic Management (UTM) into the MID Region airspace;

e) Considering global and regional developments related to ATM, identify/propose necessary amendments to the MID Air Navigation Strategy for review by the ATM SG;

f) Report its activities to the ATM SG; and

g) Review periodically its Terms of Reference and propose amendments, as necessary.

II. COMPOSITION

2.1 The Working Group is composed of:

a) MIDANPIRG Member States;

b) concerned International and Regional Organizations; and

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

III. WORKING ARRANGEMENTS

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

3.2 In person meetings will be conducted once a year and when deemed necessary.

Table 1. MID REGION ASBU THREADS & ELEMENTS (BLOCK 0 & 1) PRIORITIZATION AND MONITORING

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
Information Threads							
DAIM							
DAIM	**B1/1**	Provision of quality-assured aeronautical data and information	**1**	2021	AIM SG	RANP/ NANP TF	
	B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	2				
	B1/3	Provision of digital terrain data sets	**1**	2021	AIM SG	RANP/ NANP TF	
	B1/4	Provision of digital obstacle data sets	**1**	2021	AIM SG	RANP/ NANP TF	
	B1/5	Provision of digital aerodrome mapping data sets	2				
	B1/6	Provision of digital instrument flight procedure data sets	2				
	B1/7	NOTAM improvements	2				
AMET							
AMET	**B0/1**	Meteorological observations products	**1**	2014	MET SG	RANP/ NANP TF	
	B0/2	Meteorological forecast and warning products	**1**	2014	MET SG	RANP/ NANP TF	
	B0/3	Climatological and historical meteorological products	**1**	2014	MET SG	RANP/ NANP TF	
	B0/4	Dissemination of meteorological products	**1**	2014	MET SG	CNS SG RANP/ NANP TF	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B1/1	Meteorological observations information	2				
	B1/2	Meteorological forecast and warning information	2				
	B1/3	Climatological and historical meteorological information	2				
	B1/4	Dissemination of meteorological information	2				
FICE							
FICE	**B0/1**	Automated basic inter facility data exchange (AIDC)	**1**	2014	CNS SG ATM SG	RANP/ NANP TF ASM WG	
Operational Threads							
APTA							
APTA	**B0/1**	PBN Approaches (with basic capabilities)	**1**	2014	PBN SG	ATM SG AIM SG CNS SG RANP/ NANP TF	
	B0/2	PBN SID and STAR procedures (with basic capabilities)	**1**	2014	PBN SG	ATM SG AIM SG RANP/ NANP TF	
	B0/3	SBAS/GBAS CAT I precision approach procedures	2				
	B0/4	CDO (Basic)	**1**	2014	PBN SG	ATM SG	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	**Supporting**	
						RANP/ NANP TF	
	B0/5	CCO (Basic)	**1**	2014	PBN SG	ATM SG RANP/ NANP TF	
	B0/6	PBN Helicopter Point in Space (PinS) Operations	2				
	B0/7	Performance based aerodrome operating minima – Advanced aircraft	**1**	2021	PBN SG	AIM SG CNS SG ASPIG RANP/ NANP TF	
	B0/8	Performance based aerodrome operating minima – Basic aircraft	2				
	B1/1	PBN Approaches (with advanced capabilities)	2				
	B1/2	PBN SID and STAR procedures (with advanced capabilities)	2				
	B1/4	CDO (Advanced)	2				
	B1/5	CCO (Advanced)	2				
FRTO							
FRTO	**B0/1**	Direct routing (DCT)	2				
	B0/2	Airspace planning and Flexible Use of Airspace (FUA)	**1**	2014	ATM SG	RANP/ NANP TF ASM WG	
	B0/3	Pre-validated and coordinated ATS routes to support flight and flow	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B0/4	Basic conflict detection and conformance monitoring	**1**	2014	ATM SG	CNS SG RANP/ NANP TF ASM WG	
	B1/1	Free Route Airspace (FRA)	2				
	B1/2	Required Navigation Performance (RNP) routes	2				
	B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	2				
	B1/4	Dynamic sectorization	2				
	B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring	2				
	B1/6	Multi-Sector Planning	2				
	B1/7	Trajectory Options Set (TOS)	2				
NOPS							
NOPS	**B0/1**	Initial integration of collaborative airspace management with air traffic flow management	**1**	2015	ATM SG	RANP/ NANP TF ASM WG	
	B0/2	Collaborative Network Flight Updates	2				
	B0/3	Network Operation Planning basic features	2				
	B0/4	Initial Airport/ATFM slots and A-CDM Network Interface	2				
	B0/5	Dynamic ATFM slot allocation	2				
	B1/1	Short Term ATFM measures	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B1/2	Enhanced Network Operations Planning	2				
	B1/3	Enhanced integration of Airport operations planning with network operations planning	2				
	B1/4	Dynamic Traffic Complexity Management	2				
	B1/5	Full integration of airspace management with air traffic flow management	2				
	B1/6	Initial Dynamic Airspace configurations	2				
	B1/7	Enhanced ATFM slot swapping	2				
	B1/8	Extended Arrival Management supported by the ATM Network function	2				
	B1/9	Target Times for ATFM purposes	2				
	B1/10	Collaborative Trajectory Options Program (CTOP)	2				
ACAS							
ACAS	**B1/1**	ACAS Improvements	**1**	2014	ATM SG CNS SG	RANP/ NANP TF	
SNET							
SNET	**B0/1**	Short Term Conflict Alert (STCA)	**1**	2017	ATM SG	CNS SG RANP/ NANP TF ASM WG	
	B0/2	Minimum Safe Altitude Warning (MSAW)	**1**	2017	ATM SG	CNS SG	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
						RANP/ NANP TF	
	B0/3	Area Proximity Warning (APW)	**1**	2020	ATM SG	CNS SG RANP/ NANP TF ASM WG	
	B0/4	Approach Path Monitoring (APM)	2				
	B1/1	Enhanced STCA with aircraft parameters	2				
	B1/2	Enhanced STCA in complex TMA	2				
GADS							
GADS	**B1/1**	Aircraft Tracking	2				
	B1/2	Operational Control Directory	**1**	2021	ATM SG	RANP/ NANP TF	
RSEQ							
RSEQ	**B0/1**	Arrival Management	**1**	2021	ATM SG	CNS SG ASPIG RANP/ NANP TF	
	B0/2	Departure Management	2				
	B0/3	Point merge	2				
	B1/1	Extended arrival metering	2				
SURF							
SURF	**B0/1**	Basic ATCO tools to manage traffic during ground operations	**1**	2014	ASPIG	ATM SG CNS SG RANP/ NANP TF	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B0/2	Comprehensive situational awareness of surface operations	**1**	2014	ASPIG	ATM SG CNS SG RANP/ NANP TF	
	B0/3	Initial ATCO alerting service for surface operations	**1**	2021	ASPIG	ATM SG CNS SG RANP/ NANP TF	
	B1/1	Advanced features using visual aids to support traffic management during ground operations	2				
	B1/2	Comprehensive pilot situational awareness on the airport surface	2				
	B1/3	Enhanced ATCO alerting service for surface operations	2				
	B1/4	Routing service to support ATCO surface operations management	2				
	B1/5	Enhanced vision systems for taxi operations	2				
ACDM							
ACDM	**B0/1**	Airport CDM Information Sharing (ACIS)	**1**	2014	ASPIG	CNS SG, AIM SG, ATM SG, RANP/ NANP TF	
	B0/2	Integration with ATM Network function	**1**	2014	ASPIG	CNS SG, AIM SG, ATM SG,	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
						RANP/ NANP TF	
CSEP	**B1/1**	Basic airborne situational awareness during flight operations (AIRB)	**2**				
	B1/2	Visual Separation on Approach (VSA)	**2**				
	B1/3	Performance Based Longitudinal Separation Minima	**2**				
	B1/4	Performance Based Lateral Separation Minima	**2**				
DATS	**B1/1**	Remotely Operated Aerodrome Air Traffic Services	**2**				
OPFL	**B0/1**	In Trail Procedure (ITP)	**2**				
	B1/1	Climb and Descend Procedure (CDP)	**2**				
TBO	**B0/1**	Introduction of time-based management within a flow centric approach	**2**				
	B1/1	Initial Integration of time-based decision making processes	**2**				
Technology Threads							
ASUR							
ASUR	**B0/1**	Automatic Dependent Surveillance – Broadcast (ADS-B)	**1**	2021	CNS SG	ATM SG, ASPIG,	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	**Supporting**	
						RANP/ NANP TF ASM WG	
	B0/2	Multilateration cooperative surveillance systems (MLAT)	**1**	2021	CNS SG	ATM SG, ASPIG, RANP/NANP TF ASM WG	
	B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	**1**	2021	CNS SG	ATM SG, ASPIG, RANP/ NANP TF	
	B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	٢				
NAVS							
NAVS	**B0/1**	Ground Based Augmentation Systems (GBAS)	2				
	B0/2	Satellite Based Augmentation Systems (SBAS)	2				
	B0/3	Aircraft Based Augmentation Systems (ABAS)	**1**	2021	CNS SG	PBN SG, ATM SG, AIM SG, RANP/ NANP TF	
	B0/4	Navigation Minimal Operating Networks (Nav. MON)	**1**	2021	CNS SG	PBN SG, RANP/ NANP TF	
	B1/1	Extended GBAS	2				
COMI							

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
COMI	**B0/1**	Aircraft Communication Addressing and Reporting System (ACARS)	2				
	B0/2	Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)	2				
	B0/3	VHF Data Link (VDL) Mode 0/A	2				
	B0/4	VHF Data Link (VDL) Mode 2 Basic	2				
	B0/5	Satellite communications (SATCOM) Class C Data	2				
	B0/6	High Frequency Data Link (HFDL)	2				
	B0/7	AMHS	**1**	2014	CNS SG	RANP/ NANP TF	
	B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	**1**	2021	CNS SG	RANP/ NANP TF	
	B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency	2				
	B1/3	SATCOM Class B Voice and Data	2				
	B1/4	Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground	2				
COMS							

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
COMS	**B0/1**	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	2				
	B0/2	ADS-C (FANS 1/A) for procedural airspace	2				
	B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	2				
	B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	2				
	B1/3	SATVOICE (incl. routine communications) for procedural airspace	2				

FRA Workshop Key-Takeaways

- *Implementation of FRA at national level:*

1) Implementation of FRA contributes to operational efficiency by allowing for more flexible route planning and reducing air traffic complexity, enhances airspace utilization and contributes to the reduction of emissions.

2) States planning to implement FRA are encouraged to:

a) follow a step-by-step approach;

b) collect required data and coordinate with concerned stakeholders, including Military Authorities, ATCOs, flight procedure designers, airspace planners and airspace users, to assess the needs for implementation of FRA;

c) consider the traffic flows in adjacent FIRs and the impact of the FRA implementation;

d) in determining the vertical and horizontal dimensions of the airspace where FRA would be implemented, ensure that the selected airspace is able to accommodate the main traffic flows and the needs of airspace users (civil and Military);

e) foster the implementation of the pre-requisites for FRA implementation (FUA, ASBU FRTO B0/1 Direct Route, FICE B0/1 (AIDC/OLDI);

f) consider the neighboring ANSP's requirements in regards to use of certain routes/waypoints for certain destinations;

g) study and determine the most suitable flight level for the transition between FRA and non-FRA;

h) conduct necessary safety assessments and change management studies;

i) conduct necessary testing including through the use of simulators;

j) conduct a benchmarking exercise with a leading ANSP that has successfully implemented FRA;

k) consider the capabilities/upgrade of their ATM systems to accommodate the flight planning in a FRA environment and Medium-Term Conflict Detection (FRTO B0/4 Basic conflict detection and conformance monitoring (MTCD);

l) develop training package for ATCOs and concerned stakeholders and provide appropriate training to ATC personnel to acquire the skills necessary to properly conduct FRA operations (before implementation);

m) develop specific procedures for air traffic controllers and assistants to manage FRA operations effectively; and publish these procedures for all operational staff to ensure uniform understanding and application;

n) use real-time simulations to test and validate FRA procedures; and

o) coordinate with the ICAO MID Office and concerned AIS data service providers for the publication of the FRA related sections/parts in the AIP in a harmonized manner.

3) FRA implementation (ASBU FRTO B1/1):

In order to ensure a seamless and safe implementation/integration of FRA, States are encouraged to:

a) finalize the FRA design and ensure the readiness of all operational staff through comprehensive training and coordination with stakeholders;

b) monitor initial operations closely to identify and address any emerging issues;

c) maintain regular communication with stakeholders to provide updates and address any emerging challenge;

d) consider the implementation of Dynamic sectorization (ASBU FRTO B1/4 Dynamic Sectorization); and

e) measure the benefits accrued from FRA implementation using specific KPIs.

- Implementation of FRA at regional level:

The expansion of FRA implementation cross borders and ultimately across regions will increase operational efficiency and contribute to reduced fuel consumption.

Example for implementation of cross-border implementation of FRA.

1- Based on traffic statistic, identify the main flow which will bring maximum efficiency with minimum complexity;

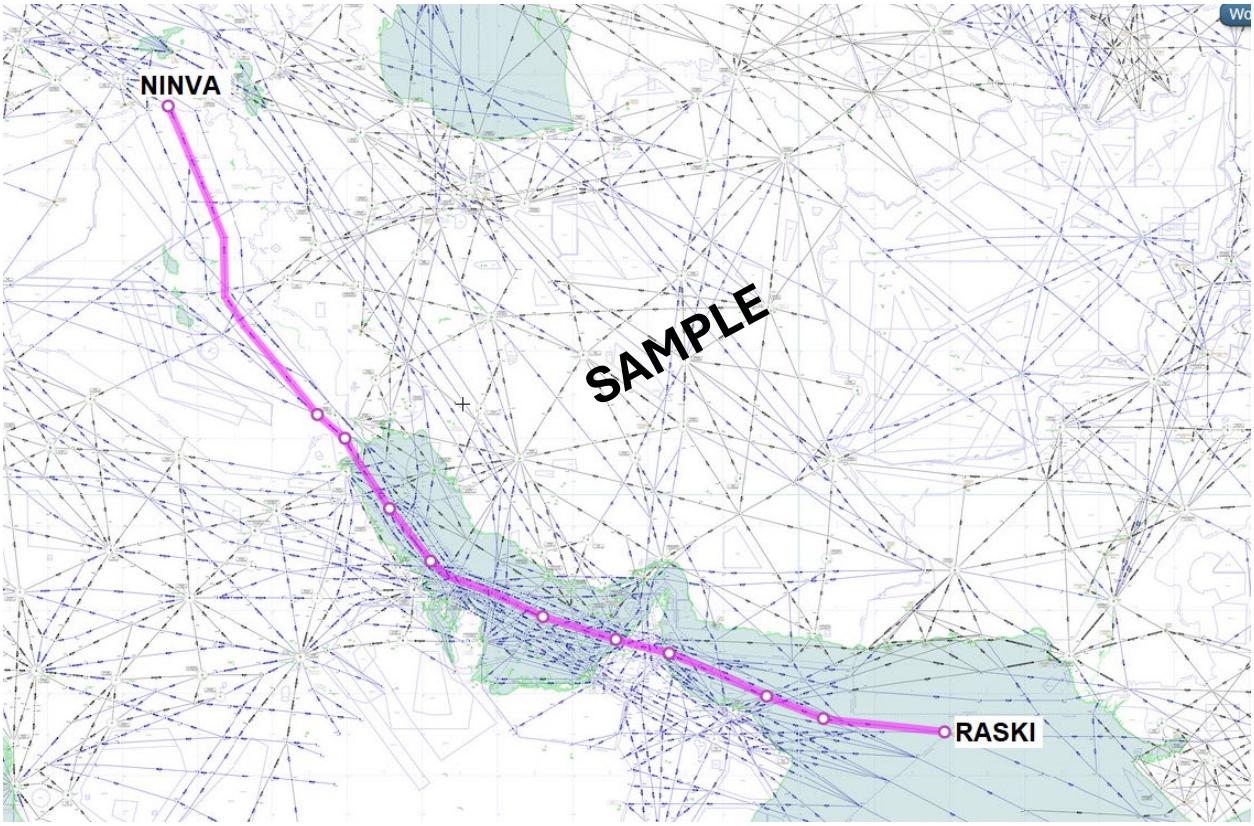
2- Determine the horizontal delineation of the FRA in each consecutive FIRs to cover operational needs including buffer;

3- Determine the vertical dimension of the volume in a coordinated manner considering that this portion of airspace should be free from conflict;

4- Make sure that FRA implementation prerequisites have been implemented and required enablers are available to support implementation of FRA at concerned FIRs;

5- Amend relevant agreements and procedures such as LoAs including longitudinal separation to be considered; and

6- Publish required procedures and FRA specifications in the AIPs of the concerned States in a harmonized manner and agree on a common implementation date in accordance with the AIRAC procedures.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Action Plan for ASM Enhancement Initiatives

List of ASM priority focus areas:

1. *Implementation of PBN in Enroute*
2. *Implementation of reduction of longitudinal separation*
3. *ATS route network (including ATS route designators and 5LNCs)*
4. *ASM improvements (CMC and FUA, FRA, RAD, TOS, FLAS & LoA)*
5. *RPAS/UTM*
6. *FF-ICE implementation*

Focus area number	Action		Target date	Deliverable	Champion	Reference	Status / RMK
	No.	Description					
1	**1.1**	Publish implementation of RNAV 5 in their FIRs		RNAV 5 routes should be published in the AIP, ENR 3.2.	Lebanon		
					Libya		
					Syria		
	1.2	Implement RNAV 5 in the level band FL160 - FL460		Update State AIP, ENR 3.3 to indicate implementation of the RNAV 5 in the level band FL160 - FL460 (inclusive).	Iran		
					Lebanon		
					Libya		
					Syria		
					Sudan		
	1.3	Publish RNAV routes in relevant part in the AIP		All RNAV routes either defined by RNAV designator or non-RNAV designator publish in ENR 3.2	Egypt		
					Kuwait		
					Yemen		
2	**2.1**	Coordinate with neighboring States to reduce surveillance longitudinal separation down to 10 NM		Detailed implementation plan	**Iran** – Turkey & Pakistan		
					Iraq – Turkey, **Kuwait** & **Jordan**		
					Libya – Chad		
					Oman – Pakistan & India		
					Yemen – Somalia		

Focus area number	Action		Target date	Deliverable	Champion	Reference	Status / RMK
	No.	Description					
3	**3.1**	Remove prefix "U" from ATS route designators		Revise AIP, ENR 3 to remove prefix "U"	**Iraq** (UL602, UM860, UP975, etc.)		
					Jordan (UM690, UR785, UB544, etc.)		
					Lebanon (UM425, UL620, UN438, etc.)		
					Oman (UB424, UL425, UB535, etc.)		
	3.2	Change ATS route designators		Revise AIP, ENR 3 to change the required ATS route designators in accordance with ANP volume II.	**Bahrain** (T557 to L557, Y604 to L704, Y856 to M556, T308 to M708, Z622 to M722, T872 to N572, T602 to N702, T319 to P319, T430 to P550, T444 to P700, T934 to P713)		
					Oman (L695, M303, M681, M877, N430, P304, P316, P513, R402 to non-regional T507 to L559, T980 to L700, Q620 to M700, Z515 to M717, T970 to N570, Q978 to N718)		
					Qatar (Y604 to L704, T665 to N700, T430 to P550, T444 to P700)		
					Saudi Arabia (G674, G799, M309 to non-regional H732 to M553, H741 to M320, J735 to P703, J749 to N709, J852 to M702, J874 to N704, T136 to L716, Y415 to M705, Y511 to M711, Z515 to M717, Q332 to N323, V13 to N703, J874 to N704, Y517 to N707, J749 to N709, T513 to N713, V975 to		

Focus area number	Action		Target date	Deliverable	Champion	Reference	Status / RMK
	No.	Description					
					P705, Q510 to P710, T100 to P711, Q212 to P712, Q21 to P721, Q143 to P723, Q615 to P753, Q624 to P752)		
					UAE (T665 to N700, Q415 to N715)		
					Yemen (L566 to Y101, P552 to Y103, R799 to Y105, Z515 to M717 and establish LADLI-PUTSO)		
4	**4.1**	Continuation of FRA volume between UAE and Qatar		Detailed implementation plan	Qatar and UAE		

Airspace Management Working Group (ASM WG)

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			- END -	