International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Fourteenth Meeting (CNS SG/14)
(Abu Dhabi, UAE, 19 – 23 October 2025)

Agenda Item 6: ASBU Threads/ Elements related to CNS

NEW ASBU ELEMENTS BLOCKS 0, 1 & 2 RELEVANT TO CNS/ATM/SAR

(Presented by the Secretariat)

SUMMARY

This paper provides an update on the progress of the current MID ASBU priority 1 in Blocks 0 and 1 as well as proposal to include new ASBU elements in Blocks 0, 1 & 2.

Action by the meeting is at paragraph 3.

REFERENCES

- MID Air Navigation Strategy (ICAO MID Doc 002)
- MIDANPIRG/22 & RASG-MID/12 Meetings Report (Doha, Qatar, 4 – 8 May 2025)
- MID Air Navigation Report-2024
- RANP/NANP TF/2 Meeting Report (Cairo, Egypt, 17 – 19 February 2025)

1. INTRODUCTION

1.1 Based on the evolutionary steps described in the conceptual roadmap available in the GANP, different concept of operations has been described for the different areas of the air navigation system- ASBU threads- within six-year timeframes "ASBU Block", starting with Block 0 in 2013. These concepts of operations have then been translated into specific operational improvements- ASBU elements.

1.2 The MIDANPIRG/21 meeting underlined the need for the MIDANPIRG Sub-Groups to allocate enough time in their agenda for the detailed discussion of the ASBU Threads relevant to their technical areas, including the identification of priorities, definition of applicability areas, performance indicators, metrics, targets, etc.

2. DISCUSSION

STATUS OF MID ASBU PRIORITY 1 IMPLEMENTATION BLOCKS 0 & 1

2.1 The meeting noted that as per the ASBU timeline detailed in the ICAO GANP portal, Block 1 has concluded, and Block 2 commenced at the beginning of 2025. Consequently, utilizing data supplied by MID States and additional analysis performed by ICAO MID, the following key points were emphasized.

a) ASBU Block 0 (2013-2018)

- 28 elements out of 52 are priority 1; the average level of implementation of priority 1 ASBU block 0 elements is 68.94%;
- Qatar, Bahrain, UAE, Oman, Saudi Arabia & Jordan have the highest level of implementation;
- NAVS B0/4, RSEQ B0/1, ASUR B0/2, FICE B0/1 & NOPS B0/1 have the lowest level of implementation with 20.00%, 35.71%, 37.50%, 40.63% and 41.67%, respectively;
- Block 0, related CNS including 6 elements; the average level of implementation is 63.75%; and
- Block 0, related ATM/SAR including 8 elements; the average level of implementation is 70.32.

b) ASBU Block 1 (2019-2024)

- 6 elements out of 58 are priority 1; the average level of implementation of priority 1 ASBU block 1 elements is 63.60%;
- Bahrain, Qatar, Saudi Arabia & UAE have the highest level of implementation with 100%; and
- DAIM B1/4 and DAIM BI/3 have the lowest level of implementation with 33.47% & 42.11% respectively.
- Block 1, related CNS including 1 element; the average level of implementation is 73.33%; and
- Block 1, related ATM/SAR including 2 elements; the average level of implementation is 83.33.

NEW ELEMENTS FOR MID ASBU PRIORITY 1

2.2 The MIDANPIRG/22 meeting was informed that the next proposal for amendment of MID Air Navigation Strategy will be aligned with the 8th Edition of the GANP and include additional Priority 1 ASBU elements from Block 0, Block 1 and Block 2.

2.3 The MIDANPIRG/22 meeting also noted that the ASBU elements identified as Priority 1 at the regional level in the MID Air Navigation Strategy are for monitoring and reporting. However, States could identify additional ASBU elements from Block 0, 1 and 2 as priority for implementation at National level, considering operational needs and based on implementation of Performance Based Approach (PBA). In this respect the meeting thanked Bahrain, Qatar, Saudi Arabia an UAE for their efforts in implementing additional ASBU elements from Block 0, 1 and 2, which have not been identified as priority 1 at the regional level presented in **Appendix A**.

2.4 Based on the above, the MIDANPIRG/22 meeting agreed to the following Conclusion:

MIDANPIRG CONCLUSION 22/4: MID REGION AIR NAVIGATION REPORT (2025)

That,

a) *States urged to provide the ICAO MID Office with the following data for the development of the MID Region Air Navigation Report-2025 by **31 December 2025**:*

   i. *the status of implementation of Priority 1 ASBU elements;*

   ii. *major achievements and success stories*

   iii. *information about any additional ASBU elements from Block 0, 1 and 2 that have been identified as a priority for implementation at National level; and*

   iv. *progress achieved for the implementation of the Performance Based Approach and development of National Air Navigation Plan (NANP).*

b) *the MID Air Navigation Report (2025) be presented to the MIDANPIRG/23 for endorsement.*

2.5 In light of the above, ICAO MID conducted additional review on ASBU elements in Blocks 0, 1 & 2 and proposed new elements, applicability area, indicators and metrics in MID Air Navigation Strategies at **Appendix B**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the progress of implementation of MID ASBU Priority 1 blocks 0 and 1 in CNS/ATM/SAR fields and urge States to enhance their level of implementation; and

b) urge States to review and assess the MID ASBU priority 2 elements and block 2 related to CNS/ATM/SAR elements at **Appendices A** and **B** in order to identify and propose new MID ASBU Priority 1 to the RANP/NANP TF/3 meeting for further study and draft new version of MID Air Navigation Strategy which will be presented to the MIDANPIRG/23 meeting for endorsement before **31 December 2025**.

Appendix A

Threads Category	Threads	Elements	ASBU Element name	Priority	Regional Target	Applicability area	Implemented by
Operational	APTA	B0/3	SBAS/GBAS CAT I precision approach procedures	2			Qatar
	APTA	B0/6	PBN Helicopter Point in Space (PinS) Operations	2			
	APTA	B0/8	Performance based aerodrome operating minima – Basic aircraft	2			
	FRTO	B0/1	Direct routing (DCT)	2			Qatar
	FRTO	B0/3	Pre-validated and coordinated ATS routes to support flight and flow	2			
	NOPS	B0/2	Collaborative Network Flight Updates	2			
	NOPS	B0/3	Network Operation Planning basic features	2			Qatar
	NOPS	B0/4	Initial Airport/ATFM slots and A-CDM Network Interface	2			Qatar
	NOPS	B0/5	Dynamic ATFM slot allocation	2			
	SNET	B0/4	Approach Path Monitoring (APM)	2			Qatar
	RSEQ	B0/2	Departure Management	2			Qatar
	RSEQ	B0/3	Point merge	2			
	OPFL	B0/1	In Trail Procedure (ITP)	2			
	TBO	B0/1	Introduction of time-based management within a flow centric approach.	2			
Technical	NAVS	B0/1	Ground Based Augmentation Systems (GBAS)	2			Qatar
	NAVS	B0/2	Satellite Based Augmentation Systems (SBAS)	2			
	COMI	B0/1	Aircraft Communication Addressing and Reporting System (ACARS)	2			Qatar
	COMI	B0/2	Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)	2			Qatar
	COMI	B0/3	VHF Data Link (VDL) Mode 0/A	2			Qatar
	COMI	B0/4	VHF Data Link (VDL) Mode 2 Basic	2			Qatar
	COMI	B0/5	Satellite communications (SATCOM) Class C Data	2			
	COMI	B0/6	High Frequency Data Link (HFDL)	2			
	COMS	B0/1	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	2			
	COMS	B0/2	ADS-C (FANS 1/A) for procedural airspace	2			

Threads Category	Threads	Elements	ASBU Element name	Priority	Regional Target	Applicability area	Implemented by
Information	DAIM	B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	2			Qatar
	DAIM	B1/5	Provision of digital aerodrome mapping data sets	2			
	DAIM	B1/6	Provision of digital instrument flight procedure data sets	2			
	DAIM	B1/7	NOTAM improvements	2			Qatar
	AMET	B1/1	Meteorological observations information	2			Qatar
	AMET	B1/2	Meteorological forecast and warning information	2			Qatar
	AMET	B1/3	Climatological and historical meteorological information	2			Qatar
	AMET	B1/4	Dissemination of meteorological information	2			Qatar
	APTA	B1/1	PBN Approaches (with advanced capabilities)	2			Qatar
	APTA	B1/2	PBN SID and STAR procedures (with advanced capabilities)	2			Qatar
	APTA	B1/4	CDO (Advanced)	2			
	APTA	B1/5	CCO (Advanced)	2			
	FRTO	B1/1	Free Route Airspace (FRA)	2			UAE, Qatar, Saudi Arabia
	FRTO	B1/2	Required Navigation Performance (RNP) routes	2			
	FRTO	B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	2			
	FRTO	B1/4	Dynamic sectorization	2			
	FRTO	B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring	2			
	FRTO	B1/6	Multi-Sector Planning	2			Qatar
	FRTO	B1/7	Trajectory Options Set (TOS)	2			
	NOPS	B1/1	Short Term ATFM measures	2			Qatar
	NOPS	B1/2	Enhanced Network Operations Planning	2			
	NOPS	B1/3	Enhanced integration of Airport operations planning with network operations planning	2			
	NOPS	B1/4	Dynamic Traffic Complexity	2			
	NOPS	B1/5	Full integration of airspace management with air traffic flow management	2			Qatar
	NOPS	B1/6	Initial Dynamic Airspace configurations	2			
	NOPS	B1/7	Enhanced ATFM slot swapping	2			
	NOPS	B1/8	Extended Arrival Management supported by the ATM Network function	2			

Operational	NOPS	B1/9	Target Times for ATFM purposes	2			
	NOPS	B1/10	Collaborative Trajectory Options Program (CTOP)	2			
	SNET	B1/1	Enhanced STCA with aircraft parameters	2			Qatar
	SNET	B1/2	Enhanced STCA in complex TMAs	2			Qatar
	GADS	B1/1	Aircraft Tracking	2			
	RSEQ	B1/1	Extended arrival metering	2			Qatar
	SURF	B1/1	Advanced features using visual aids to support traffic management during ground operations	2			Qatar
	SURF	B1/2	Comprehensive pilot situational awareness on the airport surface	2			
	SURF	B1/3	Enhanced ATCO alerting service for surface operations	2			
	SURF	B1/4	Routing service to support ATCO surface operations management	2			
	SURF	B1/5	Enhanced vision systems for taxi operations	2			
	TBO	B1/1	Initial Integration of time-based decision making processes	2			
	DATS	B1/1	Remotely Operated Aerodrome Air Traffic Services	2			
	CSEP	B1/1	Basic airborne situational awareness during flight operations (AIRB)	2			
	CSEP	B1/2	Visual Separation on Approach (VSA)	2			
	CSEP	B1/3	Performance Based Longitudinal Separation Minima	2			
	CSEP	B1/4	Performance Based Lateral Separation Minima	2			
	OPFL	B1/1	Climb and Descend Procedure (CDP)	2			
Technical	ASUR	B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	2			
	COMI	B1/2	VHF Data Link (VDL) Mode 2 Multi-	2			Qatar
	COMI	B1/3	SATCOM Class B Voice and Data	2			
	COMI	B1/4	Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground	2			
	COMS	B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	2			
	COMS	B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	2			
	COMS	B1/3	SATVOICE (incl. routine communications) for procedural airspace	2			
	NAVS	B1/1	Extended GBAS	2			

Threads Category	Threads	Elements	ASBU Element name	Implemented by
Information	DAIM	B2/1	Dissemination of aeronautical information in a SWIM environment	Bahrain & Qatar
	DAIM	B2/2	Daily Airspace Management information to support flight and flow	
	DAIM	B2/3	Aeronautical information to support higher airspace operations	
	DAIM	B2/4	Aeronautical information requirements tailored to UTM	
	DAIM	B2/5	NOTAM replacement	
	AMET	B2/1	Meteorological observations information	
	AMET	B2/2	Meteorological forecast and warning information	
	AMET	B2/3	Climatological and historical meteorological information	
	AMET	B2/4	Meteorological information service in SWIM	
	FICE	B2/1	Planning Service	
	FICE	B2/2	Filing Service	
	FICE	B2/3	Trial Service	
	FICE	B2/4	Flight Data Request Service	
	FICE	B2/5	Notification Service	
	FICE	B2/6	Publication Service	
	FICE	B2/7	Flight information management service for higher airspace operations	
	FICE	B2/8	Flight information management service for low-altitude operations	
	FICE	B2/9	Flight information management support for inflight re-planning	
	SWIM	B2/1	Information service provision	Qatar
	SWIM	B2/2	Information service consumption	Qatar
	SWIM	B2/3	SWIM registry	Qatar
	SWIM	B2/4	Air/Ground SWIM for non-safety critical information	
	SWIM	B2/5	Global SWIM processes	

Operational	APTA	B2/1	GBAS CAT II/III precision approach procedures	Qatar
	APTA	B2/2	Simultaneous operations to parallel runways	Qatar
	APTA	B2/3	PBN Helicopter Steep Approach	
	APTA	B2/4	Performance based aerodrome operating minima – Advanced aircraft with SVGS	
	FRTO	B2/1	Local components of integrated ATFM and ATC Planning function (INAP)	
	FRTO	B2/2	Local components of Dynamic Airspace Configurations (DAC)	
	FRTO	B2/3	Large Scale Cross Border Free Route Airspace (FRA)	
	FRTO	B2/4	Enhanced Conflict Resolution Tools	
	NOPS	B2/1	Optimised ATM Network Services in the initial TBO context	
	NOPS	B2/2	Enhanced dynamic airspace configuration	
	NOPS	B2/3	Collaborative Network Operation Planning	
	NOPS	B2/4	Multi ATFM slot swapping and Airspace Users priorities	
	NOPS	B2/5	Further airport integration within Network Operation Planning	
	NOPS	B2/6	ATFM adapted for cross-border Free Route Airspace (FRA)	
	NOPS	B2/7	UTM Network operations	
	NOPS	B2/8	High upper airspace network operations	
	ACAS	B2/1	New collision avoidance system	
	ACAS	B2/2	New collision avoidance capability as part of an overall detect and avoid system for RPAS	
	GADS	B2/1	Location of an aircraft in Distress	
	GADS	B2/2	Distress tracking information management	
	GADS	B2/3	Post Flight Localization	
	GADS	B2/4	Flight Data Recovery	
	RSEQ	B2/1	Integration of arrival and departure management	
	SURF	B2/1	Enhanced surface guidance for pilots and vehicle drivers	
	SURF	B2/2	Comprehensive vehicle driver situational awareness on the airport surface	
	SURF	B2/3	Conflict alerting for pilots for runway operations	
	ACDM	B2/1	Airport Operations Plan (AOP)	
	ACDM	B2/2	Airport Operations Centre (APOC)	Bahrain
	ACDM	B2/3	Total Airport Management (TAM)	
	TBO	B2/1	Pre-departure trajectory synchronization within a flight centric and network performance approach	
	TBO	B2/2	Extended time-based management across multiple FIRs for active flight synchronization	
	CSEP	B2/1	Interval Management (IM) Procedure	
	CSEP	B2/2	Cooperative separation at low altitudes	
	CSEP	B2/3	Cooperative separation at higher	

	OPFL	B2/1	Separation minima using ATS surveillance systems where VHF voice communications are not available	
Technical	ASUR	B2/1	Evolution of ADS-B and Mode S	
	ASUR	B2/2	New community based surveillance system for airborne aircraft (low and higher airspace)	
	COMI	B2/1	Air-Ground ATN/IPS	Qatar
	COMI	B2/2	Aeronautical Mobile Airport Communication System (AeroMACS) aircraft mobile connection	
	COMI	B2/3	Links meeting requirements for non-safety critical communication	
	COMS	B2/1	PBCS approved CPDLC (B2) for domestic and procedural airspace	
	COMS	B2/2	PBCS Approved ADS-C (B2) for domestic and procedural airspace	
	COMS	B2/3	PBCS approved SATVOICE (incl. routine communications) for procedural airspace	
	NAVS	B2/1	Dual Frequency Multi Constellation (DF MC) GBAS	Qatar
	NAVS	B2/2	Dual Frequency Multi Constellation (DF MC) SBAS	
	NAVS	B2/3	Dual Frequency Multi Constellation (DF MC) ABAS	

MID DOC 002

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MIDDLE EAST AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (MIDANPIRG)

MID REGION

AIR NAVIGATION STRATEGY

EDITION ~~MARCH, 2024~~ XXXX

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AIR NAVIGATION PRIORITIES AND MONITORING OF THE STATUS OF IMPLEMENTATION

AIR NAVIGATION PRIORITIES AND MONITORING OF THE STATUS OF IMPLEMENTATION

1. Introduction

1.1 As traffic volume increases throughout the world, the demands on air navigation service providers in a given airspace increase, and air traffic management becomes more complex.

1.2 It is foreseen that the implementation of the components of the ATM operational concept will provide sufficient capacity to meet the growing demand, generating additional benefits in terms of more efficient flights and higher levels of safety. Nevertheless, the potential of new technologies to significantly reduce the cost of services will require the establishment of clear operational requirements.

1.3 Taking into account the benefits of the ATM operational concept, it is necessary to make many timely decisions for its implementation. An unprecedented cooperation and harmonization will be required at both global and regional level.

1.4 ICAO introduced the Aviation System Block Upgrades (ASBU) framework as a systemic manner to achieve a harmonized implementation of the air navigation services. An ASBU designates a set of improvements that can be implemented globally from a defined point in time to enhance the performance of the ATM system.

1.5 In accordance, with the Resolutions of the 40th Session of the ICAO Assembly, particularly Resolution A40-1 "ICAO global planning for safety and air navigation", the ICAO Assembly urged States and PIRGs to utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs. In response to this, the MID Region developed the MID Region Air Navigation Strategy – Part 1, which is aligned with the GANP and ASBU Framework.

1.6 Stakeholders including service providers, regulators, airspace users and manufacturers are facing increased levels of interaction as new, modernized ATM operations are implemented. The highly integrated nature of capabilities covered by the block upgrades requires a significant level of coordination and cooperation among all stakeholders. Working together is essential for achieving global harmonization and interoperability.

2. Strategic Air Navigation Capacity and Efficiency Objective

2.1 The Strategic Objective related to Air Navigation Capacity and Efficiency is to realize sound and economically-viable civil aviation system in the MID Region that continuously increases in capacity and improves in efficiency with enhanced safety while minimizing the adverse environmental effects of civil aviation activities.

3. MID Air Navigation Objectives

3.1 The MID Region air navigation objectives are set in line with the global air navigation objectives and address specific air navigation operational improvements identified within the framework of the Middle East Regional Planning and Implementation Group (MIDANPIRG).

3.2 Blocks ‘0’ and “1” feature Elements are characterized by operational improvements, which have already been developed and implemented in many parts of the world. The MID Region priority 1 Block 0 & 1 Elements are reflected in **Table 1** below.

3.3 The MID Region Air Navigation Strategy aims to maintain regional harmonisation. The States should develop their National Air Navigation Plan (NANP), including action plans for the implementation of relevant priority 1 ASBU Elements and other ASBU elements or non ASBU solutions based on the States’ operational requirements and cost benefits analysis.

3.4 The implementation of the ASBU Block 0 Elements in the MID Region started before 2013 and is continuing. For the short and medium term, the MID Region priorities include identified ASBU Elements from Block 0 and Block 1.

4. MID Region ASBU Threads/Elements Prioritization and Monitoring

4.1 On the basis of operational requirements and taking into consideration the associated benefits, **Table 1** below shows the priority associated for each ASBU element from Block 0 and Block 1, as well as the MIDANPIRG subsidiary bodies that will be monitoring and supporting the implementation of these Threads/Elements:

***Priority 1 ASBU Element**: Elements that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. These Elements should be implemented where applicable and will be used for the purpose of regional air navigation monitoring and reporting.*

***Priority 2 ASBU Element**: Elements recommended for implementation based on identified operational needs and benefits by States.*

***Priority 1 Thread:** Any Thread with at least one priority 1 element*

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 and AIMDP TF	RANP/ NANP TF	
	B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	~~2~~1	2025	AIM SG and AIMDP TF	RANP/ NANP TF	
	B1/3	Provision of digital terrain data sets	**1**	2021	AIM SG and AIMDP TF	RANP/ NANP TF	
	B1/4	Provision of digital obstacle data sets	**1**	2021	AIM SG and AIMDP TF	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	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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	
	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	
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 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	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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~~1	2026	ATM SG and ASM WG	RANP/ NANP TF	
	B0/2	Airspace planning and Flexible Use of Airspace (FUA)	**1**	2014	ATM SG and ASM WG	RANP/ NANP TF	
	B0/3	Pre-validated and coordinated ATS routes to support flight and flow	1~~2~~	2027	ATM SG and ASM WG	RANP/ NANP TF	
	B0/4	Basic conflict detection and conformance monitoring	**1**	2014	ATM SG	CNS SG RANP/ NANP TF	
	B1/1	Free Route Airspace (FRA)	1~~2~~	2028	ATM SG and ASM WG	RANP/ NANP TF	
	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	1~~2~~	2028	ATM SG and ASM WG	RANP/ NANP TF	
	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 ATFM TF	RANP/ NANP TF	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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				
	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	1~~2~~	2028	ATM SG and ASM WG	RANP/ NANP TF	
	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	
	B0/2	Minimum Safe Altitude Warning (MSAW)	**1**	2017	ATM SG	CNS SG RANP/ NANP TF	
	B0/3	Area Proximity Warning (APW)	**1**	2020	ATM SG	CNS SG RANP/ NANP TF	
	B0/4	Approach Path Monitoring (APM)	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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 ATFM TF	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	
	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,	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
						RANP/ NANP TF	
	B0/2	Integration with ATM Network function	**1**	2014	ASPIG	CNS SG, AIM SG, ATM SG, 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, RANP/ NANP TF	
	B0/2	Multilateration cooperative surveillance systems (MLAT)	**1**	2021	CNS SG	ATM SG, ASPIG, RANP/NA NP TF	
	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				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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							
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				

5. Implementation and Monitoring of the priority 1 ASBU Elements

5.1 The monitoring of air navigation performance and its enhancement is achieved, inter-alia, through identification of relevant air navigation Metrics and Indicators as well as the adoption and attainment of air navigation system Targets. The monitoring of the priority 1 ASBU Threads/Elements is carried out through the MID eANP Volume III.

5.2 MIDANPIRG through its activities under the various subsidary bodies will continue to update and monitor the implementation of the ASBU Threads and elements to achieve the air navigation targets.

5.3 The priority 1 Threads/Elements along with the associated elements, applicability, performance Indicators, supporting Metrics, and performance Targets are shown in the **Table 2** below.

***Note**: Further details on the ASBU elements objectives, description, implementation requirements and performance impact assessment can be found on the ICAO GANP Portal https://www4.icao.int/ganpportal/ASBU*

6. Governance

6.1 Progress report on the status of implementation of the different priority 1 Threads/Elements should be developed by MIDANPIRG Subsidary bodies. A consolidated MID Air Navigation Report showing the status of implementation of the different priority 1 ASBU Elements by Thread will be developed by the RANP/NANP TF on annual basis and presented to MIDANPIRG for endorsement.

6.2 The MIDANPIRG will be the governing body responsible for the review and update of the MID Region Air Navigation Strategy.

6.3 The MID Region Air Navigation Strategy will guide the work of MIDANPIRG and its subsidary bodies and all its member States and partners.

6.4 Progress on the implementation of the MID Region Air Navigation Strategy and the achievement of the agreed air navigation targets will be reported to the ICAO Air Navigation Commission (ANC), through the review of the MIDANPIRG Reports, MID Air Navigation Reports, etc.; and to the stakeholders in the Region within the framework of MIDANPIRG.

Table 2. MONITORING THE IMPLEMENTATION OF THE PRIORITY 1 ASBU THREADS/ELEMENTS (Block 0 & 1) IN THE MID REGION

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
Information Threads							
DAIM							
DAIM B1/1	Provision of quality-assured aeronautical data and information	All States	Indicator*: Regional average implementation status of DAIM B1/1 (provision of quality-assured aeronautical data and information). Supporting Metrics: 1. Number of States that have migrated to AIM automated data-centric environment based on (AIXM V5.1+) 2. Number of States Implementing Quality Assurance and Quality Control (QA/QC) Processes 3. Number of States that have established formal arrangements with at least 50% of their AIS data originators.	(2023) 53%	80%	Dec 2024	N/A
DAIM B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	Egypt, Jordan, Oman, Qatar, Saudi Arabia and UAE	Indicator*: Regional average implementation status of DAIM B1/2 (Provision of digital Aeronautical Information Publication (AIP) data set). Supporting Metrics: Number of States that provide digital Aeronautical Information Publication (AIP) data sets	15%	75%	Dec 2027	N/A
DAIM B1/3	Provision of digital terrain data sets	All States	Indicator*: Regional average implementation status of DAIM B1/3 (Provision of Terrain digital datasets). Supporting Metric: Number of States that provide required Terrain digital datasets.	(2022) 35%	60%	Dec 2024	N/A
DAIM B1/4	Provision of digital obstacle data sets	All States	Indicator*: Regional average implementation status of DAIM B1/4(Provision of obstacle digital datasets).	(2022) 35%	60 %	Dec 2024	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			Supporting Metric: Number of States that provide required obstacle digital datasets.				
AMET							
AMET B0/1	Meteorological observations products	All states	Indicator*: Regional average implementation status of B0/1 (Meteorological observations products). Supporting Metrics: Number of States that provide the following Meteorological observations products, as required: 1. Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data) 2. Local reports (MET REPORT/SPECIAL) 3. Aerodrome reports (METAR/SPECI) 4. Lightning Information 5. Ground-based weather radar information. 6. Meteorological satellite imagery 7. Aircraft meteorological report (ie. ADS-B, AIREP, etc.) 8. Vertical wind and temperature profiles 9. Wind shear alerts	(2022) 65%	80%	Dec 2021	N/A
AMET B0/2	Meteorological forecast and warning products	All states	Indicator*: Regional average implementation status of B0/2 (Meteorological forecasts and warning products) Supporting Metrics: Number of States that provides the following Meteorological forecast and warning products, as required: 1. World Area Forecast System (WAFS) gridded products. 2. Significant Weather (SIGWX) 3. Aerodrome Forecast (TAF) 4. Trend Forecast (TREND)	(2022) 60%	90%	Dec 2021	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			5. Take-off Forecast 6. SIGMET 7. Aerodrome Warning 8. Wind Shear Warning				
AMET B0/3	Climatological and historical meteorological products	All states	Indicator: % of States that provide Climatological and historical meteorological products, as required. Supporting Metric: Number of States that provide Climatological and historical meteorological products, as required.	(2022) 60%	85%	Dec 2021	N/A
AMET B0/4	Dissemination of meteorological products	All states	Indicator: % of States disseminating Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM) Supporting Metric: Number of States disseminating Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM)	(2022) 60%	85%	Dec 2021	N/A
FICE							
FICE B0/1	Automated basic inter facility data exchange (AIDC)	According to the MID Region AIDC/OLDI Priority 1 Applicability Area	Indicator*: % of priority 1 AIDC/OLDI Interconnection have been implemented. Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs.	(2023) 26%	70%	Dec 2026	N/A
Operational Threads							
APTA							
APTA B0/1	PBN Approaches (with basic capabilities)	All RWYs ENDs at International Aerodromes	Indicator: % of Runway ends at international aerodromes served by PBN approach procedures with basic functionalities - down to LNAV or LNAV/VNAV minima. Supporting metric: Number of Runways ends at international aerodromes served by PBN approach procedures with basic functionalities - down to	(2017) 46.7%	100%	Dec 2018	Capacity/ KPI 10

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			LNAV or LNAV/VNAV minima.				
APTA B0/2	PBN SID and STAR procedures (with basic capabilities)	All RWYs ENDs at International Aerodromes	Indicator: % of Runway ends at international aerodromes provided with PBN SID and STAR (basic capabilities). Supporting Metric: Number of Runway ends at international aerodromes provided with PBN SID and STAR (basic capabilities).	(2022) 55%	70%	Dec 2022	Efficiency Capacity/ KPI 10 KPI 11 KPI 17 KPI 19/
APTA B0/4	CDO (Basic)	OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSK, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ	Indicator*: % of International Aerodromes with CDO implemented and published as required. Supporting Metric: Number of International Aerodromes with CDO implemented and published as required. *As per the applicability area	(2022) 65%	100%	Dec 2022	Efficiency/ KPI 19
APTA B0/5	CCO (Basic)	OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSK, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ	Indicator*: % of International Aerodromes with CCO implemented and published as required. Supporting Metric: Number of International Aerodromes with CCO implemented and published as required. *As per the applicability area	(2022) 65%	100%	Dec 2022	Efficiency/ KPI 17
APTA B0/7	Performance based aerodrome operating minima – Advanced aircraft	All States	Indicator: % of States authorizing Performance-based Aerodrome Operating Minima for Air operators operating Advanced aircraft. Supporting Metric: Number of States 1- having provisions for operational credits to enable lower minima based on advanced aircraft capabilities. (Reference: Annex 6 Part I para. 4.2.8.2.1) 2- Number of States Putting in place an approval process for the operational credit to Aircraft operator conducting PBAOM	(2022) 50%	80%	Dec 2025	Capacity/ KPI 10

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			operations for low visibility operations (Reference: Doc 9365 (AWO Manual)), as applicable.				
FRTO							
FRTO B0/1	Direct routing (DCT)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to support implementation of Direct routing to improve efficiency of Airspace. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to support implementation of Direct routing to improve efficiency of Airspace. * As per the applicability area	30% (2024)	80%	Dec 2028	Efficiency KPI 04
FRTO B0/2	Airspace planning and Flexible Use of Airspace (FUA)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to support Airspace planning and FUA and improve data exchange between Civil and Military to improve efficiency of Airspace. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to support Airspace planning and FUA and improve data exchange between Civil and Military to improve efficiency of Airspace. * As per the applicability area	(2022) 63%	70%	Dec 2022	Efficiency Access and equity/ KPI 04 KPI 05 KPI 17 KPI 18/ KPI 19
FRTO B0/3	Pre-validated and coordinated ATS routes to support flight and flow	Bahrain, Egypt, Iran, Iraq, Jordan, Oman, Qatar, Saudi Arabia, UAE	Indicator*: % of ACCs using Playbook routes that ATC can utilize to fit a particular set of circumstances, when the preferred routes are not available to improve capacity and flexibility of Airspace. Supporting metric: Number of ACCs using Playbook routes that ATC can utilize to fit a particular set of circumstances, when the preferred routes are not	10% (2024)	50%	Dec 2028	Capacity Flexibility

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			available to improve capacity and flexibility of Airspace. * As per the applicability area				
FRTO B0/4	Basic conflict detection and conformance monitoring	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	Indicator*: % States that implemented MTCD and MONA, for ACCs, as required. Supporting metric: The number of States that implemented MTCD and MONA for ACCs, as required. * As per the applicability area	(2022) 63%	100%	Dec 2022	Capacity/ KPI 06 Safety/ KPI 20 KPI 23
FRTO B1/1	Free Route Airspace (FRA)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to support implementation of Free Route Airspace to improve efficiency of Airspace. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to support implementation of Free Route Airspace to improve efficiency of Airspace. * As per the applicability area	20% (2024)	80%	Dec 2028	Efficiency KPI 04
FRTO B1/4	Dynamic sectorization	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to real-time support supervisor to select the most appropriate sector configuration (change of the ATC sector shapes by adding/removing the elementary sectors based on traffic demand and complexity. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to real-time support supervisor to select the most appropriate sector configuration (change of the ATC sector shapes by adding/removing the elementary sectors based on traffic demand and complexity.	20% (2024)	60%	Dec 2028	Capacity

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			* As per the applicability area				
NOPS							
NOPS B0/1	Initial integration of collaborative airspace management with air traffic flow management	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of States implementing ASM/ATFM techniques, procedures and tools for the initial establishment of an integrated collaborative airspace management and air traffic flow and capacity management process. Supporting metric: number of States implementing ASM/ATFM techniques, procedures and tools for the initial establishment of an integrated collaborative airspace management and air traffic flow and capacity management process. * As per the applicability area	(2022) 42%	70%	Dec 2022	Efficiency Capacity/ KPI 04 KPI 05 KPI 17 KPI 18 KPI 19/
NOPS B1/6	Initial Dynamic Airspace configurations	Bahrain, Oman, Qatar, Saudi Arabia, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to support ASM solutions and initial dynamic airspace configurations for ATFM planning, synchronisation of traffic flows and demand/capacity balancing. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to support ASM solutions and initial dynamic airspace configurations for ATFM planning, synchronisation of traffic flows and demand/capacity balancing. * As per the applicability area	10% (2024)	50%	Dec 2028	Capacity
ACAS							
ACAS B1/1	ACAS Improvements Operational	All States	Indicator: % of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons Supporting metric: Number of States requiring carriage of ACAS (TCAS v 7.1) for	(2022) 87%	100%	Dec 2024	Safety/ KPI 20 KPI 23

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			aircraft with a max certificated take-off mass greater than 5.7 tons				
SNET							
SNET B0/1	Short Term Conflict Alert (STCA)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ~~States~~ ACCs that have implemented Short-term conflict alert (STCA) Supporting metric: number of States that have implemented Short-term conflict alert (STCA) * As per the applicability area	(2018) 100%	100%	Dec 2018	Safety/ KPI 20 KPI 23
SNET B0/2	Minimum Safe Altitude Warning (MSAW)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ~~States~~ ACCs that have implemented Minimum safe altitude warning (MSAW) Supporting metric: number of States that have implemented Minimum safe altitude warning (MSAW) * As per the applicability area	(2018) 100%	100%	Dec 2018	Safety/ KPI 20
SNET B0/3	Area Proximity Warning (APW)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of ~~States~~ ACCs that have implemented Area Proximity Warning (APW) for ACCs, as required. Supporting metric: number of States that have Implemented Area Proximity Warning (APW) for ACCs, as required. * As per the applicability area	(2022) 67%	100%	Dec 2022	Safety/ KPI 20
GADS							
GADS B1/2	Operational Control Directory	All States	Indicator: % of States that provided GADSS Point of Contact (PoC) information Supporting Metric: Number of States that provided GADSS Point of Contact (PoC) information.	(2022) 73%	100%	Dec 2022	N/A
RSEQ							
RSEQ B0/1	Arrival Management	OBBI, HECA, HEBA, HELX, HESN, HESH, OTBD, OTHH, OEJN, OEDF, OEMA, OERK OMDB, OMAA	Indicator*: % of Aerodromes that have implemented arrival manager (AMAN), where required/applicable. Supporting Metric: Number of Aerodrome that have implemented arrival manager (AMAN), where required/ applicable.	(2022) 36%	80%	Dec 2024	Capacity Efficiency/ KPI 08 KPI 10 KPI 11 KPI 14/

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			* As per the applicability area				
SURF							
SURF-B0/1	Basic ATCO tools to manage traffic during ground operations	All International Aerodromes	Indicator: % of Aerodromes having implemented Basic ATCO tools to manage traffic during ground operations Supporting metric: Number of Aerodromes having implemented Basic ATCO tools to manage traffic during ground operations	(2022) 90%	100%	Dec 2022	Efficiency/ KPI 02 KPI 13 Safety/ KPI 20 KPI 21
SURF-B0/2	Comprehensive situational awareness of surface operations	OBBI, HECA, OIII, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OEMA, OMDB, OMAA.	Indicator*: % of Airports having implemented the surveillance service of A-SMGCS Supporting metric: Number of Airports having implemented the surveillance service of A-SMGCS * As per the applicability area	(2022) 61%	80%	Dec 2022	Safety/ KPI 20 KPI 21
SURF-B0/3	Initial ATCO alerting service for surface operations	OBBI, HECA, OIII, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OEMA, OMDB, OMAA.	Indicator*: % of Airports having implemented the A-SMGCS alerting service. Supporting metric: Number of Airports having implemented the A-SMGCS alerting service. * As per the applicability area	(2022) 74%	80%	Dec 2022	Safety/ KPI 20
ACDM							
ACDM B0/1	Airport CDM Information Sharing (ACIS)	HECA, OBBI, OIII, OKKK, OOMS, OTHH, OEJN, OERK, OMDB, OMAA	Indicator*: % of Airports having implemented ACIS. Supporting metric: number of Airports having implemented ACIS. * As per the applicability area	(2022) 75%	90%	Dec 2024	N/A
ACDM B0/2	Integration with ATM Network function	HECA, OBBI, OIII, OKKK, OOMS, OTHH, OEJN, OERK, OMDB, OMAA.	Indicator*: % of Airports having integrated ACDM with the ATM Network function. Supporting metric: Number of Airports having integrated ACDM with the ATM Network function * As per the applicability area	(2022) 25%	50%	Dec 2024	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
Technology Threads							
ASUR							
ASUR B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, , Sudan, UAE	Indicator*: % of ~~States~~ ACCs that have implemented ADS-B to improve surveillance coverage/capabilities for provision of ATS. Supporting Metric: Number of States that have implemented ADS-B to improve surveillance coverage/capabilities for provision of ATS. * As per the applicability area	(2022) 60%	80%	Dec 2022	N/A
ASUR B0/2	Multilateration cooperative surveillance systems (MLAT)	Bahrain, , Kuwait, Oman, Qatar, Saudi Arabia, UAE	Indicator*: % of ~~States~~ ACCs that have implemented Multi-lateration (M-LAT) for provision of ATS. Supporting Metric: Number of States that have implemented Multi-lateration (M-LAT) for provision of ATS. Indicator*: % of States that have implemented ADS-B to improve surveillance coverage/capabilities for provision of ATS. Supporting Metric: Number of States that have implemented ADS-B to improve surveillance coverage/capabilities for provision of ATS. * As per the applicability area	(2022) 63%	80%	Dec 2022	N/A
ASUR B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	Bahrain, Egypt, Iran, Iraq, Kuwait, Lebanon, Jordan, Oman, Qatar, Saudi Arabia, Sudan and UAE	Indicator*: % of ~~States~~ ACCs that have implemented Downlink of Aircraft Parameters (SSR-DAPS) Supporting Metric: Number of States that have implemented Downlink of Aircraft Parameters (SSR-DAPS) * As per the applicability area	(2022) 83%	90%	Dec 2023	N/A
NAVS							
NAVS B0/3	Aircraft Based Augmentation Systems (ABAS)	All States	Indicator: % of States requiring Aircraft Based Augmentation System (ABAS) equipage for aircraft with a max certificated take-	(2022) 40%	70%	Dec 2022	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			off mass greater than 5,700 Kg to enable PBN Operations Supporting metric: Number of States requiring Aircraft Based Augmentation System (ABAS) equipage for aircraft with a max certificated take-off mass greater than 5,700 Kg to enable PBN Operations				
NAVS B0/4	Navigation Minimal Operating Networks (Nav. MON)	All States	Indicator: % of States that have developed a plan of rationalized conventional NAVAIDS network to ensure the necessary levels of resilience for navigation Supporting metric: Number of States that have developed a plan of rationalized conventional NAVAIDS network to ensure the necessary levels of resilience for navigation.	(2022) 47%	70%	Dec 2022	N/A
COMI							
COMI B0/7	ATS Message Handling System (AMHS)	All States	Indicator: % of States that have established AMHS interconnections with adjacent COM Centres Supporting metric: Number of States that have established AMHS interconnections with adjacent COM Centres	(2022) 73%	90%	Dec 2022	N/A
COMI B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	All States	Indicator: % of States that have established National IP Network for voice and data communication Supporting metric: Number of States that have established National IP Network for voice and data communication	(2022) 60%	80%	Dec 2022	N/A

- END -