International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

WORKING PAPER

GREPECAS/23 — WP/6.2
12/01/26

Fifth GREPECAS–RASG-PA Joint Meeting (GREPECAS-RASG-PA/5) and Twenty-Third Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/23)

Virtual Phase (Asynchronous, 19 January to 17 February 2026)
In-Person Phase (Mexico City, Mexico, 4 to 6 March 2026)

Agenda Item 6: Progress on Regional and National air navigation planning

VOLUME III RANP CAR/SAM - IMPROVING IMPLEMENTATION PLANNING AND MONITORING

(Presented by Secretariat)

EXECUTIVE SUMMARY

The paper analyses and observes that the CAR/SAM States still face difficulties in developing and reporting GANP KPIs and there is evidence of a lack of harmonization to monitor the progress of the implementation of ASBU drivers. The note compares the regional CAR SAM situation with the best practices of the MID Region, whose "Air Navigation Strategy" document offers a clear structure of ASBU priorities, performance metrics and governance. This strategy is proposed as a model to be adopted in RAC/SAM.

As a result of the analysis, a Draft Conclusion is presented for the Secretariat to prepare the "Air Navigation Strategy of the CAR/SAM Region", in coordination with States, organizations and industry, with the aim of harmonizing priorities, strengthening the monitoring of KPIs and improving regional governance for an implementation aligned with the GANP.

Action:	Suggested actions are included in Section 4.
Strategic Objectives 2026-2050:	• Every flight is safe and secure • Aviation is environmentally sustainable • Aviation delivers seamless, accessible, and reliable mobility for all • No country left behind • The International Civil Aviation Convention and Other Treaties, Laws and Regulations Address All Challenges • The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All •
References:	• Web portal GANP: www4.icao.int/ganpportal • MID Doc. 002 - "Strategy for air navigation in the MID Region". • GREPECAS Meeting Reports 20, 21, 22. • Information Note NI/6.1- Improvements to the Template of Volume III of the RANP. • Working Paper WP/6.1 – Development of KPI management.

1. Introduction

1.1 Conclusions GREPECAS/21/04 and GREPECAS/22/2 (**See Appendix A**) call on CAR/SAM States to provide data on their KPI performance indicators, at baseline level, to populate the corresponding Tables in Volume III, as part of the development of the performance-based planning methodology and the deployment and alignment of Regional Planning with the Global Air Navigation Plan (GANP). To date, only eight states have promulgated and submitted this information for inclusion in Volume III.

1.2 The Secretariat has continued to assist States in the management of performance indicators. In compliance with Decision GREPECAS/22/19 (See **Appendix A**), in order to strengthen the work with KPIs, the GADHOC Group was created in 2025, under the coordination of the ICAO NACC and SAM Regional Offices, and in collaboration with the European Aviation Safety Agency (EASA). The progress of these activities is presented in Study Note NE/6.1.

2. Analysis

2.1 It is noted that the implementation of improvements for air navigation in the CAR and SAM Regions has not stopped since the end of the 2010's, since it evolves from the formulation and use of the transition documents for performance-based planning, the RPBANIP CAR and the ISPS SAM, to the current management of the three-volume Regional Air Navigation Plan – RANP CAR/SAM.

2.2 After the approval of the text of Volume III of the RANP CAR/SAM during the GREPECAS/20 Meeting based on the Template approved by the Council in June 2014, the attendance of the NACC and SAM Offices and the work of the States, Organizations and Industry for the implementation of the ASBU framework has been maintained, adopting operational drivers (APTA, FRTO, etc.) , as well as the information and CNS technology drivers that represent the platform required by the aforementioned operational drivers.

2.3 Volume III addresses the planning and implementation of air navigation improvement ambitions, essentially in key areas of Efficiency, Capacity, Predictability and Safety, through solutions adopted from the ASBU framework (and eventually non-ASBU solutions or initiatives). The progress of this implementation of ASBU modules and conductor elements, deployed in ATM, CNS, AIM, MET, AGA and SAR materials, is set out in Question 8 of the Agenda of this GREPECAS/23.

2.4 According to Information Note NI/6.1- Improvements for the Staff of Volume III of the RANP, the work carried out during the *Mobility Assignment*, between March and June 2025, allowed an extensive benchmarking of the management of the regional plans at a global level, identifying, in the CAR and SAM Regions, differences and opportunities for improvement for the harmonization and monitoring of the status of the implementation of the ASBU modules and elements.

2.5 Based on the analysis of ANP documents from various regions, practices were observed in the ICAO MID Region that complements the development of its Regional Plan, especially Volume III, with the MID document Doc 002 - "Strategy for air navigation in the MID Region". See document in **Appendix B**, as well as in the link:

https://www2023.icao.int/MID/MIDANPIRG/Documents/eDocuments/MID%20Air%20Navigation%20Strategy-June%202025.pdf

2.6 The document adopted by MIDANPIRG has four main objectives:

I. **Establish** regional air navigation priorities. - The document identifies regional air navigation objectives, aligned with the GANP and the ASBU framework, to guide the evolution of the ATM system in the MID Region.

II. **Define and prioritize** the ASBU Elements (Blocks 0 and 1). - Includes a complete matrix of prioritized ASBU Drivers and Elements, indicating which are essential (Priority 1) and which are *recommended* (Priority 2), creating a clear roadmap for their implementation.

III. **Establish** a framework *for* monitoring performance and implementation status. - The document creates a monitoring system based on:

a) Performance Indicators

b) Associated metrics

c) Baselines

d) Goals and deadlines

e) Areas of application (States, airports, ACCs)

This makes it possible to measure the progress of States and MIDANPIRG in the implementation of priority ASBUs.

IV. **Provide** the regional governance structure. - Defines how MIDANPIRG and its subsidiary groups should:

a) Monitor performance

b) Report progress

c) Review and update the Strategy

d) Submit reports to the ANC and MID States

2.7 Thus, the document is facilitating air navigation planning for the MID Region with the following benefits:

a) It aligns regional and national planning with the GANP. - It serves as a regional guide for States to develop their National Air Navigation Plans (NANPs) and adopt priority ASBUs in a coherent and harmonized manner.

b) It facilitates harmonization and regional interoperability. - It defines common priorities that allow the implementation of ATM/ANS capabilities in the MID Region, reducing fragmentation between States.

c) It provides a transparent and comparable monitoring framework. - Thanks to its indicators and metrics, it allows you to evaluate:

i. the implementation status by state, airport, or ACC,

ii. progress against regional targets,

iii. the impact of each ASBU element on KPIs for safety, efficiency, capacity, access, etc.

d) It guides decision-making and investments in infrastructure and clearly defines roles and responsibilities of all actors (States, ANSP, Industry and MIDANPIRG groups) in planning, implementing, monitoring, reporting, and updating the strategy.

2.8 In that sense, the document "Strategy for air navigation in the MID Region" can be identified as a reference to study and, if necessary, apply in GREPECAS to address the challenges of the CAR/SAM Region regarding priority setting, regional harmonization, and monitoring of the implementation of ASBU threads in the CAR and SAM Regions.

2.9 Consequently, the following proposal for Conclusion is presented:

<table>
<tr><td colspan="2">Drafted Conclusion GREPECAS/23/XX</td><td>Document "Strategy for air navigation in the RAC/MAR Region"</td></tr>
<tr><td colspan="2">What:

That:
The Secretariat, in consultation with States, organizations and industry, based on the content and objectives of MID Doc 002, as well as other similar references in ICAO Regions, study and formulate the document "Strategy for Air Navigation in the RAC/SAM Region".</td><td>Expected impact:

☒ Polítics / Global
☒ Interregional
☐ Economics
☐ Enviroment
☒ Técnico / Operacional</td></tr>
<tr><td colspan="3">Why: To establish regional air navigation priorities. Define and prioritize ASBU Elements. Strengthen the performance monitoring framework (KPIs) and establish a harmonized framework for monitoring the status of ASBU implementation. Provide the regional governance structure.</td></tr>
<tr><td colspan="2">When: Immediately. Report the progress to GREPECAS/24</td><td>Status: ☒ Valid/ ☐ not valid / ☐ Finished</td></tr>
<tr><td colspan="3">Who: ☒ States ☒ OACI ☒ Others: Organisations and Industry</td></tr>
</table>

4. Recommended Action

4.1 The meeting is invited to:

a) To take note of the contents of this paper and of the description of MID Doc 002 - Strategy for Air Navigation;

b) To approve the draft Conclusion presented, and to endorse the work of the Secretariat; and

c) Identify other actions that are considered relevant.

APPENDIX A

GREPECAS CONCLUSIONS

CONCLUSION GREPECAS/21/04	ACTIONS FOR THE PROGRESS OF VOLUME III OF CAR/SAM REGIONAL AIR NAVIGATION PLAN
What: That, a) States/Territories to prioritize resources for the permanent activity of work teams in each State, responsible for the management of Volume III of the CAR/SAM RANP and the respective KPIs; b) States and the industry to ensure the participation and CDM processes that integrate all stakeholders in the planning of Vol. III and implementation of air navigation improvements; c) the State Air Navigation Planning Authority and data providers/sources coordinate data collection and management of KPIs to be inserted in the Planning Tables of Vol. III d) ICAO NACC and SAM Regional Offices strengthen the assistance concerning Vol. III, including dissemination of the relevance of the CAR/SAM ANP to ensure cost-efficient and interoperable implementations, as well as the contribution of such planning to the socio-economic development objectives in each State; and e) ICAO facilitate that the CAR/SAM States evaluate the impact of the CAR/SAM Regional Air Navigation Planning on the airspace structure, as well as the new airspace concepts being implemented in the NAM Region.	**Expected impact:** ☐ Political / Global ☒ Inter-regional ☒ Economics ☒ Environmental ☒ Technical/Operational
Why: To advance in the development of Volume III of the CAR/SAM Regional Air Navigation Plan with the participation of all States and stakeholders, and to move towards the definitive implementation of the six-step approach to performance-based planning stipulated in the GANP, and to ensure cost-efficient and interoperable implementations, as well as the contribution of such planning to the socio-economic development objectives in each State.	
When: Immediately	**Status:** ☒ Valid / ☐ Invalid / ☐ Completed
Who: a) States/Territories b) States and the Industry	

CONCLUSION GREPECAS/22/2	PROGRESS ON THE DEVELOPMENT OF VOLUME III OF THE RANP CAR/SAM	
What: That the CAR/SAM States, in conjunction with ANSP and airports, with the participation of airlines and International Organizations, assisted by the Secretariat, populate the Tables of Volume III of the RANP CAR/SAM with the data of performance indicators - KPIs, prioritizing and harmonizing the management of these indicators according to the progress of the Working Groups for the regional implementation of air navigation by GREPECAS/23.		**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Technical/Operational
Why: To ensure a cost-efficient process in the management of KPIs, as well as to strengthen regional planning focused on safe, efficient and adequately capable air navigation, in order to promote the growth of the Industry, based on the performance-based planning methodology by the States.		
When: Present revised version of RANP Vol III, at GREPECAS 23		**Status:** ☒ Valid / ☐ Not valid / ☐ Completed
Who: ☒ States ☒ ICAO ☒ Others:		ANSP providers, Airports, Airlines, International Organizations, Working Groups.

DECISION GREPECAS/22/19	ACTIVATION OF AN AD-HOC GROUP FOR THE DEVELOPMENT OF KPIS OF GANP (KAHG)	
What: Under the framework of GREPECAS Programme for the Strengthening of the Regional Plan (RANP) and National Plans (NANP) of the CAR/SAM, Project A1, and to work jointly with the regional implementation groups, the industry and stakeholders, an Ad-hoc Group is activated, which members are Bahamas, Brazil, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Panama, Peru, Trinidad and Tobago, United States, IATA and IFATCA, for the development of Key Performance Indicators KPI of the GANP (KPI Ad-hoc Group - KAHG) in order to strengthen the implementation of Volume III of the RANP CAR SAM, which results are to be presented at GREPECAS/23 with the following tasks: 1. prepare a regional CAR/SAM guidelines and standardized training material on the methodology of performance indicators, data collection and management and calculations; 2. formulate an Action Plan for the progressive implementation of KPIs, identifying priorities and resources required, harmonized with the progress of the implementation groups; 3. implement a Communications Plan and adequate means of dissemination (dashboards, etc.) of the KPIs; and 4. Formulate a regional and/or interregional initiative for KPIs benchmarking activities.		**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: To promote performance-based planning aligned to the GANP, strengthen Volume III of the RANP CAR/SAM, and foster collaborative work with the implementation groups, Industry and stakeholders, to improve skills of States on the management of KPIs, so as to be prepared for the application of new indicators of the GANP 8th edition and the NANP template, starting in 2026.		
When: Results to be presented at GREPECAS 23		Status: ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☒ Others:		International organizations, users, stakeholders.

— END —

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

MID REGION

AIR NAVIGATION STRATEGY

EDITION MARCH 2024, REVISION FEBRUARY 2025

TABLE OF CONTENTS

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				
	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				
	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	2				
	B0/4	Basic conflict detection and conformance monitoring	**1**	2014	ATM SG	CNS SG RANP/ NANP TF	
	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 ATFM TF	RANP/ NANP TF	
	B0/2	Collaborative Network Flight Updates	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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	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	
	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				
	B1/1	Enhanced STCA with aircraft parameters	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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, RANP/ NANP TF	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	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)	2				
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 B1/3	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). Supporting Metric: Number of States that provide required obstacle digital datasets.	(2022) 35%	60 %	Dec 2024	N/A
AMET							
AMET B0/1	Meteorological observations products	All states	Indicator*: Regional average implementation status of B0/1 (Meteorological observations products).	(2022) 65%	80%	Dec 2021	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			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				
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) 5. Take-off Forecast 6. SIGMET 7. Aerodrome Warning 8. Wind Shear Warning	(2022) 60%	90%	Dec 2021	N/A
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	(2022) 60%	85%	Dec 2021	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			meteorological products, as required.				
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 LNAV or LNAV/VNAV minima.	(2017) 46.7%	100%	Dec 2018	Capacity/ KPI 10
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/

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
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 operations for low visibility operations (Reference: Doc 9365 (AWO Manual)), as applicable.	(2022) 50%	80%	Dec 2025	Capacity/ KPI 10
FRTO							
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	(2022) 63%	70%	Dec 2022	Efficiency Access and equity/ KPI 04 KPI 05

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline	Target	Timeline	KPA/ KPI
			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				KPI 17 KPI 18/ KPI 19
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
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/
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 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 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 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 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 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 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
