



INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

**REPORT OF THE TWELFTH MEETING OF
CNS SUB-GROUP**

(CNS SG/15)

(Doha, Qatar, 11-14 May 2026)

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

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

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontier or boundaries.

TABLE OF CONTENTS

Page

PART I - HISTORY OF THE MEETING

1. Place and Duration..... 1

2. Opening 1

3. Attendance..... 1

4. Officers and Secretariat 1

5. Language 1

6. Agenda..... 2

7. Conclusions and Decisions - Definition..... 2

8. List of Draft Conclusions and Draft Decisions..... 3

PART II - REPORT ON AGENDA ITEMS

Report on Agenda Item 1 1-1

Report on Agenda Item 2 2-1/2-4

Report on Agenda Item 3 3-1/3-5

Report on Agenda Item 4 4-1/4-3

Report on Agenda Item 5 5-1/5-3

Report on Agenda Item 6..... 6-1

Report on Agenda Item 7..... 7-1/7-2

Report on Agenda Item 8..... 8-1

Report on Agenda Item 9..... 9-1

APPENDICES

- Appendix 2A-2B
- Appendix 5A-5B
- Appendix 7A
- Appendix 8A

ATTACHMENT

List of Participants Attachment A

PART I – HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Fifteenth meeting of the MIDANPIRG Communication, Navigation and Surveillance Sub-Group (CNS SG/15) was hosted by Qatar in Doha, Qatar, -11-14 May 2026.

2. OPENING

2.1 The meeting was opened by H.E. Capt. Saif Al Kuwari, from the Qatar Civil Aviation Authority, expressing appreciation to participants and highlighting the importance of their continued commitment to advancing civil aviation in the MID Region. Capt. Saif emphasized that the meeting would provide a valuable platform for addressing key issues in frequency management, communication, navigation, and surveillance systems, and encouraged active participation to achieve constructive outcomes that enhance safety, efficiency, and regional cooperation. He wished the participants a productive meeting and a pleasant stay in Doha.

2.2 Mr. Mohamed Smaoui, the Deputy Regional Director, ICAO MID Office, welcomed participants to Doha and expressed appreciation to the Qatar Civil Aviation Authority for its excellent hosting and support. He also thanked all participants joining both in person and remotely for their attendance, particularly those contributing with WPs/PPTs sharing expertise, best practices and/or challenges.

2.3 Mr. Smaoui highlighted ICAO's role in supporting States in implementing global aviation standards and emphasized key challenges. The importance of collaboration across diverse aviation stakeholders was underlined. Mr. Mohamed Smaoui thanked the participants for their presence and wished the meeting every success in its deliberations.

3 ATTENDANCE

3.3 The meeting was attended by a total of eighty-nine (89) participants, from twelve (12) States (Bahrain, Egypt, Iran, Iraq, Jordan, Libya, Oman, Qatar, Saudi Arabia, Syria, Sudan, and UAE) and three (3) International Organizations/Industry (IATA, IFALPA, and GCC). The list of participants is at **Attachment A**.

4 OFFICERS AND SECRETARIAT

4.3 The meeting was chaired by Mr Abdallah Alsayed, Senior Specialist – Air Navigation and Communication, Navigation & Surveillance, UAE

4.4 Mrs. Muna Alnadaf, Technical Officer/CNS, Air Navigation Bureau, ICAO HQ, was the Secretary of the meeting supported by Mr. Mohamed Smaoui, the Deputy Regional Director ICAO MID Office.

5 LANGUAGE

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

6 AGENDA

6.3 The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda & Election of Chairpersons

Agenda Item 2: Communication Issues

Agenda Item 3: Navigation issues

Agenda Item 4: Surveillance issues

Agenda Item 5: Spectrum Issues (Outcome of the FM WG/5)

Agenda Item 6: Air Navigation Services Cyber Security

Agenda Item 7: MID Air Navigation Plan and Report

Agenda Item 8: Future Work Programme

Agenda Item 9: Any Other Business

7 CONCLUSIONS AND DECISIONS - DEFINITIONS

7.3 All MIDANPIRG Sub-Groups and Task Forces record their actions in the form of Conclusions and Decisions with the following significance:

- a) **Conclusions** deal with the matters which, in accordance with the Group's terms of reference, merit directly the attention of States on which further action will be initiated by ICAO in accordance with established procedures; and
- b) **Decisions** deal with matters of concern only to the MIDANPIRG and its contributory bodies.

8 LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

- DRAFT CONCLUSION 15/1: EFFICIENCY OF THE AMHS NETWORK OPERATION IN THE MID REGION*
- DRAFT CONCLUSION 15/2: AFS INTER-REGIONAL COORDINATION*
- DRAFT CONCLUSION 15/3: CAPACITY BUILDING ACTIVITIES ON AMHS/AMC*
- DRAFT DECISION 15/4: MID AMC STG AMENDED TERMS OF REFERENCE*
- DRAFT DECISION 15/5: MID IP NETWORK ACTION GROUP*
- DRAFT CONCLUSION 15/6: REVISION OF THE GUIDANCE ON GNSS IMPLEMENTATION IN THE MID REGION*
- DRAFT DECISION 15/7: NAVIGATIONAL OPERATIONAL NETWORKS-NAV MON ACTION GROUP*
- DRAFT CONCLUSION 15/8: STRENGTHENING REGIONAL PREPAREDNESS AGAINST GNSS RFI DISRUPTIONS*
- DRAFT CONCLUSION 15/9: STRENGTHENING SURVEILLANCE PLANNING AND IMPLEMENTATION IN THE REGION*
- DRAFT CONCLUSION 15/10: FREQUENCY CONGESTION*
- DRAFT CONCLUSION 15/11: MITIGATING INTERFERENCE THROUGH EFFECTIVE SPECTRUM REGULATORY MEASURES AND ENFORCEMENT*
- DRAFT DECISION 15/12: COORDINATION AND ADVOCACY FOR THE PROTECTION OF THE RADIO ALTIMETER BAND IN WRC-27*
- DRAFT DECISION 15/13: DISSOLUTION OF ACS WG*

PART II: REPORT ON AGENDA ITEMS**REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA**

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

REPORT ON AGENDA ITEM 2: COMMUNICATION ISSUES***Outcome of the MIDAMC STG/11***

2.1 The Outcome of the MIDAMC STG/11 meeting was addressed in WP02, presented by the Secretariat.

2.2 The meeting noted that all actions in the Regional OPMET Center (ROC) plan have been completed, except the task “Evaluation of Inter-Region Connection Bandwidth and its increase, if required” and the transition of the Beirut-Nicosia connection from CIDIN to AMHS, as in the updated ROC plan at *Appendix 2A*.

2.3 The MIDAMC STG/11 meeting agreed to coordinate with the MET SG on the status of the current ROC implementation and to request States to assess the need for increasing connection bandwidth. Following this coordination, the meeting noted that ROC data is being exchanged without issue and therefore considered the ROC plan fully implemented.

2.4 The meeting recalled that States have been urged, through MIDANPIRG Conclusion 20/37, to rationalize the AFTN/AMHS network in the MID Region, based on operational requirements and traffic volume, and to review the Inter-Regional connections established on a bilateral basis. No action has yet been taken with respect to the rationalization of the network. The meeting noted that the AFTN/AMHS regional requirements are outlined in the MID ANP, Volume II, CNS Tables II-1 and II-2. It was reiterated that States should refrain from establishing additional Inter-Regional connections to ensure efficient and regular Inter-Regional messages flow.

2.5 The meeting noted with concern the following operational issues:

- a) inconsistent AFTN/AMHS routing tables;
- b) the need to update look-up tables in external systems interfacing with the MTA via P3 or P7; and
- c) incorrect routing of certain addresses, such as FH and FJ, which are usually routed to the AFI Region, although they belong to and should be routed to the EUR Region.

2.6 The meeting recalled that the successful transition of SITA integration was completed in 2019. Furthermore, it was noted with concern that the routing mismatches or misconfigurations have resulted in traffic loss, routing loops, and traffic delays. Therefore, equipping AFS operator with the requisite training in routing configuration, as well as the use of MIDAMC tools and functions, prior to operating on the live network was underlined.

2.7 The meeting recalled the ongoing efforts to implement an AMHS gateway between the AMHS community and ARINC, and noted that MIDANPIRG/20, through Conclusion 20/41, urged the States concerned (Egypt, Libya, and Sudan) to validate the ARINC addresses by 1 August 2023. The States involved expressed difficulties in completing this validation, as the addresses are not registered in their national records. Consequently, the MIDAMC Team was tasked to coordinate with ARINC and request that they provide the list of relevant addresses and the required details to enable States to conduct the validation process. Based on the above, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 15/1: EFFICIENCY OF THE AMHS NETWORK OPERATION IN THE MID REGION

That, in order to enhance the efficiency and ensure consistency of the AFTN/AMHS network operations in the MID Region, States be urged to:

- a) refrain from establishing new bilateral inter-regional connections and rationalize existing ones, ensuring that operational requirements, overall network efficiency, and the regional provisions specified in MID ANP Volume II are fully considered;*
- b) update the AMC data, including AFTN/AMHS Routing directories, on a regular basis in close collaboration with the MIDAMC team; and*
- c) ensure that the AMHS system operates in full alignment with the AMC data, including proper configuration of AMHS parameters and timely update of P3/P7 user agents' addressee information.*

2.8 The meeting noted that some MID States are facing operational issues concerning the Inter-Regional communications with gateways of other Regions. Consequently, the MIDAMC STG/11 meeting requested ICAO to organize a meeting to discuss Inter-Regional aeronautical fixed service (AFS) matters with States involved. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 15/2: AFS INTER-REGIONAL COORDINATION

That, in order to enhance coordination and facilitate resolution of outstanding Inter-Regional issues, ICAO MID Office is requested to organize an AFS inter-regional coordination meeting with AFI, APAC, and EUR/NAT Regions and States involved.

2.9 The meeting noted the successful conduct of a MIDAMC Workshop from 5 to 7 April 2026, Cairo, Egypt, which provided basic knowledge and practical skills. Furthermore, the meeting agreed that an advanced MIDAMC Workshop should be conducted in 2027 to further strengthen operator competencies, ensure consistency in network operations, and enhance overall efficiency and reliability of the AFTN/AMHS environment.

2.10 The meeting noted the requests from Libya, Syria, and Yemen to organize MIDAMC Workshops at National level with the aim of enabling broader participation and supporting the implementation and operation of AMHS within their respective States. Libya emphasized the need to arrange this Workshop at the earliest opportunity. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 15/3: CAPACITY BUILDING ACTIVITIES ON AMHS/AMC

That, in order to strengthen AMHS operator competencies and enable the smooth and efficient AMHS operation in the MID Region:

- a) an Advanced AMHS/AMC Workshop be organized in 2027; and*
- b) States interested to organise AMHS/AMC Workshop at National level send official requests to the ICAO MID Office.*

2.11 The meeting reviewed and endorsed the proposed updates to the Terms of Reference (ToRs) of the MIDAMC STG, as at **Appendix 2B**, taking into account the following considerations:

- a) given that the management and development of SWIM services fall under the terms of reference of the AIM SG, the MIDAMC will support only the establishment and operation of

the SWIM infrastructure, not the services themselves, in order to avoid overlapping of tasks and duplication of efforts; and

b) the withdrawal of the MIDAMC Platform and the transition to the use of the AMC.

2.12 Consequently, the meeting agreed to the following Draft Decision:

DRAFT DECISION 15/4: MID AMC STG AMENDED TERMS OF REFERENCE

That the MID AMC Steering Group Terms of Reference be amended as at Appendix 2B.

INTER-CENTER COMMUNICATIONS (ICC) PROTOCOLS

2.13 The Inter-Center communication protocols were addressed in WP/3, presented by the Secretariat.

2.14 The meeting noted the updated criteria for identifying Priority 1 AIDC/OLDI connections as proposed by the ATM SG, and the outcomes of the FF-ICE Workshop, as well as the FICE regulatory framework proposed by Qatar.

2.15 The meeting recognized that FICE is a multidisciplinary ANS matter requiring cooperation among MIDANPIRG subsidiary bodies, specifically ATM SG, AIM SG and CNS SG.

MID IP Network Project

2.16 The meeting recalled that the ICAO MID Office had requested EUROCONTROL to extend the New PENS service to MID States, following the agreement reached at MIDANPIRG/18 through Conclusion 18/37, as an alternative solution to the CRV for establishing a MID IP Network.

2.17 The meeting was reminded that EUROCONTROL had agreed to extend the New PENS project to the MID States, and that the official notification letter, together with the next steps, would be communicated to the ICAO MID Office in due course.

2.18 It was mentioned that the ICAO MID Office had been approached by the APAC Office to explore the possibility of re-engaging MID States in the APAC CRV project, since the cost would be significantly lower than previously quoted. Consequently, the MIDANPIRG/21 meeting agreed to refer the matter to CNS SG/13 for further study and to recommend a solution to the MIDANPIRG/22 meeting.

2.19 The meeting stressed that a regional or sub-regional decision should be taken to join a regional network, to enhance cost-effectiveness for the States concerned.

2.20 The meeting raised concerns regarding the uncertainties in coordination and the approach adopted. Accordingly, it was agreed to establish an Action Group, that will carry out its tasks virtually, to reassess all options and scenarios related to the MID IP project and to provide guidance on the most appropriate course of action, taking into account past efforts and coordination with other Regions. Furthermore, the outcome of this Action Group will be presented at the CNS SG/16 and MIDANPIRG/24 meetings. Accordingly, the meeting agreed to the following Draft Decision:

DRAFT DECISION 15/5: MID IP NETWORK ACTION GROUP

That:

- a) *the MID IP Network Action Group is established to reassess all options and scenarios related to the MID IP project and to provide guidance on the most appropriate course of action; and*
- b) *the MID IP Network Action Group is composed of:*
 - a) *Mohamed Sultan (Egypt)*
 - b) *Yasser Zayyad (Jordan)*
 - c) *Ahmed El-Amari (Libya)*
 - d) *Said Albalushi (Oman)*
 - e) *Sheikha Al-Temais (Qatar)*
 - f) *Faisal Alzahrani (Saudi Arabia)*
 - g) *Ayham Alkilani (Syria)*
 - h) *Rashed Al-Shehi (UAE)*
 - i) *Ezat Faiq (Yemen)*
 - j) *ICAO Secretariat*

REPORT ON AGENDA ITEM 3: NAVIGATION MATTERS**ICAO GNSS RFI ROADMAP**

- 3.1 The subject was addressed in WP/5 and WP/6, presented by the Secretariat.
- 3.2 The meeting was apprised of the outcome of the 42nd session of ICAO Assembly and the 14th Air Navigation Conference (AN-Conf/14) concerning the GNSS RFI. The meeting was further apprised of the ICAO roadmap available at ([ICAO GNSS RFI Roadmap](#)) to address GNSS jamming and spoofing, and associated short-, medium-, and long-term actions and activities.
- 3.3 The meeting noted that, in the short term, conventional navigation infrastructure can continue to serve as a reliable backup. At the same time, the implementation Package (iPack) for the mitigation of GNSS RFI will provide targeted support to States encountering implementation challenges, assisting them in deploying both preventive and reactive mitigation measures as necessary.
- 3.3 It was highlighted that no single solution is known to be effective in all GNSS RFI cases; therefore, the most robust approach is a combination of technical measures, including signal authentication for core constellations (GPS, Galileo), SBAS authentication, C-PNT, NAV RON, enhanced antenna types, and other complementary technologies.

Mitigating GNSS RFI

- 3.4 The subject was addressed in WP/9, presented by Oman. The meeting noted the actions taken by Oman to mitigate GNSS RFI.
- 3.5 The meeting noted that the RASG-MID Safety Advisory on GNSS vulnerabilities (RSA-14) was endorsed in 2018 and amended in 2025.
- 3.6 The meeting agreed that the RSA-14 requires a substantial update to keep pace with developments, given the evolving nature of GNSS jamming and spoofing, as well as ICAO's recent publications and provisions on the subject. It was therefore decided that Oman will lead the review process, with support from Egypt and the ICAO Secretariat. The revised draft will be circulated to CNS focal points by email for feedback/input, with the aim of presenting the amended RSA-14 at the MIDANPIRG/23 and RASG-MID/13 meetings.
- 3.7 The meeting also recalled that the ICAO MID Regional Office has published ICAO MIDANPIRG DOC 011 titled "GUIDANCE ON GNSS IMPLEMENTATION IN THE MID REGION", Edition December 2018. This guidance includes some mitigation strategies to GNSS vulnerabilities in Part III: GNSS Vulnerabilities.
- 3.8 The meeting agreed on the need to revise and update MID DOC 011 to take into account, inter alia, the followings:
- i. the latest amendment to ICAO Annex 10, Volume I;
 - ii. Assembly Resolution 42-8 Appendix C;
 - iii. AN-Conf/14 Recommendation 2.2/2;
 - iv. the most recent revision of RASG-MID Safety Advisory 14 (RSA-14); and
 - v. the outcomes of ICAO events, including the 1st and 2nd Radio Navigation Symposia.

3.9 Egypt volunteered to lead the review of the MID DOC 011, with the intention of presenting the revised document to the CNS SG/16 meeting for further consideration and enhancement. Accordingly, the meeting agreed to the following Draft Conclusion:

***DRAFT CONCLUSION 15/6: REVISION OF THE GUIDANCE ON
GNSSIMPLEMENTATION IN THE MID REGION***

That, in order to ensure alignment of regional guidance with global developments, emerging threats, and ongoing international and regional efforts, Egypt lead the review and update of the ICAO MID DOC 011- Guidance on GNSS Implementation in the MID Region. The revised document will then be subject to further review and endorsement by the CNS SG/16 meeting before presentation to the MIDANPIRG/24 meeting for endorsement.

Enhancing Time Synchronization Resilience of ANSP Systems Under GNSS RFI Conditions

3.10 The subject was addressed in WP/10, presented by the UAE.

3.11 The meeting noted the critical need for precise time synchronization and time-stamping in several CNS/ATM systems. Modern ANSP environments operate as tightly coupled, time-dependent systems, where synchronization is often at sub-microsecond levels.

3.12 The meeting received an update from the UAE on multi-layered timing architecture. This approach combines GNSS-based synchronization with anti-jamming capabilities, high-stability local timing sources such as atomic clocks (Rubidium/Cesium) or holdover oscillators, and independent synchronization mechanisms, including secure network-based timing (e.g., PTP – Precision Time Protocol) and cross-validation across ANSP systems. The layered design enables graceful degradation and ensures continuity of operations even in the event of GNSS disruption.

3.13 The meeting was apprised of the ongoing efforts by ICAO HQ to standardize complementary PNT (C-PNT) solutions, which are considered the long-term response to GNSS RFI. The C-PNT concept includes the introduction of independent time sources, ensuring resilience and continuity of operations in the event of GNSS disruption.

3.14 The meeting requested the UAE to keep the Group informed of their ongoing experience and encouraged other States to assess and, to the extent possible, mitigate GNSS dependency for timing across critical CNS infrastructure.

Minimum Navigation Operational Network (NAV MON)

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

3.16 The meeting recalled that the ASBU element NAVS B0/4 -NAV MON was identified in 2018 as a priority 1 element for implementation in the MID Region Air Navigation Strategy.

3.17 In order to assist States with the implementation and monitoring of NAV-MON, MIDANPIRG/18, through Decision 18/42, established the NAV-MON Action Group to develop a Template for a NAV-MON Plan. Consequently, the Action Group held several virtual meetings with four

volunteering States (Egypt, Jordan, Oman, and the UAE) and produced the initial draft of the NAV-MON Template. Feedback was requested from the ATM SG and PBN SG through MIDANPIRG Conclusion 21/26.

3.18 The meeting was apprised of global developments in this regard, including the AN-Conf/14 Recommendations and Assembly Resolution A42-8/C, as well as the introduction of the NAV-RON Concept (Resilient Navigation Operational Network). The meeting noted that the definitions of both concepts are still under development.

3.19 The meeting agreed on the need for States to verify the existence of NAV-MON until the new concept is introduced. Accordingly, the meeting decided to update the composition and objectives of the NAV-MON Action Group and, consequently, agreed to the following Draft Decision to supersede MIDANPIRG Decision 22/20:

DRAFT DECISION 15/7: NAVIGATIONAL OPERATIONAL NETWORKS-NAV MON ACTION GROUP

That, in order to assist States with the implementation of the required conventional infrastructure, NAV-MON and, upon its introduction, NAV-RON, the NAV MON Action Group:

a) undertake the necessary actions to assist States with the NAV-MON and NAV-RON implementation, and facilitate the sharing of resources and best practices among States;

b) is composed of:

- *Mr. Waheed Sulieman (Egypt)*
- *Ms. Neveen Askar (Jordan)*
- *Mr. Abdullah AlFarsi (Oman)*
- *Mr. Sadiq Al-Laweaiti (Oman)*
- *Ms. Wadha Almalki (Qatar)*
- *Mr. Khaled Al-Harby (Saudi Arabia)*
- *Mr. Hussam Alsaid Ali (Syria)*
- *Mr. Jacob Avis (UAE)*
- *Ms. Lindi Kirkman (IATA)*
- *Mr. Arnaud Du Bédât (IFALPA)*
- *The ICAO MID Secretariat*

Implementation of GNSS Loss of Signal Monitoring and Reporting System to Support RFI Mitigation in JEDDAH FIR

3.20 The subject was addressed in WP/8, presented by Saudi Arabia.

3.21 The meeting was apprised of the plan to establish a GNSS Signal Monitoring and Reporting

System in Saudi Arabia covering Jeddah FIR to support the detection, analysis, and mitigation of Radio Frequency Interference (RFI), including intentional jamming and signal spoofing.

3.22 It was noted that the system will automatically detect GNSS degradation events using ground-based sensors serving the Saudi’s airspace, analyze them, and provide timely notifications to airspace users and to the Saudi ANSP (SANS).

3.23 The meeting agreed that establishing a GNSS Signal Monitoring and Reporting System will significantly improve situational awareness, support mitigation efforts, and enhance safety. The meeting requested to keep the CNS SG updated on the progress made for the GNSS Signal Monitoring and Reporting System.

3.24 In this regard, the meeting recalled MIDANPIRG 20/47 Decision, that requested the ICAO MID Office to collaborate with ACAO to assess the feasibility of establishing a Regional GNSS RFI monitoring System and report the outcome to the CNS SG/13 and MIDANPIRG/21 meetings.

3.25 The meeting also received several briefs on GNSS RFI monitoring solutions addressed in IP06, IP07, IP08, IP09, IP10, and IP11, presented by Qatar and the industry.

3.26 Based on the above, the meeting agreed that the establishment of a regional or sub-regional central RFI information repository, should be explored once States have developed sufficient national capabilities. Accordingly, the meeting agreed to the following Draft Conclusion to replace and supersede MIDANPIRG-RASG Conclusion 2 and MIDANPIRG Conclusion 20/47:

DRAFT CONCLUSION 15/8: STRENGTHENING REGIONAL PREPAREDNESS AGAINST GNSS RFI DISRUPTIONS

That, in order to strengthen regional preparedness for responding to disruptions caused by GNSS RFI, States are urged to:

- a) implement Assembly Resolution A42-8 Appendix C to ensure timely and effective measures are taken; and*
- b) consider establishing a GNSS RFI monitoring system to enhance situational awareness and mitigate safety and security risks.*

Extending Periodic Flight Inspection Intervals for Ground-Based Navigation Aids

3.27 The subject was addressed in WP/17, presented by Saudi Arabia

3.28 The meeting noted Saudi Arabia’s update regarding the criteria used to extend the periodicity of flight inspection (FI) intervals for ground-based navigation aids (NAVAIDs).

3.29 The meeting further noted that this process is supported by continuous monitoring capabilities, system reliability data, and the deployment of modernized ground-based NAVAID technologies for the provision of navigation services. It is also reinforced by safety considerations and eligibility criteria that allow for the extension of flight inspection intervals based on demonstrated system performance rather than fixed periodicity. The meeting emphasized that any such extension must be

justified by robust and reliable monitoring arrangements, formal safety risk assessments, effective regulatory oversight, and clearly defined reversion mechanisms to standard inspection intervals when required.

3.30 The meeting noted that the majority of recorded Significant Safety Concerns under the ICAO USOAP programme in the air navigation services area are related to the flight inspection of the ground-based radio navigation and Instrument Flight Procedures.

3.31 The meeting invited States to share their experience, best practices, and lessons learned related to the flight inspection intervals and the monitoring strategies, and encouraged the exchange of information on regulatory frameworks, safety assessments, and monitoring arrangements to support harmonized and safe implementation of extended flight inspection intervals within the MID Region, as appropriate.

3.32 The meeting was informed that a PBN/GNSS Workshop will be held in Cairo, 27-29 September 2026. The Workshop will address, inter-alia, radio navigation flight inspection matters. Accordingly, the meeting encouraged States to participate actively in this Workshop.

REPORT ON AGENDA ITEM 4: SURVEILLANCE ISSUES***Mode S IC Allocation***

4.1 The subject was addressed in WP/11 and WP/16, presented by the Secretariat and Saudi Arabia, respectively.

4.2 The meeting recalled that, in 2011, it had been agreed that the EUROCONTROL MICA Cell would support the ICAO MID Region in the allocation of Mode S Interrogator Codes (MICA), using the same processes and procedures applied within the EUR Region. The meeting further recalled that a MICA Workshop had been conducted in 2019 for users from the MID Region.

4.3 The meeting noted with concern that improper code allocation could disrupt air traffic control (ATC) by degrading radar track stability. The resulting signal interference can trigger a domino effect, leading to delayed target updates, garbled readouts, and dropped tracks that ultimately compromise flight safety in high-traffic environments. The excessive interrogations and replies overload the radar systems, ultimately culminating in at least the following consequences:

- i. False targets.
- ii. Loss of aircraft identification.
- iii. Reduced surveillance accuracy.
- iv. Increased ATC workload.
- v. Safety risks in high-density environments.

4.4 The meeting was briefed that an assessment of the use of the MICA system by MID users had identified several activities that were not being carried out in a timely or consistent manner, including the following:

- i. Conflict reports were not being processed by MID users in a timely manner.
- ii. Several assigned codes had not been confirmed as implemented.
- iii. Assigned codes are required to be revalidated every five years; however, this process was not always being completed by States within the required timeframe.

4.5 In response to the meeting's request to establish a MID Region Mode S Interrogator Code (IC) central regional repository, the meeting was informed that ICAO HQ is developing a new module for SSR codes to be integrated in the Frequency Finder Tool.

MID Region Surveillance Plan

4.6 The meeting noted that the current version of the MID Region Surveillance Plan incorporates the outcomes of the ICAO Emerging Surveillance Symposium as well as the outcomes of the ADS-B Webinar. However, the meeting noted that the Plan contains obsolete elements and therefore requires review and updating, inter alia, in the following areas:

- i. the GANP Surveillance Plan, which no longer exists in the current version of the online GANP;
- ii. the baseline of surveillance infrastructure in the MID Region, which is dated December 2020;
- iii. the medium- and long-term actions need to be updated;

-
- iv. the timeline for DFMC GNSS is inaccurate;
 - v. the plan for ADS-B implementation in the MID Region is no longer relevant in light of prevailing GNSS RFI conditions; and
 - vi. the implementation of ADS-B/IN

4.7 The meeting agreed on the need to update the MID Region Surveillance Plan. Consequently, the meeting tasked the Secretariat, with the support of Egypt and Qatar, to prepare the first draft of the updated version for submission to the CNS SG/16 and MIDANPIRG/24 meetings for further review and endorsement.

4.8 Based on the above, the meeting agreed to the following Draft Conclusion:

Draft Conclusion 15/9: STRENGTHENING SURVEILLANCE PLANNING AND IMPLEMENTATION IN THE REGION

That, in order to strengthen Surveillance Planning, Implementation, and Operations in the MID Region:

- a) a Surveillance Workshop including MICA training be organized in 2027;*
- b) the MID Region Surveillance Plan be reviewed and updated, taking into account the outcome of the Surveillance Workshop, and submitted to CNS SG/16 and MIDANPIRG/24 meetings for review and endorsement; and*
- c) MICA users are urged to:*
 - i) carry out the necessary actions in a timely manner, including confirmation of implementation, and where applicable, revalidation of assigned codes;*
 - ii) respond to conflict reports, where involved, and take the necessary corrective action without delay; and*
 - iii) indicate any challenges encountered in using the MICA platform or following the associated processes.*

Surveillance Project in Egypt

4.9 The subject was addressed in WP/19, presented by Egypt.

4.10 The meeting was apprised of the status of the Mega Surveillance Project in Egypt, including its strategic objectives, current phase, and lessons learned.

Efficient Utilization of 24-bit Aircraft Addresses for Aerodrome Surface Vehicles Using ADS-B Surface Surveillance Systems

4.11 The subject was addressed in WP/18, presented by Jordan.

4.12 The issue of increasing use of ADS-B Surveillance for Aerodrome Surface Vehicles operating on runways, taxiways, aprons, and manoeuvring areas was addressed.

4.13 The meeting noted that ICAO Annex 10 allows the use of 24-bit aircraft addresses for

aerodrome surface vehicles under specific conditions. The State Civil Aviation Authority should remain the responsible authority for address assignment to ensure its uniqueness, traceability, compatibility with ATM systems, and coordination with aircraft registry databases.

4.14 The meeting was informed that excessive use of ADS-B transmitters on vehicles may lead to RF congestion, message garbling and collisions, reduced target detection probability, degradation of surveillance performance, and overload of ATM processing systems. This is particularly critical at major international airports with high traffic density. Therefore, uncontrolled large-scale deployment of vehicle ADS-B transmitters should be avoided. The meeting further noted the recommended mitigation measures.

4.15 The meeting agreed that the development of harmonized regional guidance for the MID Region on 24-bit address allocation should be considered during the update of the MID Region Surveillance Plan.

REPORT ON AGENDA ITEM 5: SPECTRUM ISSUES (OUTCOME OF THE FM WG/5)

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

Frequency Congestion

5.2 The meeting addressed the issue of VHF COM and NAV frequency congestion in the MID Region and considered several measures to mitigate it, including the revision of the MID Region allotment plan, enhancement of the ICAO database quality, implementation of 8.33 channel spacing, and exploring various approaches to optimize the use of DME.

5.3 The meeting recalled that, in order to increase the amount of spectrum available for aeronautical services (VHF COM), MIDANPIRG/20 tasked the FM WG, through Decision 20/35, to review and amend the regional frequency allotment plan as deemed necessary. It was highlighted that the regional frequency allotment tables are an integral part of the ICAO Regional Air Navigation Plan and are published as a supplement to ICAO Doc 9718, Volume II. In this regard, the meeting noted with appreciation the comprehensive analysis conducted by Iraq on the MID Region allotment plan, which included allocated channels for each service, a comparison of allotted channels in the MID Region with other ICAO Regions, sub-band utilization, and identified issues in the current assignments.

5.4 The meeting agreed to study Iraq's proposal on the reduction of the AOC band to 130.9–132.025 MHz (46 channels), using the Frequency Finder Tool to assess channel availability for each service within the MID Region, with the study results to be presented at the FM WG/6 meeting.

5.5 The meeting also received an update on the initiative taken by ICAO to clean up the database and enhance the quality of registered assignments (ICAO database Data Quality Control). A comprehensive review, including a comparison with published AIP data, has been completed, and an Excel file has been prepared for each State to reflect this information. Due to time constraints, the meeting was unable to review and update States' files during the meeting sessions. It was therefore agreed to arrange one-to-one meetings between ICAO and the involved States in the third quarter of 2026 (Q3-2026) to complete this task.

5.6 The meeting noted that, due to concerns related to GNSS RFI, several States have recently installed additional DMEs, which may contribute to increased DME spectrum congestion within the Region. In this context, the meeting was apprised of five potential approaches for increasing DME channel availability, as identified in an optimization study conducted by Airbus and EUROCONTROL. The meeting highlighted that the technical feasibility of each approach requires further detailed assessment and agreed to consider these approaches as potential measures for the future mitigation of DME congestion in the MID Region.

5.7 Based on all the above, the meeting agreed to the following Draft Conclusion:

Draft Conclusion 15/10: FREQUENCY CONGESTION

In order to reduce COM and NAV frequency congestion and enhance frequency availability in the MID Region, States are required to complete the following actions by the end of 2026:

- a) complete the review and update of their frequency assignment data in the current ICAO database;*
 - b) provide their projected frequency requirements up to 2034 using the questionnaire provided in **Appendix 5A**, to enable ICAO conduct the necessary simulations and assess with States the need for implementing reduced channel spacing (8.33 kHz);*
- and*

c) complete the review of the MID Region allotment plan for processing by ICAO and inclusion in the relevant ICAO documents.

Interference Detection and Resolution

5.8 The meeting was apprised of the coordination mechanism between the Civil Aviation Authorities and the national radio regulator in the UAE; and noted the process for handling interference complaints, including geolocation of the interference source, actions to eliminate it, coordination with national and external stakeholders, and reporting and escalation procedures. The meeting emphasized the need for States to establish a similar coordination mechanism between their Civil Aviation Authority and national radio regulator.

5.9 The meeting was apprised of the provisions and recommendations related to optimizing interference detection and resolution, through effective spectrum regulatory measures and enforcement, as contained in the relevant ICAO Resolutions emanating from the 42nd session of the ICAO Assembly, Recommendations from the 14th Air Navigation Conference, and the recommended actions from the 1st and 2nd ICAO Radio Navigation Symposiums. The ICAO/ITU/IMO joint Declaration on the protection of GNSS from harmful interference and WRC-23 Resolution 676 were also duly noted.

5.10 The meeting discussed means to enforce these provisions and recommendations, given the importance and criticality of the issue. It was agreed that ICAO would provide a survey listing the required actions along with their references and monitor implementation using the matrix in ***Appendix 5B***.

5.11 As a follow-up to the recommendation to strengthen enforcement against illegal GNSS transmitters, the meeting was apprised of a best practice presented by the GCC, led by Bahrain. Bahrain reported that it had engaged with several online marketplaces, requesting them to prohibit the sale of illegal transmitters to GCC Countries, and had enhanced coordination with Customs Authorities to prevent their importation. In light of these efforts, the meeting agreed to the following Conclusion:

***DRAFT CONCLUSION 15/11: MITIGATING INTERFERENCE THROUGH
EFFECTIVE SPECTRUM REGULATORY
MEASURES AND ENFORCEMENT***

*That, in order to implement ICAO Resolutions and Recommendations related to the mitigation of interference through effective spectrum regulatory measures and enforcement, States are urged to implement the actions listed in ***Appendix 5B*** and provide feedback to the CNS SG/16 meeting, for monitoring and appropriate action.*

Preparation of WRC-27

5.12 The meeting was briefed on ICAO provisions concerning the aeronautical spectrum strategy and policies, the relevant Assembly Resolution, and the process for preparing ICAO's WRC position (WRC-27).

5.13 The meeting noted that, although WRC-27 does not include agenda items specifically on aviation safety frequency allocations, several items could nonetheless impact aeronautical safety services, including the band allocated for Radio Altimeter.

5.14 The meeting noted that Radio or Radar Altimeters are essentially primary radars pointing towards the ground. They provide a direct measurement of the clearance height of the aircraft over terrain or obstacles. These Radars operate in the 4.2-4.4 GHz frequency band.

5.15 The meeting noted with concern that WRC-27 agenda item 1.7 studying the identification of additional spectrum for international mobile telecommunications (IMT) in one or more frequency bands, including a band which is immediately adjacent to the Radio Altimeter (RA) band.

5.16 Current WRC-27 preparatory studies raise several aviation safety and operational concerns. Ongoing studies do not fully address critical radio altimeter operational scenarios, particularly off-nominal landing conditions where RAs function as essential safety-net systems. This may result in an incomplete assessment of real-world interference risks. In addition, new RA SARPs are not expected before 2027, limiting their relevance to WRC-27 deliberations. Concerns were also raised regarding the cross-border nature of aviation operations, as aircraft routinely operate across multiple jurisdictions during critical phases of flight and require RA systems to function reliably and consistently across regions.

5.17 The meeting stressed the need to actively advocate for the ICAO WRC-27's position and to engage with States and relevant International Organizations in order to ensure the protection of aviation safety. Consequently, the meeting agreed to the following Draft Conclusion:

Draft Decision 15/12: Coordination and Advocacy for the Protection of the Radio Altimeter Band in WRC-27

That, in order to strengthen regional and international coordination in support of the ICAO position on radio altimeter spectrum protection, and to ensure effective engagement with relevant stakeholders during WRC-27:

- a) *ICAO MID Office to:*
 - i. *conduct Workshops and/or meetings in 2026/2027 with the Arab Spectrum Management Group (ASMG) in support of WRC-27 preparations, with particular emphasis on radio altimeter issue; and*
 - ii. *coordinate with States as well as other International and Regional Organizations, to strengthen collaboration and advocate for the protection of the radio altimeter band.*

 - b) *States' Civil Aviation Authorities to:*
 - i. *participate actively in the Regional WRC27 preparatory events;*
 - ii. *coordinate with their national radio regulator to support ICAO WRC-27 position; and*
 - iii. *send their representatives within the State's delegates to the WRC-27.*
-

REPORT ON AGENDA ITEM 6: AIR NAVIGATION SERVICES CYBER SECURITY

- 6.1 The subject was addressed in WP/14, presented by the Secretariat.
- 6.2 The meeting recalled that the first meeting of the ANC Cybersecurity Working Group (ACS WG/1) conducted gap analysis between ICAO Cybersecurity Action Plan and the implementation level in the MID Region. MIDANPIRG through Conclusion 20/43, endorsed the Action Plan and agreed that a follow-up survey should be developed. In this context, the meeting noted that the ICAO MID Office circulated a survey as a follow-up action to the Cybersecurity Symposium that was held in Doha, Qatar in November 2023.
- 6.3 The meeting was apprised of the outcomes of the fifth meeting of the Regional Aviation Security and Facilitation Group (MID-RASFG/5, Doha, Qatar, 3-5 February 2026) related to cybersecurity.
- 6.4 The meeting reviewed the analysis of the questionnaire responses submitted by five States and identified a common concern regarding cybersecurity capacity-building programmes, particularly the limited availability of aviation-specific cybersecurity training and the effectiveness of existing cybersecurity awareness initiatives.
- 6.5 The meeting recalled MIDANPIRG Conclusion 20/44 on ANS Cybersecurity Capacity-Building Activities. In this context, the meeting was informed of the planned Cybersecurity Event scheduled for 2027 and urged States to actively participate in and contribute to the success of this event.
- 6.6 Furthermore, the meeting supported the MID-RASFG/5 Conclusion on the establishment of a regional multidisciplinary Aviation Cybersecurity Task Force. To avoid duplication of efforts and to optimize the use of States' resources, the meeting agreed to dissolve the ANS Cybersecurity Working Group (ACS WG) and agreed to the following Draft Decision:
- DRAFT DECISION 15/13: DISSOLUTION OF ACS WG***
- That, in order to address Cybersecurity and Resilience through a multidisciplinary approach, ANS Cybersecurity Working group (ACS WG) is dissolved*
- 6.7 The meeting recalled that the UAE developed and hosted ATM Data Cybersecurity Portal (ADCS Portal). MIDANPIRG/20 urged States, through Conclusion 20/45, to use the ADCS effectively, share their experience related to cybersecurity through the ADCS Portal.
- 6.8 The meeting noted that the ADCS Portal, established to facilitate the sharing of cybersecurity experiences and best practices, has not yet been utilized by States. The meeting further noted that concerns related to data confidentiality may limit broader participation. It was also emphasized that ANS cybersecurity requires specialized skills and competencies that differ from those associated with conventional IT cybersecurity.
-

REPORT ON AGENDA ITEM 7: MID AIR NAVIGATION PLAN AND REPORT
MID ANP Volume III - New Template

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

7.2 The meeting was informed that the MID ANP Volume III at **Appendix 7A**, developed based on the new Template, was presented to and slightly amended by the RANP/NANP TF/3 meeting (Cairo, 31 March – 2 April 2026) and RANP/NANP TF/4 meeting (Virtual, 27-28 April 2026).

7.3 The meeting was informed that the RANP/NANP TF/4 meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 4/1: MID AIR NAVIGATION PLAN VOL III – JUNE 2026

That, States provide the ICAO MID Office with their comments and inputs related to the new MID ANP Volume III-June 2026 at Appendix 2A, in particular the Regional Priorities and Regional Performance Objectives, by 20 May 2026, in order for the Secretariat to finalize the version that will be presented to MIDANPIRG/23 for endorsement.

7.4 The meeting was apprised of the format and content of the new MID ANP Vol III. It was highlighted that additional guidance was included regarding, inter-alia, the definition of Volume III, the application of Performance-Based Approach, and performance management process for planning and decision-making, and the National Air Navigation Plan (NANP).

7.5 It was highlighted that the PART II - *ANS PERFORMANCE FRAMEWORK* – of Vol III includes 3 main Sections, as follows:

- 1. PERFORMANCE AMBITIONS AND GLOBAL PRIORITIES**
- 2. REGIONAL PRIORITIES AND PERFORMANCE OBJECTIVES**
 - Regional Priorities
 - Regional Performance Objectives (Table ANS PF1)
- 3. STATES RESPONSIBILITIES AND NATIONAL PLANNING**
 - States Priorities and Performance Objectives
 - Requirements for Performance Monitoring and Reporting
 - Reporting on ASBU implementation status (ICAO Global dashboard)
 - Reporting on the implementation of performance objectives (Table ANS PF2)
 - Measurement of and Reporting on Air Navigation System Performance using ICAO KPIs (Table ANS PF 3-1 and ANS PF 3-2)

7.6 As part of the Regional Priorities, the meeting noted in particular the following Priorities related to CNS:

- Modernize CNS infrastructure and ensure resilience
- Enable seamless and interoperable global operations
- Support System-Wide Information Management (SWIM) implementation

7.7 Based on the above, the meeting urged States to review the MID ANP Volume III-June 2026 at **Appendix 7A**, in particular the Regional Priorities and Regional Performance Objectives related to CNS, and provide the ICAO MID Office with their comments by **20 May 2026**, in order for the Secretariat to finalize the version that will be presented to MIDANPIRG/23 for endorsement.

7.8 The meeting agreed that the CNS SG/16 should provide further inputs related to the Regional Priorities and Performance Objectives related to CNS, in order to be included in the MID ANP Vol III.

7.9 The meeting was presented with the preliminary results of the MID Annual Report-2025 (status of the ASBU Elements Block 0, 1, and 2 related to CNS), which is being finalized by the Secretariat and will be presented to MIDANPIRG/23 for review and endorsement.

Air Navigation Deficiencies in the CNS Field

7.10 The subject was addressed in WP/20, presented by the Secretariat.

7.11 The meeting reviewed and updated the list of deficiencies in the CNS field as reflected in the MID Air Navigation Deficiency Database (MANDD) at: <https://mandd.icao.int>.

7.12 The meeting noted that the total number of CNS deficiencies is four (4); two (2) priority “A” and two (2) priority “B”. Two (2) deficiencies are related to ATS Direct speech circuits, one (1) related to Inter-Regional Communication link with ICAO EUR/NAT Region, and one (1) for HF service.

7.13 The meeting reviewed the CNS related deficiencies and urged States to implement the provisions of the MIDANPIRG/22 Conclusion 22/33 and provide updates on the status of their deficiencies using MANDD.

REPORT ON AGENDA ITEM 8: FUTURE WORK PROGRAMME

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

8.2 The meeting reviewed the CNS Sub-Group Terms of Reference (ToR) and agreed that the Secretariat initiates the update of the CNS Sub-Group ToR at *Appendix 8A*, in coordination with the Chairpersons and members of the CNS SG, for presentation of the updated version to the MIDANPIRG/23 meeting.

8.3 Taking into consideration the planned ICAO MID Regional events, which are of relevance to the activity of the CNS Sub-Group, in particular the MIDANPIRG/24 meeting, MIDAMC Workshop and meeting in Q1 2027, it was agreed to hold the eighth meeting of the Frequency Management Working Group (FM WG/8) back-to-back with the CNS SG/16 meeting in Q2 2027. The venue will be the ICAO MID Regional Office in Cairo, unless a State is willing to host the meeting.

REPORT ON AGENDA ITEM 9: ANY OTHER BUSINESS

9.1 Nothing has been discussed under this Agenda Item.

APPENDICES

MID ROC Plan

<i>AMHS Plan for ROC in Jeddah and Bahrain</i>					
	Task	Timeframe	Assigned to	Champion	Status
<i>AMHS Intra-regional Trunk Connections</i>					
1	Establish Jeddah – Beirut IP Network.	Jul 2015	Saudi Lebanon	IM MS	Completed
2	Establish Bahrain – Beirut IP Network.	Feb 2016	Bahrain Lebanon	YH MS	Completed
3	Establish Cairo – Beirut IP Network.	July 2016	Egypt Lebanon	AF//MR MS	Completed
4	Establish Bahrain – Jeddah IP Network.	Mar 2016	Bahrain Saudi	IM YH	Completed
5	Perform the Interoperability test between Jeddah and Beirut COM Centers.	July 2015	Saudi Lebanon	IB MS	Completed
6	Perform the Interoperability test between Bahrain and Beirut COM Centers.	July 2016	Bahrain Lebanon	MS YH	Completed
7	Perform the Interoperability test between Cairo and Beirut COM Centers	July 2016	Egypt Lebanon	AF/TZ/MR MS/EK	Completed
8	Perform the Interoperability test between Bahrain and Jeddah COM Centers.	15 October 2020	Bahrain Saudi	YM AA	Completed
9	Perform the Pre-operational test between Jeddah and Beirut COM Centers.	July 2015	Saudi Lebanon	IM MS	Completed
10	Perform the Pre-operational test between Bahrain and Beirut COM Centers.	July 2016	Bahrain Lebanon	YH MS	Completed
11	Perform the Pre-operational test between Cairo and Beirut COM Centers.	March 2017	Egypt Lebanon	AF/ /MR MS/EK	Completed
12	Perform the Pre-operational test between Bahrain and Saudi COM Centers.	25 October 2020	Bahrain Saudi	YM IM	Completed
13	Place the AMHS link into operation between Jeddah and Beirut COM centers, and updating the Routing tables.	July 2015	Saudi Lebanon MID AMC	IM MS/EK MN	Completed July, 2015
14	Place the AMHS link into operation between Bahrain and Beirut COM centers, and updating the Routing tables.	July 2016	Bahrain Lebanon MID AMC	YH MS/EK MN	Completed On 3/5/2016
15	Place the AMHS link into operation between Cairo and Beirut COM centers, and updating the Routing tables.	April 2017	Egypt Lebanon MID AMC	AF/TZ/MR MS/EK MN	completed

<i>AMHS Plan for ROC in Jeddah and Bahrain</i>					
	Task	Timeframe	Assigned to	Champion	Status
<i>AMHS Intra-regional Trunk Connections</i>					
16	Evaluate the Trunks connections bandwidth and increase it if required between (Bahrain, Beirut, Cairo and Jeddah).	Q4 2021	Bahrain Beirut Cairo Jeddah	YH MS/EK AF/TZ IM	
<i>The AMHS Interconnection with EUR Region Depends on Nicosia and Athens</i>					
17	Establish Cairo – Tunis IP Network.	<i>March 2016 July 2016</i>		AF/TZ/MR IB/MA	completed
18	Establish Nicosia – Beirut IP Network.	Q3 2021		MS/EK	Lebanon is ready to connect
19	Establish Nicosia – Jeddah IP Network.			IM	Completed
20	Establish Bahrain – Nicosia IP Network.	Q3 2021		AD	Bahrain is ready to connect
21	Establish Cairo – Athens IP Network.	Dec 2016		AF/TZ/MR	Completed
22	Perform the Interoperability test between Cairo and Tunis COM Centers.	<i>April 2016 August 2016</i>		AF/ /MR IB/MA	Completed
23	Perform the pre operational test between Cairo and Tunis COM Centers.	<i>Q3 2016</i>		AF/ /MR IB/MA	Completed
24	Place the AMHS link into operation between Cairo and Tunis COM Centers, and updating the Routing tables.	<i>Aug 2016</i>		AF/ /MR IB/MA	Completed
25	Perform the Interoperability test between Athens and Cairo COM Centers.	Mar 2017		AF/TZ/MR IB/MA	Completed
26	Perform the Interoperability test between Bahrain and Nicosia COM Centers.	Q4 2025		AD	Completed
27	Perform the Interoperability test between Nicosia and Jeddah COM Centers.	Q3 2021		IM	Completed
28	Perform the Interoperability test between Nicosia and Beirut COM Centers.	Q3 2021		MS/EK	Lebanon is ready to connect
29	Perform the Pre-operational test between Athens and Cairo COM Centers.	Mar 2017		AF/TZ/MR	Completed
30	Perform the Pre-operational test between Bahrain and Nicosia COM Centers.	Q3 2021		YH	Bahrain is ready to connect
31	Perform the Pre-operational test between Nicosia and Beirut COM Centers.	Q3 2021		MS/EK	Lebanon is ready to connect

<i>AMHS Plan for ROC in Jeddah and Bahrain</i>					
	Task	Timeframe	Assigned to	Champion	Status
<i>AMHS Intra-regional Trunk Connections</i>					
32	Perform the Pre-operational test between Nicosia and Jeddah COM Centers.	Q3 2021		IM	completed
33	Place the AMHS link into operation between Athens and Cairo COM Centers, and updating the Routing tables.	Q1 2017		MIDAMC AF/ /MR	Completed
34	Place the AMHS link into operation between Bahrain and Nicosia COM Centers, and updating the Routing tables.	Q3 2021		MID AMC YH	
35	Place the AMHS link into operation between Nicosia and Jeddah COM Centers, and updating the Routing tables.	Q3 2021		MID AMC IM	Completed
36	Place the AMHS link into operation between Nicosia and Beirut COM Centers, and updating the Routing tables.	Q3 2021		MS/EK	
37	Evaluate the inter-region connections bandwidth and increase it if required.	Q3 2021		MID AMC	Ongoing
38	Transition of all regional AFTN/CIDIN Connections to AMHS.	Q3 2021	Bahrain UAE		Completed all intra-regional connections are AMHS 1 inter-regional connection is remained

**MIDAMC Steering Group (MIDAMC STG)
Terms of Reference**

1. TERMS OF REFERENCE (TOR)

1.1 The Terms of Reference of the MIDAMC Steering are:

- a) to promote the efficiency and safety of aeronautical fixed services in the MID Region through the operation and management, ~~on a sound and efficient basis, of a permanent MID Regional t h e~~ ATS Messaging Management Center (MIDAMC);
- b) foster the implementation of the Air traffic service Message handling service (AMHS) in the MID Region through provision of the guidance materials and running facilitation tools, utilizing the MIDAMC functions and tools;
- c) MIDAMC Steering Group will consist of a focal point from each Participating MID State who would represent the State and acts as the Steering Group Member;
- d) MIDAMC Steering Group will be responsible for overall ~~supervision, direction, evaluation operation and management~~ of the MIDAMC in the MID Region ~~project operation~~ and will review/update the MIDAMC work plan whenever required;
- e) the MID Region is considering the establishment of a Regional MID IP Network; the MIDAMC STG will drive the project ~~which is called Common aeRonautical Virtual Private Network (CRV)~~, until the Operation Group is established;
- f) ~~contribute to the development of~~ and maintain a regional plan for the transition from AFS to SWIM services; and
- g) provide regular progress reports to the CNS SG, and MIDANPIRG concerning its work programme.

1.2 In order to meet the Terms of Reference, the MIDAMC Steering Group shall:

- a) ~~develop~~/update the accreditation procedure for all MID users on the MIDAMC;
- b) develop and maintain guidance materials for MIDAMC users in the MID Region;
- c) discuss and identify solution for operational problems that may be arising;
- d) provide support/guidance to States for AMHS Implementation, and monitor the AMHS activities;
- e) assist and encourage States to conduct trial on the Implementation of the ATS extended services, and identify operational requirements;
- f) provide guidance/support to States on implementation of XML-based data models (IWXXM, FIXM, AIXM, etc.) over AMHS; including developing regional plans as required
- g) monitor States' readiness to implement XML based data models over extended AMHS;
- h) identify the need for any enhancement for the MIDAMC and prepare functional and technical specifications, and define its financial implications;

- i) follow-up on ICAO standards and recommendations on the ATS messaging management and SWIM;
- ~~j) define future liabilities and new participating States and ANSPs in the progressive introduction of SWIM services;~~
- k) follow-up and review the work of similar groups in other ICAO Regions including successful implementations of SWIM infrastructures to identify and adopt best practices;
- l) Identify SWIM prerequisites in terms of infrastructure, including IP-based network; and monitor the status of implementation of those elements in the MID Region;
- m) follow-up the implementation of IP Network in the MID Region supporting SWIM services, through joining relevant projects, like CRV and act as project manager;
- ~~n) propose appropriate actions for the early implementation also support the IP Network supporting the progressive introduction of SWIM services until the Operational Group is establish;~~
- o) develop and amend the relevant ICAO MID Regional documentation considering the progress made in SWIM implementation and considering the need for harmonization with the adjacent Regions in compliance with the GANP;
- p) coordinate with the relevant ICAO MID Regional Groups to ensure a gradual transition of AFS services to SWIM in the MID Region ensuring operational continuity and develop guidance material accordingly; and
- q) provide guidance and training to MID States and stakeholders involved in AMHSSWIM implementation.

2. COMPOSITION

- a) ICAO MID Regional Office;
- b) Members appointed by the MIDANPIRG member States; and
- c) Other representatives, who could contribute to the activity of the Steering Group, could be invited to participate as observers, when required.

3. WORKING ARRANGEMENTS

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

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

SUBMISSION OF FREQUENCY REQUIREMENTS FOR THE PERIOD 2026 – 2034

1.1 The primary purpose of this simulation is to determine if a congestion in the use of frequencies can be foreseen that would require the implementation of 8.33 kHz channel spacing in any parts of the MID Region.

1.2 With the view to determine the medium-term spectrum requirements for VHF communication services, States are invited to submit these requirements to the MID Regional Office by **Q4 2026**. On the basis of these requirements, ICAO will undertake an analysis that is aimed at determining whether these requirements can be assigned a frequency within the available 25 kHz channels.

1.3 In this case, States can introduce the requirements in the local version of Frequency Finder and generate with the button “Export Submissions” an Excel file that can be submitted to the Regional Office.

1.4 States are able to download the Frequency Finder tool from Frequency Spectrum Management Panel (FSMP) webpage at: <https://www.icao.int/safety/FSMP/Pages/Documents.aspx>, and ICAO will provide assistance for any difficulties in installation and use of this ICAO tool.

1.5 Precise details not available.

1.5.1 When precise details are not available for future frequency requirements, States can submit such requirements in any format.

1.5.2 Example 1: For a new airport, States can submit the (approximate) coordinates and specify the need for:

- x TWR frequencies
- x Aerodrome surface frequencies
- x APP-U frequencies
- x APP-L frequencies
- x ACC-U frequencies
- ATTM.- 2
- x ACC-L frequencies
- x VOLMET frequencies
- x ATIS frequencies
- x VDL frequencies

Effective Spectrum Regulatory Measures and Enforcement to Mitigate the Interference

No.	Action	Reference	Status (Completed/Ongoing/ not yet started)	Completion date	Remarks
1.	<p>Enhance collaboration with national radio regulator</p> <p>Existence of a coordination mechanism for detecting, geo-locating, and mitigating interference sources.</p>	<p>ICAO/ITU/IMU Joint déclaration, action (d)</p>			
2.	<p>Collaborate with the Radio Regulator to strengthen enforcement measures addressing the commercialization, purchase, possession, and use of illegal transmitters, including jammers and signal spoofers.</p> <p>Actions may include, inter alia: <i>Establish and enforce the necessary legal and regulatory frameworks to prevent, detect and regulate the sale of such devices, both online and offline, and effectively confiscate them</i></p>	<p>A42-8/C Resolution</p> <p>ICAO Electronic Bulletin 25/20</p>			
3.	<p>Ensure proper resolution for incidents of GNSS RFI with cross-border impact that cannot be solved nationally or internationally through routine procedures</p>	<p>ICAO/ITU/IMU Joint déclaration, action (e)</p> <p>ITU Resolution 676</p>			

	<p>Existence of procedure to utilize the ITU Radio Regulations (RR) escalation procedure (RR Article 15) to report of interference incidents that could be resolved through routine procedure;</p> <p>Established procedure exists for reporting harmful interference and for the subsequent escalation to relevant authorities through ICAO Regional Office and ITU SIRRS</p>	ICAO Electronic Bulletin 25/20			
4.	<i>enhance the capacity of technical staff to effectively detect, identify, investigate, and report harmful interference</i>	FM WG/ Report			
5.	improve coordination with the military by facilitating the sharing of information on GNSS RFI testing and any relevant activities such as Counter-UAS operations	ICAO Electronic Bulletin 25/20			

MID AIR NAVIGATION PLAN

VOLUME III

(June 2026)

TABLE OF CONTENTS

PART 0 — Introduction

PART I — General Planning Aspects (GEN)

1. Planning Methodology
2. Air Navigation Planning, Reporting and Monitoring

PART II – ANS Performance Framework

1. Performance Ambitions and Global Priorities
2. Regional Priorities and Performance Objectives
3. States Responsibilities and National Planning

APPENDICES

[TBD]

MID ANP, VOLUME III

PART 0 – INTRODUCTION

1. INTRODUCTION

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction of Volume I. The procedure for amendment of Volume III is also described in Volume I.

1.2 Aviation is a powerful socio-economic enabler, yet it faces a range of challenges. Global air traffic—encompassing the movement of people and goods—is registering a continuous growth for the next 15 years. At the same time, emerging technologies, new business models, and evolving roles of humans in the system present both challenges and opportunities that require an urgent transformation of the global air navigation system, ensuring that aviation continues to contribute to global prosperity and connectivity.

1.3 The evolution of the air navigation system is a continuous process with no definitive end point. Continuous performance-based improvements are necessary to ensure that the system evolves in response to global, regional and local demands in a timely and orderly manner.

1.4 Modernizing and developing air navigation infrastructure is vital to enable new services and optimize existing ones. Accommodating growing demand and meeting the requirements of the new aviation era calls for strong political commitment and sustained investment.

1.5 The Global Air Navigation Plan (GANP) is the ICAO's highest air navigation strategic document and the plan to drive the evolution of the global air navigation system, in line with the Global Air Traffic Management Operational Concept (GATMOC, Doc 9854) and the Manual on Air Traffic Management System Requirements (Doc 9882). The GANP drives the evolution of the global air navigation system to meet the ever growing expectations of the aviation community. It is updated every six (6 years) and endorsed by the ICAO General Assembly. The purpose of the GANP is to equitably accommodate all airspace users' operations in a safe, secure and cost-effective manner while reducing the aviation environmental impact. It aims for a seamless and high-quality provision of air navigation services worldwide through the establishment of regional and national performance objectives aligned with global performance ambitions. To achieve this, States and regions must assess their operational environments and select the most appropriate modernization options based on operational requirements and expected performance gains. This ensures the efficient use of resources while addressing the needs of the aviation community.

1.6 In addition to the core principles of safety, security, economic viability, and environmental sustainability, the air navigation system must meet a range of performance expectations from both society and the aviation community.

1.7 Achieving the required level of performance from the air navigation system will demand strong commitments and tough choices. The system must be shaped in light of anticipated opportunities and challenges, ensuring it can deliver on future performance ambitions.

1.8 Enhancing operational efficiency across all phases of flight—including surface movements—can significantly reduce delays, fuel consumption, CO₂ emissions, and overall environmental impact.

1.9 As new types of aircraft and operations emerge, air navigation services will need to be increasingly flexible and adaptable. They must accommodate diverse and complex air traffic operations while maintaining or enhancing flight safety and efficiency.

1.10 Collaborative decision-making is essential for cost-effective modernization. Engaging all stakeholders—including air navigation service providers, regulators, operators, and industry partners—ensures that modernization is driven by common goals and informed by operational and performance needs.

1.11 Derived from the global strategic level, the global technical level of the Global Air Navigation Plan (GANP) is designed to support technical managers in planning the implementation of basic services and new operational improvements in a scalable and cost-effective manner and according to specific operational and performance needs, while ensuring interoperability of systems and harmonization of procedures. The GANP establishes, under the “Global Technical layer” three (3) technical frameworks to guide States in modernizing their air navigation systems:

- the Basic Building Blocks (BBBs), which define the essential air navigation services required by all States;
- the Aviation System Block Upgrades (ASBUs) framework, which offers modular, scalable improvements based on operational needs; and
- the Performance Framework (PF), which encompasses the key performance areas (KPAs), and key performance indicators (KPIs).

1.12 The ASBU and Performance Frameworks offer modular, scalable improvements based on operational needs; and defines key performance areas (KPAs), indicators (KPIs), and planning targets.

1.13 The ANP Volume III leverages these frameworks to support the planning, implementation, and performance monitoring of air navigation systems at the regional and national levels, ensuring alignment with the GANP’s global ambitions.

1.14 Volume III should contain dynamic/flexible plan elements providing implementation planning guidance for air navigation systems and their modernization taking into consideration emerging programmes such as the ASBUs and associated technology roadmaps described in the GANP. The ANP Volume III would also include appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the ANP Volumes I and II.

1.15 The information contained in Volume III is, therefore, related to:

- Planning: objectives, priorities, targets and needs planned at regional or sub-regional levels;
- Monitoring and reporting: performance and implementation monitoring of the agreed targets. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.16 The ANP Volume III provides a strategic framework for the planning and implementation of air navigation systems and services within ICAO regions. It supports the application of a performance-based approach to enable cost-effective, benefit-driven modernization of the air navigation system, in line with the Global Air Navigation Plan (GANP). As part of this approach, Planning and Implementation Regional Groups (PIRGs) define regional priorities and performance objectives that are aligned with the key performance areas (KPAs) and key performance indicators (KPIs) of the GANP. These objectives are also linked to operational improvements under the Aviation System Block Upgrades (ASBU) framework, and are intended to be implemented by States based on identified needs at the local and national levels.

1.17 Volume III plays a critical role in bridging the GANP with national air navigation plans and initiatives, thereby facilitating the alignment of global, regional, and national efforts. In doing so, it supports the coordinated and performance-driven evolution of air navigation systems. It also reinforces the structured, modular approach of the ASBU framework, which enables harmonized, scalable enhancements to the global air navigation infrastructure.

1.18 MIDANPIRG is responsible for managing and updating Volume III on a regular basis.

MID ANP, VOLUME III
PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHODOLOGY

1.1 States should ensure the availability of reliable and up-to-date statistics and forecasts on departures, arrivals, and overflights. These data are essential for supporting national air navigation planning, performance analysis, and prioritization of operational improvements. Where possible, forecasts should be aligned with ICAO forecasting methodologies and coordinated with national civil aviation strategies.

Principles of the Performance-Based Approach (PBA)

1.2 Planning for the modernization of the air navigation system must begin with a thorough understanding of user system requirements; it should consider traffic density and complexity, and the level of sophistication required for the provision of necessary services, among other elements.

1.3 In accordance with the outcomes of the thirteenth and fourteenth Air Navigation Conferences as well as the Assembly Resolutions related to the implementation of the GANP, PIRGs and States are invited to, respectively, embrace and implement a performance-based approach (PBA) for the planning and implementation of air navigation improvements. Although there are several ways to apply a PBA, a globally harmonized process for performance management is recommended. The goal of this process is to identify optimum solutions based on operational requirements and performance needs so that the expectations of the aviation community are met by enhancing the performance of the air navigation system and optimizing the allocation and use of all available resources.

1.4 A PBA focuses on defining desired outcomes and required performance levels (what to achieve), while a performance management process involves ongoing monitoring, measurement, and improvement of actual performance (managing how it's being achieved). States are encouraged to implement a PBA by establishing a performance management process tailored to their specific needs.

1.5 The PBA is a decision-making method based on three principles: a strong focus on desired or required results; reliance on facts and data; and collaborative, justified decision-making. The successful implementation of this process requires:

- a) commitment from all members of the aviation community;
- b) agreement on goals and consensus on the desired performance outcomes to be achieved;
- c) accountability and organization among members of the aviation community in terms of roles and responsibilities;
- d) human resources and knowledge/expertise;
- e) data collection, processing, storage and reporting;
- f) collaboration and coordination; and
- g) appropriate investment.

Performance management process for planning and decision-making

1.6 States are encouraged to apply a performance management process, such as the six-step model described in the ICAO Manual on Global Performance of the Air Navigation System (Doc 9883), or the simplified Plan-Do-Check-Act (PDCA) cycle, as appropriate for their operational and institutional context; and reflect this in their National Air Navigation Plans (NANP).

1.7 The strong focus on desired/required results through adoption of performance objectives and targets requires the following:

- determining the current performance situation;
- defining the most appropriate or desired results; and
- clarifying who is accountable for achieving these results.

1.8 Informed decision making requires decision makers to develop a good understanding of the mechanisms which explain how drivers, constraints, shortcomings, options and opportunities influence the achievement of the required results.

1.9 In the PBA the required results as well as drivers, constraints, shortcomings, options and opportunities are expressed in both quantitative and qualitative terms. This requires fostering a performance measurement culture and necessitates important investments in data collection and management. States should take stock of existing capabilities and identify any gaps.

1.10 To improve performance, organizational commitment to the PBA and collaboration among different stakeholders is important. Organizational commitment implies on-going support from the leadership team to:

- establish a clear vision and strategy;
- secure appropriate resources for the project, including internal support for data and information collection, processing, storage and reporting; and securing the necessary budget; and
- establish a clear communication strategy.

1.11 Collaboration with external stakeholders and involving them early is essential. For each step of the performance management process, the relevant external stakeholders should be identified and the necessary steps to establish collaboration should be taken.

1.12 The planning step of the performance management process is of key importance to the application of a PBA. In this step, States are requested to define the scope and context of the required performance improvements to the national air navigation system as well as the nature of the expected performance improvements. Scope definition is important to avoid misunderstandings, in particular about the performance (improvement) which can be expected within the given scope. By defining the scope of the performance management activity, the limits of responsibility and accountability are also defined. Geographically, the scope could be an Aerodrome, FIR, TMA, CTA, etc., but the scope definition could include additional details such as type of traffic (international, overflight, IFR, VFR), etc.

1.13 It is important to know the air navigation system, its strengths, weaknesses, opportunities and threats as well as how it is performing in order to set objectives. The SWOT analysis plays a key role in identifying and addressing factors that can prevent the implementation of operational improvements. These factors can be either endogenic (within the control of the Organization) or exogenic (out of the control of the Organization). The SWOT analysis should be conducted at national level and if necessary, at local level, such as airport, TMA, etc., with a clearly identified scope and KPA (the eleven Key Performance Areas (KPA) as identified in the Global Air Traffic Management Operational Concept (Doc 9854) that are part of the GANP global performance framework facilitates the definition of objectives). The potential solutions required to achieve the performance objectives should also be identified.

1.14 The principle of “reliance on facts and data for decision-making” implies that objectives should be specific, measurable, achievable, relevant and time-bound (SMART). The current/past performance (Performance Baseline), expected future performance, as well as actual progress in achieving performance objectives should be expressed by means of Key Performance Indicators (KPIs). In the GANP performance framework, a list of KPIs is linked to relevant objectives and is used to set targets through objective quantification. Performance measurement is therefore done through the collection of data for the supporting metrics. Data collection should be as detailed as possible, as the availability of granular data greatly enhances the effectiveness of the PBA.

1.15 Once a set of potential solutions has been identified, a Multi-Criteria Decision Analysis (MCDA), including a cost-benefits analysis, environmental impact assessment, safety assessment, security/risk assessment and human factor assessment should be performed to identify the optimum solution. This is the part of the process where decision-makers should evaluate available options to mitigate identified gaps and leverage potential opportunities. The list should then be analyzed in a performance-oriented manner to assess/quantify the impact of drivers, constraints, impediments, etc., on the objectives under consideration. Solutions should, in the first instance, be identified from within the ASBU framework, as it provides the globally harmonized and preferred set of aviation system improvements. Where no suitable ASBU solution is available to address the identified need, a non-ASBU solution may then be considered. Depending on the

nature of the project, the output of this process may be either a single preferred solution or a roadmap comprising selected solutions. In all case, decision-makers need to gain a good understanding of the strategic fit, the benefits, cost and feasibility of each option for operational improvement.

1.16 States should consider the operational improvements (ASBU elements) within the ASBU framework as potential solutions to improve performance relative to selected objectives and KPIs within the operational environment under analysis. In order to help States with this task, ICAO has developed the Air Navigation System Performance Analysis (AN-SPA) tool, available for free at: [Log in - ICAO GANP Portal](#). The GANP Portal contains also a “Performance Dashboard” Tab under “Performance Framework”, which is showing for the Capacity, Efficiency and Safety KPAs, what are the KPIs that could be used for the measurement of performance associated to these KPAs and for each KPA/KPI what are the ASBU Elements that could be implemented to improve performance.

1.17 Once the optimum solution(s) has/have been identified, it is time to begin the execution phase of the performance management process. The changes and improvements that have been identified as the optimum solution for the problem during the previous steps are organized into plans, implemented and begin delivering services to achieve the expected performance. During this execution phase, it is important to keep track of the project deployments (time, budget, etc.).

1.18 Once the project (solution(s)) is implemented, it is time to assess the benefits from the implementation. This means measuring the performance of the operational environment under analysis once the solution(s) have been deployed. This begins with data collection to populate the supporting metrics required to calculate the relevant performance indicators. The indicators are then compared with the targets defined during the planning phase to draw conclusions on the speed of progress in achieving the objectives. This step also includes monitoring progress of the implementation projects, particularly in those cases where the implementation of solutions takes several years, as well as checking periodically whether all assumptions are still valid and the planned performance of the solutions is still meeting the (perhaps changed) requirements.

1.19 As part of the process to assess the achievements, States should calculate/estimate the benefits accrued from the implementation of the selected solutions/projects.

2. AIR NAVIGATION PLANNING, REPORTING AND MONITORING

2.1 States should annually report progress and effectiveness against the priorities set out in their National and Regional Air Navigation Plans using a standardized reporting format provided by ICAO (ref. Section 3 “STATES RESPONSIBILITIES AND NATIONAL PLANNING”).

2.2 Effective performance monitoring requires a clearly defined measurement strategy. Activities such as data collection, processing, storage, and reporting in support of identified performance metrics at the regional, national, and local levels are fundamental to the success of performance-based approaches.

2.3 The performance framework for air navigation planning and implementation requires that reporting, monitoring, analysis, and review activities be conducted on an annual, cyclical basis.

2.4 To ensure effective implementation of the performance-based approach, States are encouraged to follow a structured, step-by-step methodology when establishing a robust performance management process. This is particularly important when applying quantitative Key Performance Indicators (KPIs) to measure and track performance over time. States should begin by identifying available data sources to establish a baseline for each selected KPI (i.e., the current measured value), followed by regular updates to monitor progress. KPI targets could be defined in a phased manner—such as Target 1 by Timeline 1, Target 2 by Timeline 2—to reflect incremental improvements and account for evolving operational and institutional capabilities. In situations where the necessary data, tools, or systems are not yet in place to support quantitative performance measurement, States should undertake a qualitative assessment of KPIs. These qualitative measurements can still support performance planning and reporting, and provide a foundation for future quantitative assessments

as national capabilities mature. Both qualitative and quantitative results should be documented and reported using the recommended templates, ensuring transparency and consistency across reporting cycles.

2.5 The results of reporting and monitoring will be analyzed by the MIDANPIRG, States, and the ICAO Secretariat to guide air navigation improvements, implement corrective actions, and, where necessary, review agreed objectives, priorities, and targets. ICAO will also use these results to prepare the annual Global Air Navigation Report.

2.6 The report will enable the international civil aviation community to compare progress across ICAO regions in establishing air navigation infrastructure and implementing performance-based procedures.

2.7 The report will also provide the ICAO Council with detailed annual insights on global service quality and highlight performance areas requiring further attention. These findings will support future adjustments to the GANP.

MID ANP, VOLUME III

PART II – ANS PERFORMANCE FRAMEWORK

1. PERFORMANCE AMBITIONS AND GLOBAL PRIORITIES

1.1 The ICAO vision focuses on safe and sustainable air transport, which stands for environmental protection as well as all the other essential factors, such as affordability and security, that ensure the viability of air transport in the long term. Three Aspirations, drawn from the ICAO LTAG, GASP and GANP, crystallize this vision:

- The long term global aspirational goal of Net-zero carbon emissions by 2050 for international civil aviation operations;
- Achieve Zero fatalities in international aviation from accidents and acts of unlawful interference; and
- Serve as an integral part of a thriving, connected, accessible, inclusive and affordable transport system for people and goods, contributing to socio-economic development, while ensuring no Country is Left Behind.

1.2 The ICAO vision and mission are supported by six (6) strategic goals:

- Environmental Protection: Foster environmental sustainable practices in civil aviation activities and facilitate the cleaner energy transition.
- Aviation safety, capacity and efficiency: Enhance global civil aviation safety while increasing capacity for growing numbers and types of operations and improving efficiency of the global civil aviation system.
- Aviation security: Enhance global civil aviation security, including border and cyber security.
- Air Transport Facilitation and Economic Development: Foster the development of a globally sustainable, sound and economically viable civil aviation system, including for the transport of passengers and goods.
- Rule of law for international civil aviation: Strengthen the common legal and regulatory framework governing international civil aviation.
- No Country Left Behind: Foster the development of international civil aviation in all States through the concerted efforts of the global aviation sector stakeholders and partners to facilitate the enhanced, comprehensive and efficient implementation of the provisions governing air transport.

1.3 In support of the global ICAO aspirations and strategic goals, States and global air navigation community should endeavor to:

- 1) further increase safety levels as traffic becomes more complex to manage;
- 2) enhance the efficiency of air navigation services and ATM operations by optimizing flight trajectories, reducing delays and avoiding any negative impact on environment/minimizing fuel burn;
- 3) scale air navigation capacity to safely and efficiently accommodate growing air traffic;
- 4) enhance the capacity and efficiency of airport infrastructure and operations to safely accommodate future growth in air traffic;
- 5) ensure that data flows effectively and securely across trusted users; and
- 6) address evolving security and defense needs, providing flexibility within a civil-military ATM environment.

To achieve optimal performance, improvements should also be made in the following areas:

- 7) predictability: ensure that flights follow expected patterns and schedules;
- 8) punctuality: relates to on-time departures and arrivals; and
- 9) cost-efficiency: refers to optimum resource allocation, productivity, and effective use of technologies and rationalization (e.g. infrastructure).

2. REGIONAL PRIORITIES AND PERFORMANCE OBJECTIVES

Regional Priorities:

2.1 Based on regional performance and operational needs, differences, constraints and opportunities, MIDANPIRG is responsible for defining Regional Priorities, aligned with the GANP and supporting the global performance ambitions and priorities to guide States and the MIDANPIRG subsidiary bodies in their planning process.

2.2 The MID Region priorities are (to be determined/updated by each PIRG, the following is just a sample):

- 1) Performance-Based Navigation (PBN) implementation
- 2) Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO)
- 3) Improve safety of aerodrome operations
- 4) Enhance efficiency and punctuality of aerodrome operations
- 5) Scale Aerodrome/RWY capacity to safely and efficiently accommodate growing air traffic
- 6) Prevent loss of separation and mid-air collisions
- 7) Enhance Airspace Management
- 8) Enhance civil-military cooperation and flexible use of airspace
- 9) Integrated traffic flow and demand management
- 10) Enhance the interoperability and efficiency of ATM systems by enabling the seamless, automated, and secure exchange of flight data between ATS units (FICE)
- 11) Advance Collaborative Decision-Making (CDM)
- 12) Modernize CNS infrastructure and ensure resilience
- 13) Enable seamless and interoperable global operations
- 14) Enable digital meteorological information exchange
- 15) Foster the transition from AIS to AIM
- 16) Support System-Wide Information Management (SWIM) implementation
- 17) Support Advance Air Mobility (AAM) Integration, including low-level ATM/UTM operations

Regional Performance Objectives:

2.3 To support the achievement of the Regional Priorities, MIDANPIRG is responsible for defining Regional Performance Objectives, linked to the GANP KPA and Focus area, to the operating environment: (Airports, TMAs and En-route); to the ASBU elements (possible solutions) and GANP KPIs.

2.4 The MID Region Performance Objectives are listed in the **Table ANS PF1**. The Table format is available as a downloadable Excel template on the [MIDANPIRG webpage](#).

Note: The following is just a Sample. The **Table ANS PF1** could be maintained as a Regional Database, in that case a hyperlink should be included here. Furthermore, the Regional Priorities (RPs) and Regional Performance Objectives (RPOs) are not necessarily applicable for all States of the Region (but for the majority), and they are not exhaustive, i.e. some States may identify additional priorities and performance objectives; yet, they need to be considered by States in their identification process of local/national priorities and performance objectives.

Table MID Region ANS PF1: Regional Performance Objectives

Column

- (1) Operating Environment
- (2) KPA/ Focus Area (as defined in the GANP)
- (3) Link to Global Ambitions/Priorities (in para. 1.3)
- (4) Nr. of the Regional Performance Objective (preferably linked to one of the Regional Priorities in para. 2.2)
- (5) Text of the Regional Performance Objective
- (6) Possible Solutions (ASBU elements)
- (7) Performance Benefits
- (8) KPI(s) based on the ICAO list of KPIs
- (9) Qualitative assessment of the impact on the KPI(s)

(10) Remarks (additional comment, including Timeline for implementation, as appropriate)

Table ANS PF1: Regional Performance Objectives

Operating environment	KPA/ Focus Area	Link to Global Ambitions	Regional Performance Objective		Possible Solutions/ (ASBU)	Performance Benefits	KPI	KPI Impact	Remarks
			Nr.	RPO Text					
1	2	3	4	5	6	7	8	9	10
TMA	Efficiency/ Vertical flight efficiency	2	2.1	Reduce fuel burn by not requiring power during descent	APTA B0/4 (CDO Basic) APTA B1/4 (CDO advanced)	1-Reduction of fuel burn; 2-Reduction in noise footprint; 3-Reduce descent inefficiency attributable to altitude constraints imposed by ATM	KPI 19: Level-off during descent	KPI 19 ++	
TMA	Efficiency/ Vertical flight efficiency	2	2.2	Reduce fuel burn by not requiring level-offs during climb	APTA B0/5 (CCO Basic) APTA B1/5 (CCO advanced)	1-Reduction of fuel burn; 2-Reduce permanent (airspace and departure procedure design) and semi-permanent (ECM measures) altitude constraints (level-offs) along the climb portion of traffic flows, terminal and route airspace	KPI 17: Level-off during climb	KPI 17 ++	
En-route	Safety/ Safety Net (mid-air collision)	1	6.1	Improve mid-air collision avoidance (safety)	CAS B1/1	Improve situational awareness of flight crew	KPI 20: Number of aircraft accident KPI 23: Number of airprox/TCAS alerts/loss of separation/ near midair collisions/midair collisions (MAC)	KPI 20 ++; KPI 23 ++	Mandatory
En-route	Efficiency/ Flight time & distance	2	7.1	Overcome route selection inefficiencies associated with route network design (use of direct routing)	FRTO B0/1 FRTO B0/2	Reduce fuel burn by reducing flight time & distance through direct routing	KPI04: Filed flight plan en-route extension	KPI 04 ++	
En-route	Safety	1	6.2	Avoid vertical & lateral navigation errors during flight (cases of non-conformance with clearance)	FRTO B0/4	Reduce number of mid-air and near mid-air collisions	KPI 20: Number of aircraft accident KPI 23: Number of airprox/TCAS alerts/loss of separation/near	KPI 20 ++; KPI 23 ++	

2.5 MIDANPIRG may agree also on timelines for the implementation of specific Performance Objectives. This could be reflected in the Remarks Column of the **MID Region Table ANS PF1**.

3. STATES RESPONSIBILITIES AND NATIONAL PLANNING

National Planning

3.1 While ICAO provides the strategic framework for air navigation planning at the global and regional levels, the responsibility for planning and implementation at the national level lies with individual States. Each State should develop a National Air Navigation Plan (NANP) tailored to its specific needs, in coordination with regional and global stakeholders. This ensures the integration and harmonization of solutions across all levels of the air navigation system.

3.2 States should establish and maintain NANPs that align with the Global Air Navigation Plan (GANP) and the applicable Regional Air Navigation Plans. These plans form the foundation for implementing global and regional objectives in a manner that reflects local priorities, operational requirements, and performance ambitions.

3.3 As a fundamental obligation under the Convention on International Civil Aviation (Doc 7300), States shall ensure the provision of essential air navigation services, as outlined in the Basic Building Blocks (BBBs) framework. However, these obligations are not limited to the BBBs. They also encompass all Standards and Recommended Practices (SARPs) established under the Convention, as well as the requirements set forth in Air Navigation Plan (ANP) Volumes I and II. Together, these frameworks constitute the foundation of a robust air navigation system, enabling the safe and orderly conduct of international civil aviation and providing the baseline for future advancements.

3.4 Beyond meeting these essential requirements, States should pursue the progressive modernization of their air navigation systems, guided by local operational needs and aligned with regional priorities. This modernization should be detailed in the National Air Navigation Plan (NANP) and coordinated with other

national aviation plans—such as those related to safety, environment, security, and facilitation—within a broader, integrated National Civil Aviation Master Plan (CAMP). Such a master plan provides a strategic vision for the future development of the entire civil aviation sector—addressing policy, legislation, infrastructure, technology, human resources, and institutional development. The National CAMP should also recognize the importance of air transport as a driver of national economic development. It should be also linked to the State’s overarching national development plan, enabling access to public and private investment and fostering public-private partnerships to support implementation.

3.5 A well-defined relationship between the NANP, the GANP, the RANP, the national CAMP, and broader national development strategies enables effective prioritization and optimal resource allocation across sectors. This integrated approach strengthens coherence, avoids duplication, and ensures that aviation development is aligned with national economic and infrastructure goals.

3.6 The NANP serves as a strategic roadmap for the evolution of a State’s air navigation system. It outlines specific performance objectives, timelines, and investment priorities. It enables national stakeholders—including regulators, air navigation service providers (ANSPs), and airport operators—to prioritize initiatives with the highest operational, economic, and environmental returns. Moreover, the NANP supports strategic decision-making by identifying key areas for improvement, setting measurable targets, and ensuring resources are allocated where they will have the greatest impact. It plays a critical role in justifying investments, attracting funding, and engaging with international partners, while promoting coordination among national institutions to support high-impact, non-duplicative projects. In this sense, the NANP is not only a technical planning document but a strategic enabler—a tool to influence decision-making, align stakeholders, and enhance a State’s international credibility. For long-term success and global interoperability, the NANP must remain aligned with ICAO’s GANP and relevant RANP, ensuring that the national air navigation system remains scalable, resilient, and fully integrated into the global aviation ecosystem.

3.7 For the national air navigation planning, States should implement a PBA and performance management process as described in Part I of this Volume (General Planning Aspects), to identify their national priorities and performance objectives, based on local performance and operational needs and taking into consideration global and regional requirements.

Requirements for Performance Monitoring and Reporting

3.8 States are required to monitor the performance of their air navigation systems on a continuous basis and to submit an annual report on the progress achieved to the ICAO MID Regional Office and the MIDANPIRG. This requirement supports the implementation of a performance-based approach (PBA) and ensures that national efforts are aligned with regional and global air navigation priorities, objectives, and targets.

3.9 The report should include the results of the application of performance management process and identification of relevant and timely operational improvements including the identified Aviation System Block Upgrade (ASBU) elements that have been implemented/planned for implementation.

Reporting on ASBU implementation status

3.10 States should report, at least on annual basis, the status of implementation of the different ASBU elements (block 0, 1 and 2); this will be reflected on the Regional/Global ICAO ASBU Implementation Dashboard [\[insert link \(TBD\)\]](#) and in the Annual MID Region Air Navigation Report, as appropriate. The reports by States are reviewed and validated by the MID Regional Office and displayed on the Dashboard. For each ASBU element the status of implementation will be shown as follows:

- **N/A:** Not Applicable;
- **N/P:** Not identified as a Priority;
- **F/I:** Fully Implemented;
- **N/I:** Not Implemented;
- **P/O:** Planned/Ongoing: (Identified as a priority and implementation is planned or ongoing);
- **Start date:** date implementation started or will start (as appropriate) in MM/YY format;
- **End date:** date implementation will be completed in MM/YY format; and
- **M/D:** Missing Data (no report received from State).

3.11 The Dashboard includes two (2) levels of granularity:

- the ASBU elements related to State/ANSP; and
- the ASBU elements related to Airport/TMA.

3.12 The Dashboard provides different kind of filtering, by State, Aerodrome, Group of States/Sub-Region, Region, ASBU Element, Thread, Block, etc.

3.13 MIDANPIRG subsidiary bodies may need to go into more detailed technical level related to the implementation of some ASBU elements (enablers, interdependencies, etc.) and collect associated data in specific format/Tables (to be added, if necessary, as **Appendices** to the ANP, Volume III) to ensure harmonized implementation.

Reporting on the implementation of performance objectives

3.14 States should report, on annual basis, on the implementation of their performance objectives to ensure transparency, accountability, and alignment with regional and global air navigation goals. Reporting on performance objectives enables the identification of progress made, challenges encountered, and areas requiring further support or adjustment. It also facilitates evidence-based decision-making by ICAO Regional Offices and PIRGs, allowing them to assess the effectiveness of implementation efforts, monitor regional performance trends, and refine priorities as necessary. Furthermore, consistent reporting contributes to the global performance monitoring framework and supports the development of ICAO's Global Air Navigation Report, providing the international community with a comprehensive view of progress toward the global vision for a harmonized and performance-based air navigation system.

3.15 States should report on the implementation of Performance Objectives using the Template at **Table MID Region ANS PF2**:

Table MID Region ANS PF2: Reporting on Performance Objectives and Operational Improvements implemented by States

Column

- (1) Operating Environment/Operations: Aerodrome, TMA, En-route (provide more specific details e.g. Aerodrome name or ACC Sector, etc.; and the concerned type(s) of operation)
- (2) KPA (from the ICAO defined 11 Key Performance Areas (KPAs)) and Focus Area from the GANP Portal
- (3) Performance Objectives (Ambitions/Expectations)
- (4) KPIs based on the ICAO list of KPIs and associated variant
- (5) The KPI Baseline (measurement of the current performance, if available)
- (6) The KPI Target (measurement of the target performance, if available (at least qualitative measurement))
- (7) Selected ASBU element(s) /Enabler(s) and/or Non ASBU solution(s) for each operational improvement
- (8) Target Implementation date
- (9) Remarks/Progress (this column could contain additional information about the data source(s), progress achieved, etc.)

Note: The following is just a Sample

Operating Environment/ Operations	KPA & Focus Area	Performance Objective	KPI/ Variant	KPI Baseline	KPI Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date	Remarks/ Progress
1	2	3	4	5	6	7	8	9
Aerodrome XXXX (Departure)	Predictability (Punctuality)	Maximize departure punctuality	KPI 01 (Departure punctuality) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX (Taxi-out)	Efficiency (Flight time/ distance)	Minimize Taxi-out time	KPI 02 (Taxi-out additional time) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX (Arrival, Departure)	Capacity (Capacity, throughput & utilization)	Increase airport peak arrival capacity	KPI 09 (Airport peak capacity) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX (Taxi-in)	Efficiency (Flight time/ distance)	Minimize Taxi-in time	KPI 13 (Taxi-in additional time) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX (Arrival)	Predictability (Punctuality)	Maximize Arrival punctuality	KPI 14 (Arrival punctuality) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX	Safety	Minimize Number of RWY Incursions Incidents & Accidents	KPI 21 (Nr. of RWY Incursions) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
Aerodrome XXXX	Safety	Minimize Number of RWY Excursions Incidents & Accidents	KPI 22 (Nr. of RWY Excursions) Variant X	TBD for the concerned Aerodrome	TBD for the concerned Aerodrome	TBD by each State/Airport Operator	TBD for the concerned Aerodrome	
TMA/Aerodrome (XXXX) (Arrival)	Efficiency (Vertical efficiency)	Reduce fuel burn by not requiring application or power during descent	KPI 19 (Level-off during descent) Variant X	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	
TMA/Aerodrome (XXXX) (Departure)	Efficiency (Vertical efficiency)	Reduce fuel burn by not requiring level-offs during climb	KPI 17 (Level-off during climb) Variant X	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	TBD for the concerned TMA/Aerodrome	

Operating Environment/ Operations	KPA & Focus Area	Performance Objective	KPI/ Variant	KPI Baseline	KPI Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date	Remarks/ Progress
1	2	3	4	5	6	7	8	9
En-route (ACC Sectors)	Capacity (Capacity, throughput & utilization)	Enhance capacity of ACC Sectors	KPI 06 (En-route Airspace capacity) Variant X	TBD for each ACC Sector	TBD for each ACC Sector	TBD for each ACC	TBD for each ACC	
State (AD, TMA, En-route) (Taxi-in, Taxi-out, Departure, Arrival, En-route)	Safety	Minimize Number of Aircraft Accidents	KPI 20 (Number of Aircraft Accidents) Variant X	TBD for each State	TBD for each State	TBD for each State	TBD for each State	
State/FIR (En-route)	Safety	Minimize Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/ Mid Air Collisions	KPI 23 (Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions) Variants X, Y, Z	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	
State/FIR (En-route)	Efficiency (Flight time/ distance)	Overcome route selection inefficiencies associated with route network design	KPI 04 (Filed flight plan en-route extension) Variant X	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	
State/FIR (En-route)	Efficiency (Flight time/ distance)	Ensure that the right airspace is available at the right time for the mission	KPI 04 (Filed flight plan en-route extension) Variant X KPI 05 (Actual en-route extension) Variant X	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	

SAMPLE

Measurement of and Reporting on Air Navigation System Performance Using ICAO KPIs

3.16 The performance-based approach to air navigation planning relies on the systematic measurement and monitoring of operational improvements using Key Performance Indicators (KPIs), in particular those defined by ICAO. These KPIs support the evaluation of progress towards the Global Air Navigation Plan (GANP) objectives and assist stakeholders in identifying areas requiring attention or enhancement.

3.17 ICAO has developed a comprehensive framework of performance indicators categorized under the eleven ICAO Key Performance Areas (KPAs), such as safety, capacity, efficiency, and environmental sustainability. While this provides a global structure for performance measurement, States are encouraged to prioritize and limit the number of KPIs selected to those that are most relevant to their local and national operational contexts, considering the regional context. Resources must be prioritised and it is not necessary to track all KPIs to be effective.

3.18 The purpose of this focused approach is to:

- ensure efficient use of resources and reduce the reporting burden;
- enhance decision-making by focusing on indicators that support actionable insights;
- align performance monitoring with the strategic goals of the State or region; and
- enable more timely and effective management responses to performance gaps.

3.19 It is rare that improvements in operations' efficiency affect one KPI independently from the others. For example, an improvement in capacity may allow for more flexibility in the system while making the system more predictable and operate at a reduced cost. Furthermore, some of the affected indicators such as flexibility and predictability are difficult to quantify and monetise. There are also cases when efforts to maximise utilisation of existing capacity, may come at the expense of flight efficiency and predictability. Given limited resources, States should focus on the causal indicators that are feasible to quantify as priority indicators for implementation in a performance-based system.

3.20 In assessing the value of investing in the data, tools and personnel to track a particular KPI, States/stakeholders should consider the following criteria:

- What is the specific purpose and audience of the KPI?
- Does the KPI lead to informed decision making?
- Does the KPI add value distinct from other KPIs? Can it be shown that management and stakeholders will find inefficiencies from this KPI that would not have been found from existing KPIs?
- Can the KPI be monetised? Monetisation can be used in the cost/benefit process for program acquisition and to communicate priorities to stakeholders.

3.21 To support this, States should:

- select KPIs that best reflect their air navigation system's priorities and challenges;
- ensure that chosen indicators have available, reliable data sources; and
- use the results to inform continuous improvement, investment planning, and operational enhancements.

3.22 This targeted and context-driven use of KPIs helps maintain a sustainable performance management system while contributing to the global objectives of interoperability, safety, efficiency, and environmental responsibility in air navigation.

3.23 To support meaningful analysis and facilitate performance-based decision-making, KPIs should be grouped both by Key Performance Area (KPA)—such as safety, capacity, efficiency, etc.—and by the

relevant operating environment or level of granularity. This may include performance measurement at the State or FIR level, as well as within specific operational domains such as terminal manoeuvring area (TMA) or aerodrome. The KPI value, when available, should be provided for the previous year and current year as well as the defined KPI Target to allow comparison and identify progress. Such structured categorization allows stakeholders to better identify trends, assess localized performance issues, and target improvements where they are most needed. It also ensures alignment with ICAO’s global framework and supports comparability across regions and operational contexts.

3.24 States should report on the implementation of Performance Objectives using the Template at **Table MID Region ANS PF3-1 and ANS PF3-2** (KPIs measured at the State/ANSP level and KPIs measured at the TMA/Aerodrome level):

Table MID Region ANS PF3-1:

TMA/Aerodrome: [name]					
KPA	KPI/ Variant	KPI Value – (Last year)	KPI Value – (Current year)	KPI Target	Remarks
Safety	KPI 21 (RWY Incursions)	Number of runway incursions	Number of runway incursions	Number of runway incursions	
Safety	KPI 22 (RWY Excursions)	Number of runway excursions	Number of runway excursions	Number of runway excursions	
Efficiency/ Environment	KPI 02 (Taxi-out additional time) Variant X	Excess taxi-out time in Minutes/flight	Excess taxi-out time in Minutes/flight	Excess taxi-out time in Minutes/flight	
Efficiency/ Environment	KPI 13 (Taxi-in additional time) Variant X	Excess taxi-in time in Minutes/flight	Excess taxi-in time in Minutes/flight	Excess taxi-in time in Minutes/flight	
Efficiency/ Environment	KPI 17 (Level-off during climb) Variant X	NM/flight and minutes/flight	NM/flight and minutes/flight	NM/flight and minutes/flight	
Efficiency/ Environment	KPI 19 (Level-off during descent) Variant X	NM/flight and minutes/flight	NM/flight and minutes/flight	NM/flight and minutes/flight	
Predictability	KPI 01 (Departure punctuality) Variant X	% of flights	% of flights	% of flights	
Predictability	KPI 14 (Arrival punctuality) Variant X	% of flights	% of flights	% of flights	
Capacity	KPI 09 (Airport capacity) peak	Number of arrivals / departures per hour	Number of arrivals / departures per hour	Number of arrivals / departures per hour	
TMA/Aerodrome: [name]					
KPA	KPI/ Variant	KPI Value – (Last year)	KPI Value – (Current year)	KPI Target	Remarks

Table MID Region ANS PF3-2:

State/FIR: [name]					
KPA	KPI/ Variant	KPI Value – (Last year)	KPI Value – (Current year)	KPI Target	Remarks
Safety	KPI 20 (Number of Aircraft Accidents) Variant X	Number of accidents - Last year	Number of accidents - Current year	Number of accidents - Current year	
Safety	KPI 23 (Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions) Variant X	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)	
Capacity	KPI 06 (En-route airspace capacity)	Nr. of Movements/ per hour	Nr. of Movements/ per hour	Nr. of Movements/ per hour	
Efficiency/ Environment	KPI 04 (Filed flight plan en-route extension) Variant X	% excess distance	% excess distance	% excess distance	

3.25 In addition to tracking performance through KPIs, States should also report on the tangible benefits accrued from the implementation of operational improvements. This includes outcomes such as reduced flight distances and total CO₂ emissions avoided. Such data provides clear evidence of the value of modernized air navigation systems, especially in supporting global and national environmental and climate goals. Highlighting these achievements, in the Annual MID Region Air Navigation Report (as appropriate), strengthens the case for continued investment in ATM modernization and demonstrates aviation’s contribution to environmental sustainability.

COMMUNICATION, NAVIGATION AND SURVEILLANCE SUB-GROUP (CNS SG)

1. TERMS OF REFERENCE

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

- a) ensure that the implementation of CNS in the MID Region is coherent and compatible with developments in adjacent Regions, and is in line with the Global Air Navigation Plan (GANP), and the Aviation System Block Upgrades (ASBU) framework, ~~and the MID Region Air Navigation Strategy;~~
- b) ~~Develop and monitor the status of implementation of the MID Region CNS Regional Priorities and Performance Objectives related to CNS-related ASBU Modules included in the MID Region Air Navigation Strategy,~~ as well as other required CNS supporting infrastructure, identify the associated difficulties and deficiencies, and provide progress reports, as required;
- c) keep under review the MID Region CNS performance objectives ~~and~~ /priorities, develop action plans to achieve the agreed performance targets, and propose changes to the MID Region CNS plans/priorities, modernization programmes through the MIDANPIRG, as appropriate;
- d) seek to achieve a common understanding and support from all stakeholders and involved in or affected by the CNS developments/activities in the MID Region;
- e) provide a platform for harmonization of developments and deployments of CNS facilities and procedures within the Region and inter-regional;
- f) monitor and review the latest developments in the area of CNS, provide expert inputs for CNS-related issues; and propose solutions for meeting ATM operational requirements;
- g) follow-up the developments of the ICAO position for future ITU World Radio Communication (WRC) Conferences and provide expert advice to States;
- h) follow-up the operation of the ~~MID~~ ATS Message Management Center (~~MID~~AMC);
- i) provide regular progress reports to ~~the MSG and~~ MIDANPIRG concerning its work programme; and
- j) review periodically its Terms of Reference and propose amendments, as necessary.

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

- a) provide necessary assistance and guidance to States to ensure harmonization and interoperability in line with the GANP, the MID ANP, and ASBU framework;
- b) provide necessary inputs to the MID Region Air Navigation ~~Strategy Plan~~ through the monitoring of the agreed ~~Key Regional Performance Indicators~~ ~~Priorities and objectives~~ related to CNS facilities and procedures;
- c) identify and review those specific deficiencies and problems that constitute major obstacles to the provision of efficient CNS implementation, and recommend necessary remedial actions;

- d) lead the work programme of the MIDAMC, including the conduct of training and upgrades;
- e) assist, coordinate, harmonize, and support in the implementation of CNS facilities and procedures;
- f) seek States support to ICAO Position at WRCs, and encourage States for the proper utilization of the Frequency Spectrum and Interrogation Code Allocations;
- g) follow-up surveillance technologies implementation to be in line with the MID Region surveillance plan and the operational improvements in coordination with other Sub-Groups;
- h) review, identify, and address major issues in technical, operational, safety, and regulatory aspects to facilitate the implementation or provision of efficient Surveillance services in the MID Region;
- i) follow-up ~~Global~~ GNSS evolution and Radio frequency interference issue, and provide assistance/guidance to states on available GNSS services and mitigation measures and/or solutions;
- j) address Datalink communication services and support implementation where operationally required;
- k) review and identify inter-regional and intra-regional co-ordination issues in the field of CNS, harmonize and recommend actions to address those issues; and
- l) Coordinate with relevant MIDANPIRG and RASG-MID Subsidiary bodies issues with common interests.

2. COMPOSITION

2.1 The Sub-Group is composed of:

- a) MIDANPIRG Member States;
- b) Concerned International and Regional Organizations as observers; and
- c) other representatives from provider States and Industry may be invited on ad-hoc basis, as observers, when required.

3. WORKING ARRANGEMENTS

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

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

LIST OF PARTICIPANTS

**Fifth Meeting of the Frequency Management Working Group (FM WG/5) and
Fifteenth Meeting of the MIDANPIRG Communication, Navigation and Surveillance Sub-Group (CNS SG/15)
(Doha, Qatar, 10 – 14 May 2026)**

State/ Org	Name	Title	Remarks
Bahrain	Hamad Najeeb Alshomali	Spectrum Monitoring Engineer	
	Hamad Fadhel Aldoseri		
Egypt	Mona Sabry Aly	Quality General Manager	
	Amir Aly Mohamed Eid	Surveillance Engineer	
	Ahmed Mostafa Mohamed Arman	Senior ANS/CNS Inspector	
	Khaled Ibrahim Mostafa Mohamed	General Manager of CNS Facilities	
	Mohamed Ahmed Mohamed Sultan	General Manager of Informative Computer Systems	Virtually
	Waheed Suliman	VOR Manager	Virtually
	Ami Ali		
Iran	Kaveh Parto	Senior Expert of Radio Navigation aids	Virtually
	Esmaeil Mahgoli	Deputy CNS Department	Virtually
Iraq	Ali Nasrullah	Mobile Communication Engineer	Virtually
Jordan	Ibrahim Mahmoud Faraj	Director of CNS	Virtually
	Yaser Mustafa Issa Zaid	Chief of AFS Engineering Division	Virtually
	Neveen Askar	Director of planning & training JANS	Virtually



State/ Org	Name	Title	Remarks
Libya	Ahmed Elamari		Virtually
	Mustafa Fares	Head of Navigation System	Virtually
Oman	Abdullah Abdul Rahman Abdullah AlFarsi	CNS Director	
	Said Hussein Al Balushi	Head of Communication	
Qatar	Ahmed Al-Eshaq	Director Air Navigation	
	Antonio Cardoso	ANS Inspector	
	Mirko Vidovic	CNS Inspector	
	Ramy Saad	ANS Inspector	
	Maryam ALNaimi	ANS Inspector	
	Gladys Mathew	CNS Inspector	
	Shikha Al-Temais	Head of Engineering	
	Nawaf Abdulrab Al Yafei	Electronics Engineer	
	Noor Habibulla Khan	Electronics Technician	
	Mohamed Jamal Al-Jaber	Head of Comms Engg.	
	Wadha Al Malki	Electronics Engineer	
	Mustafa Kalyon	Electronics Engineer	
	Mansoor Alam	Electronics Engineer	
	Mohammad Naiem Sheikh	ANS Instructor	
	Hanan Al Haddad	Head of NAV-AIDS	
	Salem Hamad Manah	Electronics Engineer	
	Fahad Yousuf Al Malki	Electronics Supervisor	
	Hawraa Ali Mohammed	Electronics Engineer	
Ifrah AbdiYaqoub A Hersi	Electronics Engineer		



State/ Org	Name	Title	Remakrs
	Mansoor Hussain	Electronics Engineer	
	Maryam Eissa Al-Rashdi	Electronics Engineer	
	Aysha Nasser A M Maarefi	Senior Electronics Technician	
	Ali Mohd Al-Hail	Head of Radar Eng.	
	Jaafar Abdulla Al-Khuzaei	Senior Electronics Engineer	
	Khalid Al Muftah	Head of IT	
	Mohammed Al-Nuaimi	Senior Electronics Engineer	
	Salman Abdulla Al-Ansari	Senior Electronics Engineer	
	Nawaf Abdulrab Al Yafei	Electronics Engineer	
	Hussain Mohd Zainal	Senior Electronics Engineer	
	Mohamed Ali Al-Naimi	Senior Electronics Engineer	
	Danah Ghaite Attari	Senior Electronics Engineer	
	Danah Eisa Yousef	Electronics Engineer	
	Mohammed Shahnawaz Khan	Electronics Engineer	
	Noora Ahmed Al Dosari	Electronics Engineer	
	Samina Razaq	Electronics Engineer	
	Marion Murel	Electronics Engineer	
	A. Rahman Mohd Yaqoub		
	Mohamed Ali Al-Naimi		
	Nisamudheen Shamsudheen		
	Muhammad Ashraf Wahab		
	Dibeh Abboud		
	Fatima Al Marri		



State/ Org	Name	Title	Remarks
	Narciso III Kaimo Mondejar		
	Muhammed Jaisal Meppoyil		
	Noof Ishaq M A Al-Sheebi		
	Noura Al Eshaq		
	Michael Samuller		
	Veronica Bonji Iroy		
	Mohammed Jabor M Dorgham		
	Ervin Tamayo Iroy		
	Sarmad Ali Sheikh	Senior Expert in spectrum monitoring	
Saudi Arabia	Sammer Qattlan	CNS Manager	
	Zaki Alamri	CNS Advisor	
	Anas Alhazmi	Head of CNS	
Syria	Hussam Alsaid Ali	CNS Manager	
	Hesham Hrould Hasan Jamal Eldin	CNS	
Sudan	Sami Enger	Telecommunication and Networking Engineer	Virtually
	Marsail Samaan	Communication Engineer	Virtually
	Sayed Ali		Virtually



State/ Org	Name	Title	Remarks
UAE	Abdulrahman Al Maeni	Engineer, Terrestrial Services, Spectrum Management Affairs	
	Ahmed Saif Al Ali	Senior Officer, Spectrum Services, Spectrum Management Affairs	
	Abdulla Alsayed Ahmed Almarzooqi	Senior Specialist – Air Navigation and Communication, Navigation & Surveillance	
	Mohamed Al Ahmed	Specialist ANS Engineering	
	Rashed Alshehhi	Senior Manager ANS Engineering	
GCC	Ali Saleh	Head of Radio Frequency Department	
IATA	Lindi-Lee Kirkman	Regional Head ATM + CNS AME	
IFALPA	Arnaud Du Bedat	Regional officer EUR/MID	
ICAO-MID	Mohamed Smaoui	ICAO Deputy Regional Director	
	Muna Alnadaf	Technical Officer/CNS – ICAO HQ	
	Ahmed Shaker	Technical assistant	

- END -