International Civil Aviation Organization

MIDANPIRG/22 & RASG-MID/12 Meetings

(Doha, Qatar, 4 – 8 May 2025)

Agenda Item 5.3:   **ANS (AIM, PBN, AGA-AOP, ATM-SAR, CNS and MET)**

OUTCOMES OF THE CNS/13 MEETING

(Presented by the Secretariat)

SUMMARY
This paper presents the outcome the Thirteenth meeting of the Communication, Navigation and Surveillance Sub-Group (CNS SG/13).   Action by the meeting is at paragraph 3.

REFERENCE
- MIDANPIRG/21_RASG-MID/11 Report   - CNS/13 Report

1.   INTRODUCTION

1.1   The Thirteenth meeting of the Communication, Navigation and Surveillance Sub-Group (CNS SG/13) and the Tenth meeting of the MIDANPIRG Air Traffic Management Sub-Group (ATM SG/10) were graciously hosted by the Saudi Air Navigation Services (SANS). The meetings were successfully held in parallel in Jeddah, Saudi Arabia, from 20 to 23 October 2024. A plenary session was organised on the first day of the meetings to discuss common subjects between both Sub-Groups.

2.   DISCUSSION

2.1   The CNS/13 meeting addressed the following topics.

FREQUENCY / SPECTRUM MANAGEMENT

A Review of VHF COM Frequency Allotment Plan and Utilization in the MID Region

2.2   The meeting addressed the current status, challenges, and optimization opportunities related to the VHF Communication (COM) frequency allotment and utilization across the ICAO MID Region. Key concerns include spectrum congestion, limited availability of new frequencies, and inefficient frequency reuse due to coordination and planning issues. Additionally, the lack of updated frequency usage data from several States has hindered comprehensive planning and regional harmonization efforts.

2.3   The meeting concluded with the following key recommendations to improve the management and efficiency of VHF COM frequency usage in the MID Region, including but not limited to:

o Update of the Regional Allotment Plan: States should review and update their national

VHF COM frequency data and provide it to the ICAO MID Office to facilitate the revision of the MID VHF COM Allotment Plan;

o Improved Data Sharing and Reporting: States are urged to regularly report the status of frequency utilization, enabling better planning and coordination at the regional level.

o Enhancing Frequency Management Capabilities: It is recommended that States build internal technical capacity for frequency planning and management, possibly with ICAO support, to ensure alignment with international practices;

o Implementation of Frequency Reuse Best Practices: States should adopt frequency reuse principles (including vertical separation, directional antennas, and geographical separation) to maximize spectrum efficiency;

o Encouragement of Cross-border Coordination: ICAO and States should strengthen cross-border coordination mechanisms to avoid interference and optimize frequency allocation, particularly in congested airspace; and

o Consideration of Digital Voice Communication Solutions: In the long term, States are encouraged to explore the gradual transition toward digital communication technologies, which may alleviate spectrum pressure and offer enhanced operational capabilities.

ITU WRC-27 Preparation in the MID Region

2.4   The meeting may wish to note that to address both regional frequency management challenges and global coordination for WRC-27, States are encouraged to prioritize updating their national VHF frequency usage databases. This will ensure accurate regional allotment planning and strengthen the technical foundations needed to support aviation's position in upcoming international spectrum negotiations.

2.5   The meeting may wish to reiterate that States should ensure the active participation of civil aviation frequency management experts in ITU, ICAO, and regional coordination forums. Their technical insight is critical to safeguard aviation interests and influence decision-making processes leading up to WRC-27.

2.6   In this regard, national authorities are urged to support ICAO's frequency spectrum strategy by incorporating civil aviation requirements in their proposals for WRC-27. This includes promoting spectrum-efficient communication technologies that align with GANP and ASBU objectives.

2.7   Given the limited nature of the spectrum and increasing pressure from non-aviation users, the meeting may wish to note that States must remain committed to protecting aeronautical frequency bands from harmful interference. This requires robust national spectrum oversight and close coordination with international partners to prevent infringements.

2.8   To facilitate a unified regional position, the ICAO MID Office coordinated, jointly with the ICAO EURNAT Office, the organization of a WRC-27 Preparatory Workshop in Q4 of 2025, planned to be held in Paris, providing a platform for States to align their strategies and ensure effective regional input into the global decision-making process.

Enhancing FF Tool Functionality with MID Region Area Service Polygons Data

2.9   The meeting noted that Iraq proposal to enhance the ICAO Frequency Finder (FF) Tool by integrating polygon-shaped service volumes (e.g. ACC and APP sectors) for the MID Region. This approach, already used in Europe, offers greater accuracy than the current circular coverage model, improving frequency planning efficiency, especially for smaller FIRs and extended-range stations.

2.10   States were encouraged to submit coordinates for their sector boundaries, and the ICAO MID Office was tasked with coordinating with ICAO HQ to explore the technical feasibility. While this enhancement may increase algorithm complexity therefore the response performance of the FF Tool.

Frequency Spectrum Management Office - FSMO

2.11   The meeting may wish to note that Saudi Arabia presented its initiative to establish a Frequency Spectrum Management Office (FSMO) within GACA structure, aimed at ensuring safe and interference-free use of the aeronautical spectrum. Established in August 2023, the FSMO oversees frequency allocation, policy development, interference resolution, and coordination with national regulators and ICAO bodies, including updating the ICAO Frequency Finder (FF) tool.

2.12   The CNS/13 meeting commended the initiative and recognized FSMO as a best practice for managing civil aviation spectrum. MID States were encouraged to adopt similar structures within their CAAs, establish quarterly review mechanisms for frequency assignments using the FF tool, and support capacity-building efforts, including ICAO workshops on emerging technologies like 5G, 6G, and satellite communications.

COMMUNICATION MATTERS

MID-Region IP Network Solution

2.13   The ICAO MID Region was re-engaged by the ICAO APAC Office regarding participation in the Asia-Pacific Common aeRonautical Virtual Private Network (CRV), particularly due to significantly reduced costs compared to earlier quotations. The CRV aligns with the ICAO Global Air Navigation Plan (GANP) and supports relevant ASBU threads and elements, making it a strategic enabler for interoperable and secure aeronautical communications.

2.14   The meeting may wish to note that the CRV network offers a secure IP-based platform for voice and data exchange and is governed by the CRV Operations Group (OG) under the APAC framework. Initial implementation efforts in the MID Region between 2017–2019 faced challenges, especially due to cost concerns. However, a revised pricing structure, including special promotional offers (notably for Packages D and D+), and enhanced technical solutions with high redundancy (e.g., Package A), now make CRV a more attractive option.

2.15   Moreover, the network's security is ensured through GRE tunneling, ISO 27001 certification, and ongoing cybersecurity initiatives, with future alignment expected under global provisions from the ICAO Trust Framework Panel.

2.16   The implementation roadmap emphasizes the importance of peer readiness assessment and recommends that States verify interconnection capability prior to contract signing. Importantly, the revised contractual terms allow flexibility in package selection, though downgrades incur shared penalties. While the contract generally requires a 5-year commitment, an exception was granted to MID States due to the timing of the current contract's expiry in 2028.

2.17   Finally, the meeting may wish to recall that the adoption of CRV in APAC is already reflected in the APAC e-ANP, and non-compliance may be flagged as an Air Navigation Deficiency in the future, highlighting the increasing importance of harmonized global communication infrastructure.

2.18   The CNS/13 Meeting was informed that the High-level questionnaire provided in **Appendix A** which could be used to calculate the minimum bandwidth required for a particular site in a State. The Meeting encouraged States to utilize the template and initiate working on bandwidth requirements to estimate, as deemed necessary, the needs and selection of the appropriate Package.

Transition to SWIM in the MID Region

2.19   The meeting highlighted the importance of regional collaboration and planning to ensure a smooth and coordinated transition to the System-Wide Information Management (SWIM) environment, as a means to enhance air traffic management across the MID Region.

2.20   The meeting noted that the transition from AFTN/AMHS to SWIM will require maintaining dual infrastructures, supporting both legacy and IP-based systems, during the transitional phase. The meeting recalled that SWIM promotes automation, decision-making, and standardized information sharing among aviation stakeholders.

2.21   The meeting further noted that the **initial/main focus of the CNS Sub-Group (CNS SG) in the context of the SWIM transition in the MID Region should be on technical and infrastructure enablers to meet operational needs emanating from AIM and ATM SGs**.

2.22   In this regard, the meeting agreed on Saudi Arabia proposal to assign the MID AMC Steering Group (STG) the role of overseeing SWIM transition management at the regional level. As such, the MIDAMC STG Terms of References are amended to incorporate SWIM-related activities. Accordingly, the meeting may wish to endorse the following Decision:

WHY	To formally incorporate SWIM-related activities into the scope of the MID AMC Steering Group, ensuring alignment with regional and global developments.
WHAT	Endorsement of the amended Terms of Reference for the MID AMC Steering Group, as presented in Appendix B .
WHO	MIDANPIRG
WHEN	Upon endorsement at MIDANPIRG/22

MIDNAPIRG DRAFT DECISION 12/XX: MID AMC STG AMENDED TERMS OF REFERENCE

That, the amended MID AMC Steering Group Terms of Reference at **Appendix B**, *incorporating SWIM-related activities is endorsed.*

Implementation of Flight and Flow Information for a Collaborative Environment (FF-ICE) in the MID Region

2.23   The meeting recognized the importance of the Flight and Flow Information for a Collaborative Environment (FF-ICE) initiative in addressing the increasing air traffic demands within the MID Region. The meeting highlighted the operational benefits of implementing FF-ICE, including its role in enhancing air traffic management (ATM) efficiency. It was recalled that FF-ICE supports effective information sharing and collaborative decision-making among aviation stakeholders, thereby strengthening operational performance, safety, and regional cooperation.

2.24   The meeting noted that FF-ICE aims to modernize ATM systems through seamless information exchange and real-time coordination between air navigation service providers (ANSPs), airlines, and airport operators. It was further emphasized that successful implementation requires significant investment in infrastructure, technical capabilities, and stakeholder collaboration, particularly in terms of advanced technology integration.

2.25   The meeting noted that the operational aspects of FF-ICE are being addressed by the Airspace Management Working Group (ASM WG) under the ATM Sub-Group. Given the complexities related to system implementation, the meeting agreed to establish a dedicated FF-ICE Implementation Taskforce, composed of members from CNS, ATM, and AIM domains. The Taskforce will be responsible for addressing infrastructure, operational, and data exchange requirements; promoting the adoption of advanced flight planning systems and technologies; and supporting capacity-building initiatives for MID States.

2.26   Accordingly, the meeting agreed, based on Saudi Arabia proposal, to the following Draft Decision to be presented to MIDANPIRG/22 for endorsement:

WHY	To initiate a structured regional mechanism for the implementation and coordination of FF-ICE (Flight and Flow Information for a Collaborative Environment) activities.
WHAT	Establishment of the MID FF-ICE Task Force and development of the Terms of Reference for the existing FF-ICE Action Group during the first meeting of the Task Force.
WHO	MIDANPIRG and States/Stakeholders involved in FF-ICE implementation in the MID Region
WHEN	Upon endorsement at MIDANPIRG/22, with the Terms of Reference to be developed during the first meeting of the Task Force

MIDNAPIRG DRAFT DECISION 12/XX: ESTABLISHMENT OF THE MID FF-ICE TASK FORCE

That, the MID Region FF-ICE Task Force be established, of which the terms of reference of be developed during the first meeting of the Task Force.

NAVIGATION MATTERS

Development of a Regional Navigation Minimal Operating Network (NAV-MON)

2.27   The meeting underscored the critical importance of a coordinated and collaborative approach to strengthening the resilience, continuity, and efficiency of Air Navigation Services (ANS) throughout the MID Region, particularly in light of emerging vulnerabilities.

2.28   In this context, the meeting reviewed the consolidated NAV-MON template, developed collaboratively by the CNS, PBN, and ATM Subgroups. After analyzing the content of Template, it was agreed that there is a pressing need to establish a dedicated Regional Navigational Minimum Operational Network (NAV-MON) mechanism, aimed at ensuring the sustained delivery of ANS under both normal and contingency scenarios, with particular attention to the growing threat of GNSS interference.

2.29   The meeting recalled that the NAV-MON concept is designed to streamline and rationalize the existing ground-based navigation infrastructure, enabling the phased reduction of redundant facilities while safeguarding critical navigation services. Given the increasing concerns regarding GNSS vulnerabilities, including interference and spoofing, the meeting emphasized the strategic role of conventional ground-based navigation aids, such as VOR, DME, and ILS, as essential enablers of operational continuity and airspace capacity during GNSS outages.

2.30   In support of this initiative proposed by Saudi Arabia, the meeting agreed to establish a NAV-MON Action Group tasked with:

- Collecting and analyzing data on the current navigation aids infrastructure across the region;

- Assessing actual and forecasted operational needs;

- Identifying facilities suitable for potential relocation or decommissioning; and

- Formulating a proposal for the establishment of a comprehensive MID Region Navigational Minimum Operational Network.

2.31   The meeting further agreed that all MID States should be invited to nominate subject matter experts from the CNS, AIM, and ATM domains, and to provide relevant data in support of the activities of the Action Group. Accordingly, the meeting agreed to the following draft Decision for

submission to MIDANPIRG/22 for endorsement:

WHY	To establish a coordinated regional mechanism for developing a proposal for a MID Regional Navigational Minimum Operational Network (NAV-MON) to support ANS operations.
WHAT	Establishment of the MON Action Group, development of its Terms of Reference during its first meeting, and collaboration of States through expert nomination and data sharing.
WHO	MIDANPIRG
WHEN	Upon endorsement at MIDANPIRG/22, with the Terms of Reference to be developed during the first meeting of the MON Action Group

MIDNAPIRG DRAFT DECISION 12/XX: MID NAV-MON ACTION GROUP

That,

a) *MON Action Group be established to develop a proposal for a Regional Navigational Minimum Operational Network supporting the ANS operations;*

b) *the terms of reference of the MON Action Group be developed during the first meeting of the Action Group; and*

c) *States support the MON Action Group through:*

   i. *assignment of CNS and ANS Subject matter experts to contribute to the work of the Action Group; and*

   ii. *sharing states' experience and provision of required data for developing the MID NAV-MON Network.*

GNSS Radio Frequency Interference (GNSS RFI)

GNSS RFI Interference

2.32   The meeting agreed to propose to MIDANPIRG/22 and RASG-MID/12 revised alternatives to the previously adopted Conclusions, aimed at encouraging States to implement robust measures for mitigating GNSS radio frequency interference (RFI). These measures should include maintaining a resilient network of conventional ground-based navigation aids and ensuring adequate air traffic capacity during periods of GNSS disruption. Additionally, States are urged to collaborate with industry stakeholders to develop guidance on the detection and response to GNSS jamming or spoofing, thereby supporting the continuity of safe aircraft operations during GNSS anomalies or outages.

2.33   The meeting noted the importance of establishing structured GNSS interference reporting mechanisms, in line with the provisions of the ICAO GNSS Manual (Doc 9849).

2.34   The meeting invited the Secretariat to prepare and present a working paper during the plenary sessions of MIDANPIRG/22 - RASG-MID/12 meeting, consolidating the regional approach to managing GNSS RFI. The proposed Draft Conclusion should reflect the guidance provided under ICAO ANC-14 Recommendations 2.2/1 and 2.2/2.

2.35   In this regard, the meeting may wish to recall that a Draft Conclusion been presented during the plenary session for endorsement.

Regional Safety Advisory on GNSS Vulnerabilities

2.36   The meeting reaffirmed the importance of GNSS in supporting PBN and ADS-B,

highlighting its substantial safety, capacity, and environmental benefits to ATM operations. At the same time, it noted growing concerns over GNSS vulnerabilities, including radio frequency interference, jamming, and spoofing, stressing the need for effective mitigation to maintain operational integrity.

2.37   In response to reported GPS spoofing incidents in the MID Region, the meeting recalled RASG-MID Safety Advisory 14 (RSA-14) and agreed on the need to revise it to incorporate both PBN and ATM operational response measures. The amended version of RSA-14 is presented at the plenary session of the MIDANPIRG/22 and RASG-MID/12 meeting for endorsement.
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Capacity Building Event on GNSS RFI Interference

2.38   The meeting recognized the increasing risk and operational impact of GNSS interferences, including jamming and spoofing, across the MID Region, and emphasized the need to enhance States' preparedness and technical capabilities in this domain. In this regard, the meeting underscored the importance of building regional expertise in monitoring, detecting, and mitigating GNSS vulnerabilities to ensure the continuity of safe and efficient air navigation services.

2.39   Therefore, the meeting agreed on the need to organize a dedicated capacity-building event at the regional level, bringing together ANS, and cybersecurity experts to share best practices, operational procedures, and mitigation strategies in alignment with ICAO guidance and global developments.

2.40   The meeting agreed to the following Draft Conclusion to replace and supersede the MIDANPIRG Conclusion 21/7, to be presented at the plenary session of the MIDANPIRG/22 and RASG-MID/12 meeting for endorsement.

2.41   The meeting may wish to note that ICAO MID Office in collaboration with EURNAT Office initiated preliminary coordination was with Qatar to gracefully host the event pending final re-confirmation.

SURVEILLANCE MATTERS

Use of Mode S Conspicuity Code for Transit Flights

2.42   The meeting acknowledged the operational advantages of using the Mode S conspicuity code (A1000) to overcome limitations in traditional SSR code availability. It was noted that the solution's effectiveness depends on regional coordination and technical readiness. States were encouraged to initiate bilateral discussions and update agreements for the joint implementation and trials of Mode S identification and flight plan coupling.

Integrating ADS-B as a Complementary Surveillance Layer

2.43   The meeting noted the ADS-B implementation plan of Saudi Arabia, aiming for completion by Q2 of 2025, to extend surveillance coverage in remote areas and complement existing radar and Mode S systems. The meeting noted key benefits including extended coverage, improved accuracy, cost-effectiveness, and enhanced safety.

2.44   However, the meeting also recognized vulnerabilities, particularly GNSS dependence, and emphasized the need for mitigation strategies, including contingency planning, system interoperability, and cybersecurity.

The Importance of Surveillance Sharing in the MID Region

2.45   The meeting highlighted the strategic value of surveillance data sharing to enhance regional ATM efficiency and safety. The meeting emphasized the need for enhanced collaboration among MID States and recognized that limited data exchange undermines the full potential of advanced surveillance technologies.

2.46   The meeting encouraged States to adopt the revised surveillance sharing agreement presented in **Appendix C**, which is aligned with EUROCONTROL's template, and tailored for the MID Region. Key aspects include responsibility delineation, data integrity, and cybersecurity. Regular reviews were also recommended to ensure alignment with technological and threat developments.

Modernizing ANS: AI Integration and Cybersecurity as Pillars of Future ATM Innovation

2.47   The meeting emphasized the transformative potential of Artificial Intelligence (AI) in modernizing Air Traffic Management (ATM) systems. AI technologies can significantly enhance operational efficiency and safety by improving conflict detection, trajectory prediction, and providing decision support to air traffic controllers. Key applications include real-time conflict resolution, speech recognition to detect communication errors, accurate flight path forecasting, and optimal runway configuration recommendations.

2.48   Recognizing the increasing integration of AI into ATM, the meeting acknowledged the critical importance of addressing cybersecurity challenges associated with AI-driven systems. AI systems, while offering numerous benefits, also introduce new vulnerabilities that could be exploited if not properly secured. Ensuring the resilience and security of these systems is paramount to maintaining safe and efficient air navigation services. This aligns with ICAO's emphasis on developing guidance for AI integration in CNS/ATM systems, including considerations for cybersecurity.

2.49   To further enhance regional readiness and address these challenges, the meeting noted with appreciation that the ANS Cybersecurity Table-Top Exercise, supported by AI innovation initiatives workshop, will be graciously hosted by Oman in the third quarter of 2025. This event aims to strengthen cybersecurity awareness and preparedness across MID States, providing a practical platform for collaboration and knowledge sharing

3.   ACTION BY THE MEETING

3.1   The meeting is invited to endorse the proposed Draft Decisions outlined in the following paragraphs: 2.22, 2.26, 2.31.

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High Level Individual State Questionnaire v2.2

Thanks for your interests on CRV service.
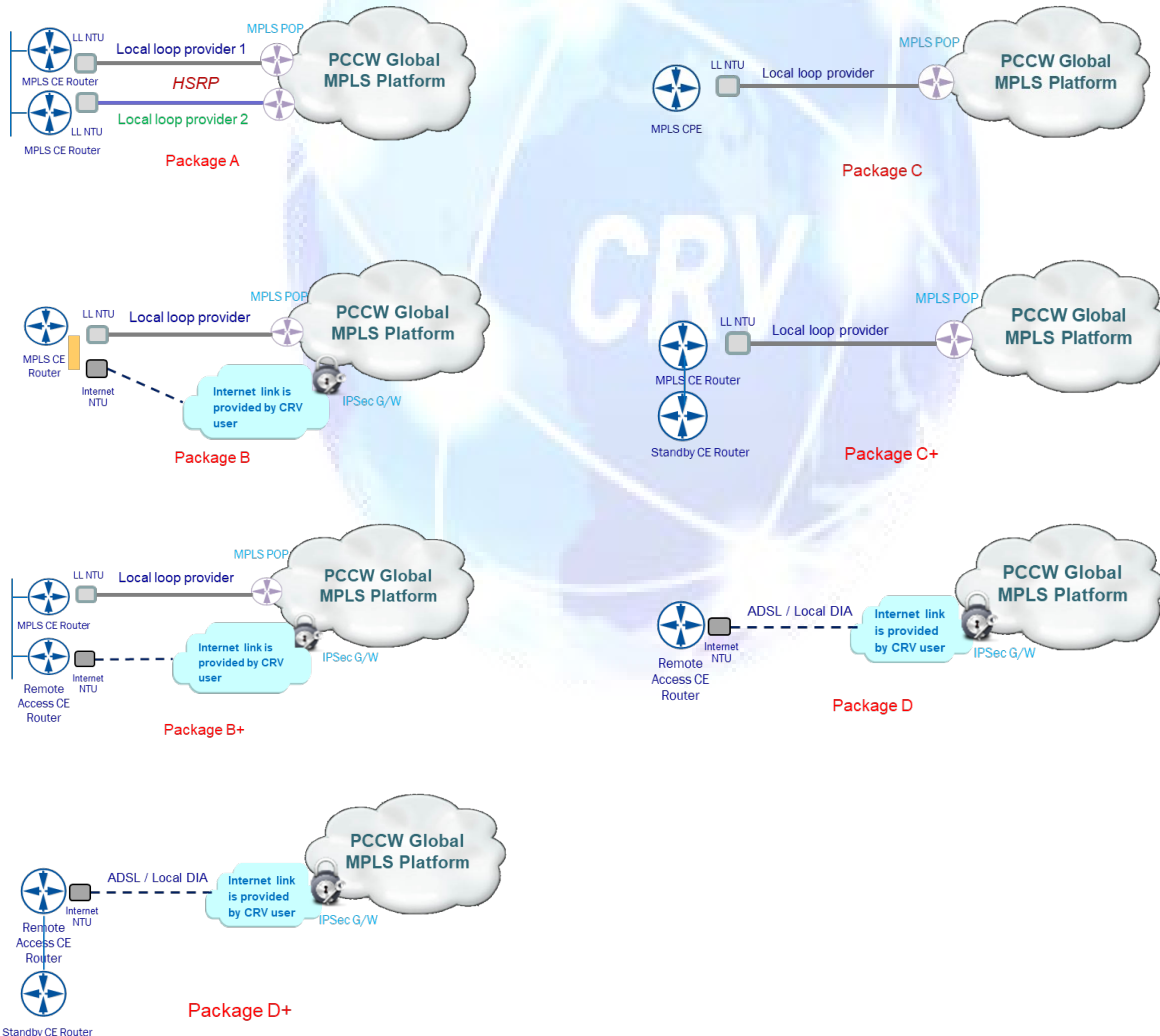*Please fill in the questionnaire to let us know more your high level requirements.*

- **Core services (Site 1)**

Company Name:	Local Contact Name:
Contact Name:	Local Contact Tel:
Contact Tel:	Local Contact Email Address:
Email Address:	Detailed Installation address:

Target Service Date: _____ ASAP, before 31/12/24_____
Please "X" the package required and fill in the bandwidth requirement.

Package A ☐ Package B+ ☐ Package B ☐ Package C+ ☐ Package C ☐ Package D ☑ Package D+ ☐

Voice bandwidth :

Reference bandwidth for EF(G.711) Voice is 112Kbps per voice call

Number of Concurrent Voice Call is required: _____ Call(s) x 112Kbps

= _____Kbps

Data Bandwidth :

Reference bandwidth for AF21(E.g. AFTN, ATN or AMHS system) is 64K per channel

Number of AF21 is required: _____ Channel(s) x 64Kbps

= _____Kbps

Bandwidth for CS4 (ADS-B), DF/CS0 (all traffic not otherwise defined) - ANSP needs to check the existing bandwidth requirement, each ANSP may have different bandwidth requirement

Number of CS4 is required: _____ Channel(s) x _____Kbps

= _____Kbps

DF (CS0) bandwidth is required (e.g. the remaining bandwidth):

= _____Kbps

Total bandwidth : (Voice bandwidth + Data bandwidth)

☐64 Kbps ☐ 128 Kbps ☐256 Kbps ☐ 512 Kbps ☐1024 Kbps ☐2048 Kbps
☐4096 Kbps ☐8192 Kbps ☐Other _____

Any special requirements on your local loop vendors if any : *if yes, please provide their contacts*
_____
__

- **Additional services (for each NID)**

In coordination with other ANSP(s), I procure a managed voice and data router with the following interfaces: (Remarks: There is ONE LAN Ethernet port bundled with each NID)

(1) E1: _____unit(s)

(2) 4-wire E&M Type I/II/III/V (6 wires): _____ unit(s)

(3) 2-wire FXS: _____ unit(s)

(4) 2-wire FXO: _____ unit(s)

(5) Ethernet: _____ unit(s)

Remarks:

(1) How many sites/airports in the state in total?   1

(2) How many sites/airports will be connected to CRV? _____

(3) Which neighbor countries (sites/airports) will be connected to?

(4) Are you using VOIP for support voice traffic? Yes/No

Please fill in your existing setup or requirements which you would like to share with us.

_____

_____

Or you may share your existing network diagram or planned new diagram with us.

For example: Any Multicast application? If yes, please specify your required bandwidth.
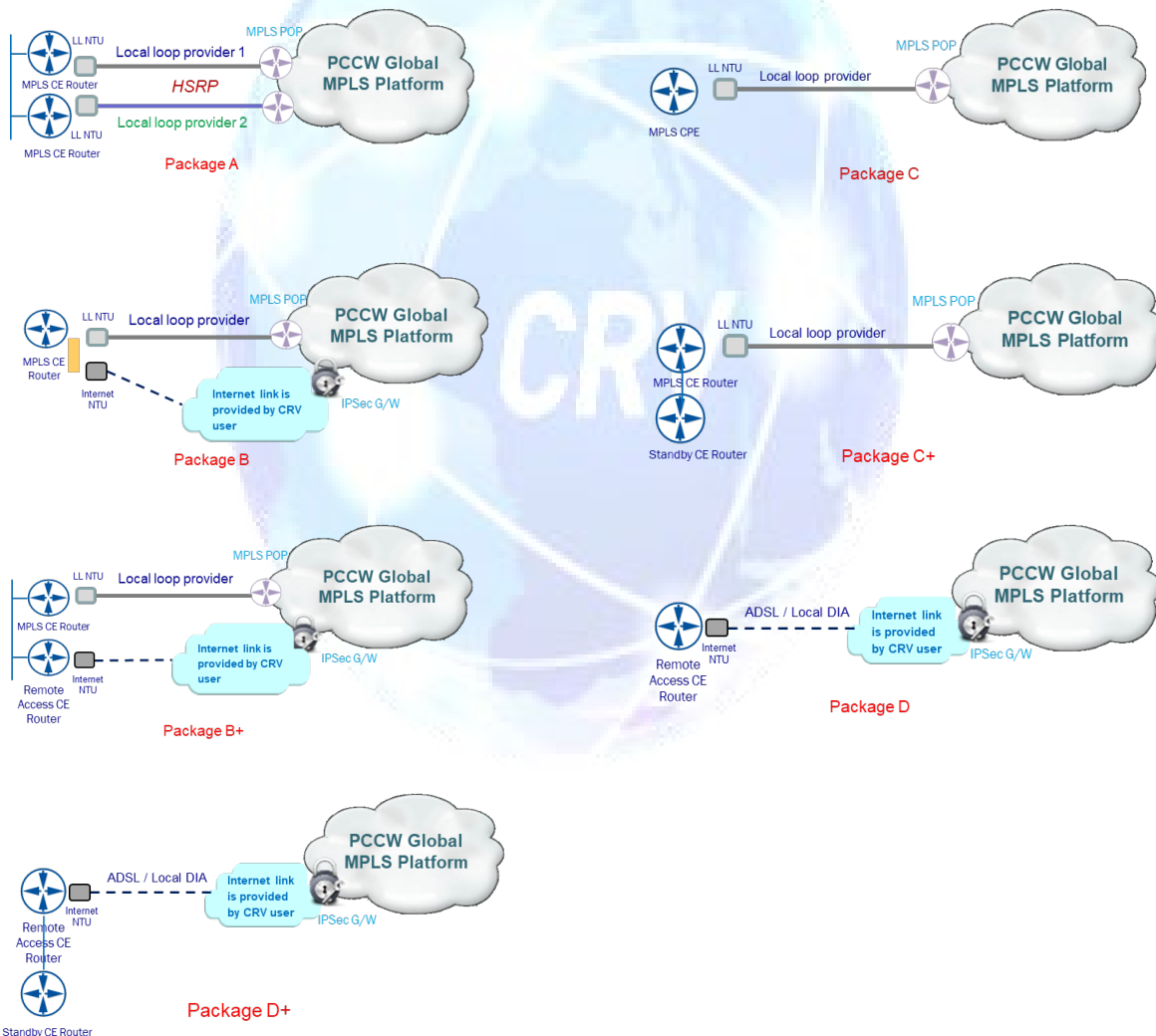

End

Core services (Site 2, if any)

Company Name:	Local Contact Name:
Contact Name:	Local Contact Tel:
Contact Tel:	Local Contact Email Address:
Email Address:	Detailed Installation address:

Target Service Date: _____

Please "X" the package required and fill in the bandwidth requirement.

Package A □ Package B+ □ Package B □ Package C+ □   Package C □   Package D □ Package D+ □

Voice bandwidth :

Reference bandwidth for EF(G.711) Voice is 112Kbps per voice call

Number of Concurrent Voice Call is required: _____ Call(s) x 112Kbps

= _____Kbps

Data Bandwidth :

Reference bandwidth for AF21(E.g. AFTN, ATN or AMHS system) is 64K per channel

Number of AF21 is required: _____ Channel(s) x 64Kbps

= _____Kbps

Bandwidth for CS4 (ADS-B), DF/CS0 (all traffic not otherwise defined) - ANSP needs to check the existing bandwidth requirement, each ANSP may have different bandwidth requirement

Number of CS4 is required: _____ Channel(s) x _____Kbps

= _____Kbps

DF (CS0) bandwidth is required (e.g. the remaining bandwidth):

= _____Kbps

Total bandwidth : (Voice bandwidth + Data bandwidth)

☐64 Kbps   ☐ 128 Kbps   ☐256 Kbps   ☐ 512 Kbps   ☐1024 Kbps   ☐2048 Kbps
☐4096 Kbps   ☐8192 Kbps   ☐Other _____

Any special requirements on your local loop vendors if any : *if yes, please provide their contacts*
_____
__

- **Additional services (for each NID)**

In coordination with other ANSP(s), I procure a managed voice and data router with the following interfaces: (Remarks: There is ONE LAN Ethernet port bundled with each NID)

(1) E1: _____unit(s)

(2) 4-wire E&M Type I/II/III/V (6 wires): _____ unit(s)

(3) 2-wire FXS: _____ unit(s)

(4) 2-wire FXO: _____ unit(s)

(5) Ethernet: _____ unit(s)

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Remarks:

(1) How many sites/airports in the state in total? _____

(2) How many sites/airports will be connected to CRV? _____
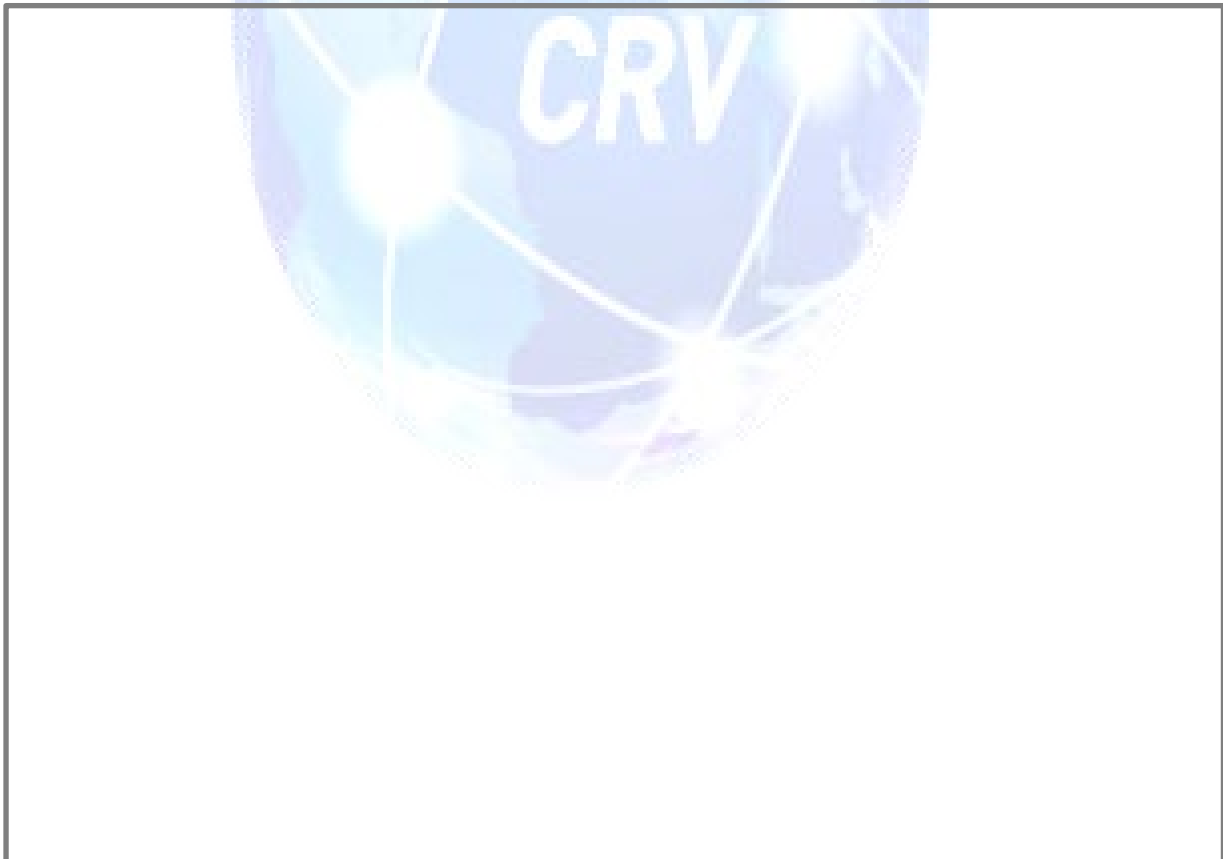
(3) Which neighbor countries (sites/airports) will be connected to?

_____

_____

(4) Are you using VOIP for support voice traffic? Yes/No

Please fill in your existing setup or requirements which you would like to share with us.

_____

_____

 Or you may share your existing network diagram or planned new diagram with us.

For example: Any Multicast application? If yes, please specify your required bandwidth.

End

OPTIONAL

Q1) What types of data, formats and protocols do you intend to utilize the CRV Data Bandwidth for? Please specify in the table below:

Data Type	Format	Protocol

Q2) Do you have an existing SWIM capability or a future implementation plan for SWIM. If so, please describe below:

_____

_____

_____

_____

_____

Q3) If the CRV were to provide value-added SWIM Services. What services would be of interest to you (please select one or more):

a) Data transformation of legacy formats (e.g. ATS messages) into SWIM format (e.g. AIXM, IWXXM, FIXM)
b) Data validation and data quality
c) Data fusion and aggregation (e.g. merging data for long range flow)
d) Enterprise Messaging Services (e.g. routing messages between stakeholders)
e) Other (Please specify)

_____

_____

Q4) Would the organization and its team be interested in attending a free webinar showcasing the benefits and uses of SWIM?

_____

_____

_____

_____

**Appendix B - Proposal for Amendment to 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 ATS Messaging Management Center (MIDAMC);

b) foster the implementation of the Air traffic service Message handling service in the MID Region through provision of the guidance materials and running facilitation tools, utilizing the MIDAMC;

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 of the MIDAMC project 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~~VPN~~ (CRV), until the Operation Group is established;

~~e)~~f) Develop and maintain a regional plan for the transition from AFS to SWIM services; and

~~f)~~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 users on the MIDAMC;

b) develop and maintain guidance materials for MIDAMC users;

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~~XML-based data models (IWXXM, FIXM, AIXM, …etc) over AMHS;

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 services 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;

l)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; and

m)n) proposes 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;

n)q) Provide guidance and training to MID States and stakeholders involved in SWIM 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 meetings will be conducted when it is necessary to do so.

<div align="center">

Proposed MID Region Guidelines on
Agreement about the Shared Use of Radar Sensor Data

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A. Foreword

A.1. This document is a direct response to the need for a specialized framework that addresses the complexities of air traffic management and radar data sharing across the diverse and rapidly evolving airspace of the Middle East.

A.2. The original version of this document has been drafted in English, ensuring clarity and consistency in communication across all nations within the Middle East region. It is intended as a foundational guideline to enhance cooperation and ensure the safe, efficient, and sovereign use of radar data among Middle Eastern countries and aviation authorities.

B. Scope

B.1. This document serves as a guideline for drafting agreements on the shared use of radar data among Air Traffic Services (ATS) Organizations within the Middle East. It is designed to facilitate the creation of bilateral and, where applicable, multilateral agreements for radar data sharing, incorporating the Middle Eastern aviation sector's unique operational requirements, geopolitical, and technical landscape.

B.2. The guidelines provided herein offer the versatility to either stand as a separate agreement or to be seamlessly incorporated into existing Communication, Navigation, and Surveillance (CNS) agreements. This adaptability ensures that stakeholders can effectively align with the evolving needs of air traffic management in the Middle East, facilitating enhanced cooperation without necessitating the overhaul of current frameworks. Whether augmenting current agreements or establishing new dedicated arrangements for radar data sharing, this document aims to provide a comprehensive foundation that respects and responds to the specific operational and regulatory contexts of the region.

C. Reference Documents

C.1. This document incorporates provisions from the documents and standards mentioned herein. By referencing these materials within the text, their provisions become an integral part of this document. In the event of any inconsistencies between the guidance provided in this document and the content of the referenced materials, the policies and regulations shall prevail. Notably, this document draws significantly from "**Guidelines For An Agreement For The Shared Use Of Radar Sensor Data SUR.ET1.ST05.3000-GUI-01-00**," which is the primary guideline document referenced.

D. Abbreviations and Acronyms

D.1. For these guidelines, the following are used:

Abbreviation	Full Form
ASTERIX	All Purpose Structured Eurocontrol Radar Information Exchange
ATC	Air Traffic Control
ATS	Air Traffic Services
CAA	Civil Aviation Authorities
NM	Nautical Mile(s)

E. Proposed Text for the Agreement

Note: *Modifications to the standard text of the agreement and its annex may be necessitated by variations in legal statutes, organizational structures, or technological advancements specific to the Middle East.*
Sections enclosed in brackets ([]) are placeholders meant to be filled with details pertinent to the specificities of the agreement, ensuring flexibility and relevance to the unique conditions of each arrangement.

This agreement ("**Agreement**") is entered in to on [insert date] between:

The [name of the State's responsible Organisation or the name of the (privatised) Air Traffic Control (ATC) Organisation] represented by [function/title of representative],

herein referred to as "the **Provider**,"

and

The [name of the State's responsible Organisation or the name of the (privatised) Air Traffic Control (ATC) Organisation] represented by [function/title of representative],

herein referred to as "the **User**";

(individually, referred to as "**Party**" and jointly as "**Parties**")
Note:If there are multiple Providers or Users, the aforementioned designations should be replicated for each Provider or User. In scenarios where the Providers also serve as Users (for instance, when each entity supplies radar information to the other), the terms Provider and User may be replaced with the actual names of the Organisations.

- Acknowledging the objectives of enhancing air traffic management through the strategic enhancement of radar surveillance capabilities, whether by the establishment of new installations or the mutual sharing of radar data;
- Aiming to enhance the continuity, precision, and reliability of radar tracking across multiple radar systems, to refine trajectory predictions and conflict detection, and to achieve the goal of establishing the required nautical mile separation standard across the airspace governed by the signatories of this agreement;

Note: Additional motivations and justifications for this agreement may be included here.

The Parties hereby agree as follows:

ARTICLE 1 - Objective of the Agreement

1. The primary objective of this Agreement is to enhance radar coverage and the availability of radar data within the Flight Information Regions (FIRs) under the User's jurisdiction.
2. To achieve this objective, the Provider agrees to supply radar data to the User.

ARTICLE 2 - Usage Restrictions

3. The User is authorised to utilise the provided radar data exclusively for maintaining the safety, efficiency, and uninterrupted operation of their Air Traffic Services or related support activities, as well as for technical demonstrations, evaluations, and testing pertinent to their operational duties, except as detailed otherwise in Annex A.
4. The User is prohibited from disclosing any information obtained through this Agreement to any third party not mentioned herein, in any form or context. Such information must not be employed for purposes other than those outlined in Article 1 above, without the explicit written approval of the Provider.

ARTICLE 3 - Equipment and Installation

1. The User is responsible for acquiring at their own cost all necessary equipment and spare parts, for the reception and utilization of radar data both at the Provider's and the User's locations.
2. Unless otherwise specified, the Provider agrees to install the requisite equipment at their premises without charge, while the User will bear the costs of equipment installation at their premises.
3. The User must oversee the arrangement for procurement, setup, and activation of dedicated lines, essential for the radar data's transmission from the Provider to the User.
4. Initial tests to assess the functionality of the equipment and dedicated lines for radar data transmission are to be conducted jointly by the Provider and the User.
5. The stipulations of this article also extend to any future modifications of the equipment or dedicated lines.

ARTICLE 4 - Equipment Maintenance

1. Routine upkeep, repair, and replacement of the equipment used for radar data provision under this Agreement will be performed by the technical personnel at both the Provider's and the User's locations.
2. Routine maintenance, repairs, and replacements at the Provider's facilities, as mentioned in Article 1, will be conducted at no extra charge by the Provider according to the Provider's standard maintenance practices.
3. The User is responsible for the maintenance, repair, and replacement of equipment on their premises, incurring all related costs, and must adhere to their usual standards of maintenance.

ARTICLE 5 - Equipment and System Modifications

1. Any required modifications will be formally communicated by the Provider to the User at least six months before their scheduled implementation date.

ARTICLE 6 - Financial Obligations

1. The inception of this Agreement assumes that the User will cover all initial and recurring expenses related to equipment and private services necessitated by this Agreement.
2. The access to and usage of radar data, will be provided at no cost.

3. Expenses related to the setup and routine inspection of private circuits, taxes, customs duties, and any other initial or ongoing charges for line rentals or additional equipment must be paid by the User.

ARTICLE 7 - Data Integrity

1. The Provider is committed to employing all feasible measures, following the standards it typically upholds, to ensure the quality and uninterrupted supply of radar data.
2. Whenever feasible, the Provider will notify the User in advance about any scheduled service interruptions, providing such information as soon as it becomes available and ensuring at least 24 hours' notice for any planned disruptions.
3. The Provider is obliged to promptly communicate any disruptions in radar data delivery to the User's technical supervision center, or at the first reasonable opportunity.

ARTICLE 8 - Exemption from Liability

1. The Provider shall not be held responsible for any interruptions in radar data delivery caused by failures or defects in the surveillance systems or private circuits.
2. The Provider is exempt from liability for any direct or indirect costs, losses, or damages that result from interruptions or degradations in the quality of the provided radar data.

ARTICLE 9 - Legal Framework

1. This Agreement acknowledges that it will not compromise the essential duty of the relevant Authorities, under law or otherwise, to ensure the safe, effective, and uninterrupted provision of Air Traffic Services.
2. The Provider will not be deemed to have breached this agreement if its inability to fulfill obligations or to provide radar data is due to unforeseeable circumstances beyond its control, including force majeure events.
3. This document represents the complete and exclusive agreement between the Parties.

ARTICLE 10 - Communication

1. All correspondence related to this Agreement should follow the guidelines outlined below.
   - [Provider State's Organisation or name of ATC Organisation, mail address,telephone and fax number]
   - [User State's Organisation or name of ATC Organisation, mail address, telephone and fax number]

ARTICLE 11 - Term of Agreement

1. This Agreement becomes effective on the date it is signed by the last of the Parties involved and will remain in effect for five years (the "**Initial Term**").
2. After this initial term, the Agreement will automatically renew, unless one of the Parties decides to terminate by providing written notice three months before the end of the Initial Term.
3. The Agreement may be terminated early if the radar data is to be permanently discontinued. In such cases, the Provider must provide at least six months written notice to the User.

4. The User may also request early termination of the Agreement due to necessary modifications, with at least three months' written notification to the Provider.

The signing of this Agreement by duly authorised representatives is a testament to its acceptance.

Executed in [place] on [date], in English, with [number] original copies made.

ANNEX A-1. INVOLVEMENT OF ADDITIONAL PARTIES (IF APPLICABLE)

A.1 In the framework of This Agreement
-   In alignment with Article 2: Limitations,

the Provider grants permission for the User to share the radar data with the entities listed below:
    o   [Name of the party]
    o   [Name of the party]

A.2 For this Purpose The User under this Agreement is tasked with establishing equivalent Radar Sharing Agreements, taking on the role of provider, with the parties named above.

Note: The annexure is structured to contain dynamic information, subject to periodic updates to reflect operational or environmental changes within the region.
Should the User intend to distribute the radar data, or any derivative thereof, to a third entity, that entity's name must be incorporated into entities list in this annex. Any sharing arrangement formed between the User and such third entity requires the Provider's written consent. The Provider retains the right to determine the necessity of revising the primary agreement between the Provider and User(s) based on these new arrangements.

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