International Civil Aviation Organization

Eleventh Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/11)

Bangkok, Thailand, 19 - 22 March 2024

Agenda Item 11: Concept Note for a Seminar on Aeronautical Communication Services

PROVISIONAL CONCEPT NOTE OF SEMINAR ON AERONAUTICAL COMMUNICATION SERVICES IN APAC REGION

(Presented by the Secretariat)

SUMMARY

This paper presents the background and a provisional concept note of the Seminar on Aeronautical Communication Services for APAC Region in 2025 for review and action by the meeting.

1. INTRODUCTION

1.1 Aeronautical communication services constitute a critical component of global air traffic management, ensuring the safety and efficiency of air operations. As the main forum and expert group to deal with ATN related provisions by ICAO, ACSICG (new name of ATNICG since 2013) has coordinated the implementation of ATN in the Asia and Pacific Regions to satisfy performance requirements and address relevant implementation issues since its establishment, it also introduced the CRV concept in 2013, fostered the creation of SWIM TF in 2016.

1.2 The ACSICG also promoted and monitored the ATN/AMHS/AIDC implementation, maintained the publication of AFTN/ATSMHS Routing Directory for Asia and Pacific Regions, supported the concept of space-based VHF, developed the Aeronautical Mobile Service (AMS) Strategy for the Asia/Pac Region, as well as the Strategy for Implementation of the Air-Ground Data Link in the Asia/Pac Region, facilitated the development of Asia/Pacific Region AFTN/AMHS-Based Interface Control Document for Air Traffic Flow Management, and exercised every effort to push the States to upgrade AMHS to carry IWXXM traffic.

1.3 ACSICG was established with a target to complete implementation of Asia and Pacific (APAC) Aeronautical Telecommunication Network (ATN) and voice/data service to support the evolving ICAO operational requirements for the dynamic exchange and management of aeronautical information, with the rapid change of communications technology in supporting G-G and A-G solution/application, it is deemed necessary to revisit the Terms of Reference (ToR) of ACSICG to align the tasks and deliverables with the emerging requirements. Therefore, ACSICG/10 proposed a revised ToR for this expert group, which was adopted by CNS SG through Decision CNS SG/27/03.

1.4 In the process of preparing ACSICG/11, there was a discussion on organizing a one-day workshop in conjunction with the meeting. Considering ACSICG/11 will focus on AMHS supporting IWXXM and has planned a joint session with MET/IE WG, the Secretariat suggested to host a Seminar on Aeronautical Communication Services in 2025 for APAC region.

2.   DISCUSSION

2.1   To promote a better understanding of the challenges and future development tendency in Aeronautical Communication provisions, the Meeting is invited to discuss how to organize a Seminar to share individual implementation experiences, latest updates at global and regional level, and deliberate on concerned topics/issues among the Asia/Pacific Member States against the revised Terms of Reference (ToR) of ACSICG, which is provided in **Appendix A** to this paper for easy reference. Some background information is provided in the following paragraphs for consideration during the planning process of the Seminar.

AN-Conf. 14

2.2   The Fourteenth Air Navigation Conference has been scheduled from 26 August to 6 September 2024 in Montreal with the theme "*Performance Improvement Driving Sustainability*". The Conference will discuss Air navigation system performance improvement under Agenda Item 3, including Phasing out legacy systems and the Eighth Edition of the Global Air Navigation Plan (GANP). Under Agenda Item 4: Hyper-connectivity of air navigation system, the Conference will discuss Connected aircraft concept and associated challenges and Cybersecurity and information system resilience. The Conference provides a forum to describe the work that is already prioritized and underway in the ICAO 2023-2025 Business Plan; understand new priorities for ICAO's future work; and offer timely direction to the Organization as it prepares to present a Business Plan to the 42nd Session of the Assembly (A42) in 2025 that sets out a reprioritized work programme and the related resources required.

Outcome of ANW-ATM

2.3   The *Air Navigation World - ATM procedures for Today* was held from 23 to 27 October 2023 in Singapore. The objective of this ICAO event was to facilitate global ATM implementation through focused knowledge sharing of mature, tried and tested ATM procedures in a practical how-to manner. The sessions considered current technologies and procedures to support the evolution of ATM to meet the expectations of the aviation community, with an eye on the future, and in line with the long-term global aspirational goal for international aviation of net-zero carbon emissions by 2050. From the discussion on ATS Data Link during Session 3.4, it was noted that *AIDC will be instrumental in the ATC coordination, until FF-ICE covers all phases of flight.* In closing the event, C/ATM of ANB highlighted some points, for ATS data link, it is *Without A-G data link, there is no TBO; AIDC will still be required even when FF-ICE/R1 is implemented*; for Transition from FPL 2012 to FF-ICE, it is *Without FF-ICE, there is no TBO; Longer duration of mixed mode will delay realization of benefits*.

Future Connectivity for Aviation White Paper

2.4   The European Union Aviation Safety Agency, the Federal Aviation Administration, Airbus and Boeing have launched a joint cooperation initiative to rethink aviation connectivity, defining a blueprint for the modernisation and harmonisation of the aviation data communication landscape by 2035. The White Paper by EU/US task force was published in November 2022, which can be accessed at : https://www.easa.europa.eu/en/document-library/general-publications/future-connectivity-aviation The present white paper offers a jointly proposed vision for the future aviation connectivity landscape which is based on the combination of aviation specific solutions (VHF datalink and higher performance L-band SATCOM) - that will offer guaranteed safety and performance - with commercial, non-aviation specific solutions - that are expected to provide for high capacity and economic efficiency.

User Requirements for Air Traffic Services by IATA

2.5   In December 2023, International Air Transport Association (IATA) published its *User Requirements for Air Traffic Services (URATS) Volume 2 Edition 4.0,* which can be accessed at

https://www.iata.org/contentassets/badbfd2d36a74f12b021c9dd899ecbad/iata_urats_v2_e4_dec_2023
.pdf . This document provides international airline perspectives on Communications, Navigation, and Surveillance (CNS) technologies. In general, the positions reflected in this document seek to maximise existing aircraft capabilities and support implementation of new technologies when and where operationally justified. In the "**C**" domain airlines seek to benefit from:

- Broadband communications including some non-traditional options.
- Technological resilience.
- Seamless operations.
  o For example, automated and transparent switching between networks, antennas, technologies and protocols.

Job Cards of CP-DCIWG

2.6   The Communications Panel (CP) - Data Communications Infrastructure Working Group (DCIWG) is known as "specific" working groups within the CP which is tasked to maintain the current ICAO communication provisions and advise the Air Navigation Commission (ANC) and provide the recommendations for future aeronautical communications. As the infrastructure to support aeronautical communications is complex, the DCIWG is supported by a number of Working Groups and Project Teams, which are in turn supported by a number of sub-groups. The working programme of Panels for a given time are mainly defined by Job Cards once they are approved by the ANC. The active Job Cards for DCIWG covered the following global topics: **CP.001.01** Global Data Link Implementation Strategy; **CP-DCIWG.006.04** Provisions on the exchange of information using the aeronautical telecommunication network over the internet protocol suite**; CP-DCIWG.007.05** SARPS and guidance on Air Navigation (Cyber) Resilience; **CP-DCIWG.009.03** Satellite Communication Systems in support of ASBU Blocks 1 and 2; **CP-DCIWG.010.02** Future L-Band Terrestrial Data Link System; **CP-DCIWG.011.01** Aeronautical satellite communication technologies and systems operating in VHF frequency band.

ICNSS project

2.7   The Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) project focusses on identifying a new and streamlined framework for CNSS standardization and better decision-making processes to achieve consensus and accelerate the development and rollout of state-of-the-art aeronautical CNS services. The goal is to support the medium and long-term evolution of CNS systems by providing an overall systems improvement thus continuing to serve aviation with the high uptime and resilience necessary to maintain aviation's stringent safety record while remaining a responsible user of the spectrum resource. The Technical Commission of the 41st Session of the Assembly (A41) reviewed A41-WP/58, presented by the Council, which contained information on progress achieved by the project. The ICNSS project is to propose a set of recommendations for endorsement by A42. For further information, an initial draft report of the integrated CNS and spectrum global concept can be found at the ICNSS project website.

2.8   With aforementioned, a provisional Concept Note for the APAC Seminar on Aeronautical Communication Services in 2025 is proposed in **Appendix B** to this paper. The detailed Seminar programme will be developed in coordination with the States/Administrations and other stakeholders after the adoption of the Concept Note by the Meeting.

3.   **ACTION BY THE MEETING**

3.1   The meeting is invited to:

a) note the information contained in this paper;

b) review and update the provisional Concept Note in **Appendix B**;

c) nominate/recommend experts, in particular with working experience in CP to

support this Seminar;

d)   engage industry for required expertise by the Seminar; and

e)   discuss any relevant matter as appropriate.

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NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

1. The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

a)	~~Text to be deleted is shown with a line through it.~~	text to be deleted in
b)	New text to be inserted is highlighted with grey shading.	new text to be inserted in
c)	~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

REVISED TERMS OF REFERENCE FOR AERONAUTICAL COMMUNICATION SERVICES IMPLEMENTATION CO-ORDIANTION GROUP (ACSICG)

The Objectives of the APAC ACSICG are to:

1) *Complete implementation of Asia and Pacific Regions (APAC) Aeronautical Telecommunication Network (ATN) and voice/data service to support the evolving ICAO operational requirements for the dynamic exchange and management of aeronautical information.*

2) *Ensure continuous and coherent development of the aeronautical communication services and infrastructure of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan.*

3) *Facilitate the implementation, enhancements, operation and maintenance of aeronautical communication services and infrastructure identified in the Aviation System Block Upgrades (ASBU) elements and Asia/Pacific Seamless Air Navigation Service (ANS) Plan (APSAP) elements using the project management principles where appropriate.*

4) *Review, identify and address major issues in technical, operational, safety and regulatory aspects to facilitate the implementation or provision of safe, secure, efficient and orderly aeronautical communication services to enhance systems robustness, resilience, interoperability and cybersecurity.*

5) *Encourage collaboration among ANSPs and keep abreast of the latest developments in aeronautical communication services and infrastructure to cope with forthcoming development and implementation so as to reduce operating costs and enable quick implementation of new requirements to cope with new challenges.*

Deliverables to meet the Objectives:

1) To submit progress report to the ICAO APAC CNS Sub-group while keeping ATM Sub-group , MET Sub-group informed of addressing the APAC ACSICG deliverables (listed in 2 to 7 below);

2) To support the ICAO in making specific recommendations and developing guidance materials, such as general/specific regional requirements, which aim at facilitating the implementation or

provision of safe, secure and performance based aeronautical communication services by the use of existing and/or new procedures, facilities and technologies;

3) To review outcome of the AN-Conf., DGCA Conference, APANPIRG and its contributory bodies, ~~CNS Sub-group, ATM Sub-group, MET Sub-group, RASMAG, FIT-Asia, SWIM TF and ATMAS TF~~ related to aeronautical communication services and infrastructure, revise and update a tasks list and action items for the ACSICG;

4) To facilitate and coordinate the implementations of aeronautical communication services and infrastructures within the Asia/Pacific Regions to support existing and evolving aeronautical applications, including
- *inter-facility communications,*
- *datalink implementations,*
- *air/ground communications*
- *ground/ground communications*
- *etc.*

5) To Monitor the progress of aeronautical communication service and infrastructure implementation and provide regular updates ~~to stakeholders~~.

6) To provide guidance on the implementation of aeronautical communication services in accordance with relevant standards and regulations, facilitate sharing of information and recommend the best industry practice to Asia/Pacific States and aviation stakeholders on the progress of the development, standardization, and implementation of ICAO provisions relating to aeronautical communication services and infrastructures.

7) To encourage research and development, trials and demonstrations of applications and technologies, and, as necessary, steer for the sharing of this information and expertise between States/Administrations through organizing educational seminars and symposia to educate States/Administrations and airspace users;

8) To formulate draft Conclusions and Decisions relating to matters in the field of aeronautical communication services that come within the scope of the APANPIRG work plan;

9) To develop Asia/Pacific regional input and suggestions relating to the implementations and global standardization of aeronautical communication services and infrastructures to be submitted through the CNS Sub-group for APANPIRG consideration and endorsements, in support of ICAO technical panels' developments and implementations of ICAO SARPs; and

10) To collaborate with relevant international organizations (such as EUROCONTROL) for harmonisation of aeronautical communication services and infrastructures requirements.

Timeframe for Deliverables:

For deliverable items, the guidance materials and progress reports would be developed, updated/enhanced on an on-going basis and be made available as appropriate subject to review by the ACSICG. The life time of the ACSICG would be subject to review against the implementation and operation of all identified aeronautical communication services.

Meeting:

The APAC ACSICG shall convene annually, to review progress and address any issues that arise during implementation, at least one face-to-face meeting per year, which is supplemented by teleconference meetings (e.g. MS Teams, ZOOM or WebEx) as appropriate.

Membership:

All APAC member States/Administrations providing air navigation services in the Asia and Pacific Regions. APAC members should nominate Subject Matter Experts from Civil Aviation Authorities, ANSPs, and other organizations with strong background in engineering and operation in relation to aeronautical communication services and infrastructures requirements to participate into the ACSICG. The ACSICG would also invite representatives of International Organizations recognized by the ICAO Council and Industry partners as required by the group which represent important civil aviation interests to participate in its work in a consultative capacity.

Reporting
The Group will present its report to APANPIRG through the CNS Sub-group.

Seminar on Aeronautical Communication Services for APAC

Hosted by ICAO Asia and Pacific Office

Title:

**Advancements and Challenges in Aeronautical Communication Services:
Navigating the Future**

Date: <mark>2 Days</mark> in Q3 2025 or back-to-back with ACSICG/12

Location: Bangkok or TBD

1.   **Background**

Aeronautical communication services constitute a critical component of global air traffic management, ensuring the safety and efficiency of air operations. With rapid technological advancements and increasing air traffic complexity, these services face new challenges and opportunities. This seminar aims to bring together experts, industry leaders, regulators, <mark>and academia</mark> to discuss the latest developments, address challenges, and explore the future landscape of aeronautical communication services.

2.   **Objective**

The Seminar is intended to:

- provide a comprehensive overview of the current state of aeronautical communication systems globally.

- discuss the latest technological advancements and their implications for the future of aeronautical communications.

- explore challenges, including spectrum management, cybersecurity threats, and the integration of new technologies into existing frameworks.

- facilitate knowledge sharing and best practices among different stakeholders.

- develop a forward-looking perspective on the role of aeronautical communication in enhancing air traffic management efficiency and safety.

3.   **Target Audience:**

- ACSICG members

- Representatives from ICAO and other international bodies

- Communication technology providers and innovators

4.   **Agenda Highlights:**

Session 1: Setting the Scene

- Opening Remarks - Regional Director of ICAO APAC Office

-     Keynote Address: The Evolving Landscape of Global Aeronautical Communication - Challenges and Opportunities. – speaker: TBD

Session 2: Implementation Expectations and Challenges

-     Aeronautical Communication Implementation in APAC – speaker: ICAO APAC RO

-     Airspace users' perspective - speaker: IATA

-     ICNSS update – ANB CNSS

-     MPLS/IP based inter-regional connection –

Session 3: Technological Innovations in Aeronautical Communication

    - Satellite Communications, Data Link Services, L-DACS and Beyond.

-     Future Connectivity for Aviation – FAA/EASA

-     Space-based VHF – TBD

-     Industry presenters (e.g. SITA, PCCWG, Frequentis,…)

Session 4: Cybersecurity in Aeronautical Communications

- Addressing the Vulnerabilities.

- Trust Framework

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Session 5: Case Studies

- Lessons Learned and Best Practices.

- FAA

- Thailand

-Singapore

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Session 6: Nvigating in the transition

- Networking Event: Opportunity for attendees to network and discuss potential collaborations and innovations.

- Wrap up and closing

5. **Expected Outcomes:**

- Enhanced understanding of the current and future technologies in aeronautical communications.

- Identification of key challenges and potential solutions in implementing advanced communication systems.

- Strengthened collaboration among industry stakeholders for the development of secure, efficient, and sustainable communication services.

- Actionable insights for policymakers and regulatory bodies to adapt to the evolving needs of aeronautical communication.

- Publication of a post-seminar report summarizing key findings and recommendations.