



ICAO

*International Civil Aviation Organization***Twenty Eighth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/28)
of APANPIRG***Bangkok, Thailand, 01 July - 05 July 2024*

Agenda Item 2: Review outcomes of APANPIRG, APAC ANSP Committee, ATM Sub-group, MET Sub-group and other meetings relevant to CNS Sub-group

REVIEW OF RELEVANT MEETINGS

(Presented by the Secretariat)

SUMMARY

The paper presents the relevant outcomes of the meetings held in 2023 including the Thirty-Fourth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/34), the Twenty Seventh Meeting of Communication, Navigation, and Surveillance (CNS SG/27), for information and action by this meeting.

1. INTRODUCTION

1.1 The Thirty-Fourth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/34) was held at the Hong Kong Civil Aviation Department (HKCAD) Headquarters Auditorium *from 11 to 13 December 2023*, which was graciously hosted by Hong Kong, China. The Meeting was attended by **146** participants from **26** Member States, 2 Special Administrative Regions of China, and **7** International Organizations. The APANPIRG/34 meeting report, working papers, information papers, and other resources can be accessed by following link:

<https://www.icao.int/APAC/Meetings/Pages/2023-APANPIRG-34.aspx>

1.2 The Twenty Seventh Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/27) of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) was held at the ICAO APAC Regional Office, Bangkok, Thailand, *from 28 August to 1 September 2023*. The Meeting was attended by **108** participants (94 In Person + 14 virtual) from **24** States/Administrations, **3** International Organizations, and **2** industry partners. The Meeting report and other documents of the meeting can be accessed at ICAO APAC Meeting webpage at:

<https://www.icao.int/APAC/Meetings/Pages/2023-CNS-SG-27.aspx>

1.3 The APANPIRG/34 Meeting reviewed the outcomes of CNS SG/27, noted with appreciation the following work done and achievements by the CNS SG and the contributory bodies reporting to APANPIRG through the CNS SG. APANPIRG/34 also discussed CNS related matters and acted on the Report of the CNS SG/27 meeting and other papers presented under Agenda Item 3.4.

1.4 This paper summarized relevant information and updates with the highlight of the reviewed outcomes of relevant discussions of CNS SG/27 during APANPIRG/34.

2. DISCUSSION

The actions taken by APANPIRG/34 meeting on CNS related matters are as follows:

2.1 The meeting noted that the CNS SG/27 meeting adopted the following **8** Conclusions and **2** Decisions:

Reference	Subject
Conclusion CNS SG/27/01 (ACSICG/10/01)	- Adoption of the Asia/Pacific Regional ATN Documentation Tree
Conclusion CNS SG/27/02 (ACSICG/10/04)	- Telecommunication Infrastructure Table
Decision CNS SG/27/03 (ACSICG/10/06)	- Revised ToR of Aeronautical Communication Services Implementation Coordination Group (ACSICG)
Conclusion CNS SG/27/05 (SRWG/7/1)	- Asia Pacific Regional Aeronautical Radio Frequency Management Guidance Material Edition 1.0
Conclusion CNS SG/27/06	- Revised GBAS safety assessment guidance document related to anomalous ionospheric conditions
Conclusion CNS SG 27/07	- Revised SBAS safety assessment guidance document related to anomalous ionospheric conditions
Conclusion CNS SG/27/08	- Extension of the Asia/Pacific GBAS/SBAS Implementation Task Force to complete tasks as per ToRs of GBAS/SBAS ITF
Conclusion CNS SG/27/11 (SURICG/8/2 (Mode S and DAPs WG/6/2))	- Mode S DAPs IGD Edition 5.0
Decision CNS SG/27/12 (SURICG/8/4)	- Revised ToR of Surveillance Implementation Coordination Group (SURICG)
Conclusion CNS SG/27/13	- Regional Guidance Document for Addressing Human Factor Issues of ATSEP

2.2 The contents of above Conclusions/Decisions adopted by the CNS SG/27 are provided in **Attachment A** to this paper.

2.3 Based on the outcome of discussions on various agenda items, the CNS SG/27 meeting developed **3** Draft Conclusions for consideration by APANPIRG/34 Meeting, which were further adopted by APANPIRG/34. The Conclusions/Decisions adopted by APANPIRG/34 are as follows:

Reference	Subject
Conclusion APANPIRG/34/9 (CNS SG/27/04 (SWIM/TF/07/04))	- Asia/Pacific Regional FIXM version 4.2 Extension
Conclusion APANPIRG/34/10 (CNS SG/27/09)	- Revised Navigation Strategy- APAC
Conclusion APANPIRG/34/11 (CNS SG/27/10 (SURICG/8/1 (Mode S and DAPs WG/6/1)))	- General Strategy on Assignment of and Migration to SI Code in the APAC Region

2.4 All APANPIRG/34 Conclusions related to CNS are provided in **Attachment B** to this paper.

2.5 APANPIRG/34 further noted that the CNS SG had identified several action items related to CNS. Member States were encouraged to follow up on CNS-related action items resulting from the relevant meetings.

2.6 The following paragraphs capture the highlights of discussions in APANPIRG/34 relevant to this meeting.

Aeronautical Fixed Service (AFS)

Outcome of ACSICG/10

2.7 CNS SG/27 reviewed the various topics discussed in ACSICG/10, updated the AMHS/ATN implementation status in States and reviewed the outcomes of the ICAO Asia Pacific Idea Generation Workshop and CRV OG/11 meetings.

2.8 CNS SG/27 reviewed the Decision CRV OG/11/01 - *Publish the updated APAC CRV Operations Manual (CRV OG OM v1.2)* and the Decision CRV OG/11/02 - *Update to the CRV Implementation Plan*, further updated and adopted the Asia/Pacific Regional ATN Documentation Tree through **Conclusion CNS SG/27/01 (ACSICG/10/01)**, and noted the definition of CRV users in concurrence with MET SG experts. To follow up the **Conclusion APANPIRG/33/7 - Extension of CRV Contract for one year**, Member States are urged to initiate a service order with the PCCW Global for CRV implementation as early as possible, on or **before 31 December 2023** and synchronize the implementation of CRV in the APAC region. CNS SG/27 reviewed the definition of a new Package D+ to enhance the existing Package D option, adopted the [Telecommunication infrastructure table](#) through **Conclusion CNS SG/27/02 (ACSICG/10/04)** and agreed to stop updating Table CNS II-1 and II-2 in APAC e-ANP Volume II in the APAC region, supported the global dissemination of meteorological information in IWXXM format by prioritizing the implementation of intra- and inter-regional aeronautical communication services and network circuits, and updated the ACSICG ToR as **Decision CNS SG/27/03 (ACSICG/10/06)**.

Other AFS-related topics

2.9 CNS SG/27 supported the suggestion for MID States to join CRV and the potential benefits to both regions and agreed that the ICAO Secretariat would coordinate with the MID office and PCCWG to take follow-up actions. The Meeting also noted the discussions on challenges and requirements for supporting future services, including SWIM, in an Internet Protocol Suite (IPS) environment.

Information Management (IM)

Outcomes of SWIM TF/7

2.10 The CNS SG/27 reviewed the Report of the Seventh Meeting of System Wide Information Management Task Force (SWIM TF/7), held from 09-12 May 2023.

2.11 Considering a way forward to meet the 2024 Asia/Pacific SWIM implementation timeline, the SWIM TF/7 Meeting established an ad-hoc group for gathering the guidance materials, adopted the **Decision SWIM/TF/07/02 - Additional SWIM TF Plenary Meeting in the 2nd Half of 2023** – SWIM TF/8 for Three (3) days in continuation to SWIM Business Requirement Brainstorming Working Session for Two (2) days in November 2023, which has been held from 6-10 November 2023 to review the draft guidance materials and provide immediate feedback, and agreed to formulate the SWIM Implementation Pioneer Ad-hoc Group.

2.12 The following **Conclusion**, formulated by SWIM TF/7 and endorsed by CNS SG/27, was further adopted by APANPIRG/34.

Conclusion APANPIRG/34/09 (CNS SG/27/04 (SWIM/TF/07/04)) – Asia/Pacific Regional FIXM version 4.2 Extension	
<p>What: The FIXM version 4.2 Extension provided in Appendix A to Agenda Item 3.4 be:</p> <ul style="list-style-type: none"> a) adopted as the Asia/Pacific FIXM version 4.2 Extension; b) uploaded to the ICAO Asia/Pacific Regional Office website for immediate use by Asia/Pacific Administrations, where the capability to do so exists, for cross-border ATFM information exchange and to support ATFM/A-CDM integration; and c) presented to the FIXM CCB for review and publication on the FIXM official website. 	<p>Expected impact:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
<p>Why: To provide the information exchange model necessary to support cross-border ATFM and ATFM/A-CDM integration in the Asia/Pacific Region, in order to support the implementation of performance objectives of the Asia/Pacific Regional Framework for Collaborative ATFM</p>	<p>Follow-up: <input type="checkbox"/> Required from States</p>
<p>When: 13-Dec-23</p>	<p>Status: Adopted by PIRG</p>
<p>Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: SWIM TF, ATFM SG</p>	

2.13 The SWIM TF/7 Meeting suggested further review and reproduce the SWIM Discovery Service (SDS) specification to accommodate the purpose and requirements of the APAC Region, decided to review the proposed data catalogue and provide suggestions on additional information that should be exchanged through APAC Common Information Services, and agreed to coordinate with the Secretariat of MET SG (MET/IE) to explore options on exchanging MET information derived from Mode S DAPs through IWXXM.

Multi-Regional TBO Demonstration

2.14 The CNS SG/27 meeting was provided with an overview of the Multi-Regional TBO Demonstration, a collaborative project undertaken by Japan, Singapore, Thailand, USA, and Canada to validate the TBO concept as well as to showcase the TBO operational values and key capabilities, both operational and technical, required to support TBO. The CNS SG/27 Meeting agreed to support the collaboration and coordination between the SWIM TF and FF-ICE Operational Requirements Small Working Group (SWG) under ATM SG as well as Workstream 2 - Accelerate the Development and Implementation of Seamless ANS and Collaborate on Green Initiatives to Enhance ANS Sustainability under Asia and Pacific ANSP Committee (AAC) in building the TBO enablers, i.e. SWIM and FF-ICE, in Asia/Pacific.

Aeronautical Mobile Communications Service and Aeronautical electromagnetic spectrum utilization

Outcomes of SRWG/7 and Frequency Spectrum related Issues

2.15 SRWG/7 Meeting agreed to establish an ad hoc expert group to study the allotment plan, analyze the actual usage of allotment registered in Frequency Finder, and identify areas for improvement and noted the Survey Questionnaire: *The Necessity to Implement 128.950MHz for Traffic Information Broadcasts by Aircraft (TIBA)* was circulated on 3 May, 2023 and replies will be processed and reported to SRWG/8.

2.16 CNS SG/27 reviewed the questionnaire results on introducing 50 kHz channel spacing for ILS and VOR facilities in the APAC Region, explored the latest work, enhancements and functionalities brought to the Frequency Finder (FF) tool to assist in managing and coordinating aeronautical frequency assignments and SSR Mode S II/SI codes, endorsed *Frequency List No.: 2 – Thirty Sixth Edition, March 2023*, and adopted the Asia Pacific Regional Aeronautical Radio Frequency Management Guidance Material Edition 1.0 through **Conclusion CNS SG/27/05 (SRWG/7/1)**.

2.17 The Meeting noted the other discussions in CNS SG/27 regarding Aeronautical Mobile Communications Service and Aeronautical electromagnetic spectrum utilization, including the Report of the Workshop on International Telecommunication Union (ITU) World Radiocommunication Conference 2023 (WRC-23 Workshop) / Regional Preparatory Group (RPG) Meeting for WRC-2023, main activities and achievements of the first Meeting of the Communication Panel/Data Communication Infrastructure Working Group-M (Maintenance) (CP-DCIWG-WG-M/1), the progress of the technical and regulatory studies of space-based VHF communications (voice and data) in the frequency band 117.975 – 137 MHz in International Telecommunication Union (ITU), Future VHF Subgroup (FVSG), Future VHF Subgroup (FVSG), and Proof-of-Concept (PoC) Demonstration, the updated ICAO Position for the ITU WRC-23, the latest draft of guidance material on the Protection of Radio Altimeter from Potential Harmful Interference from Cellular 5G Communications, and latest actions on the APAC VHF COM Frequency Allotment Plan, and outcome of the Sixth Meeting of Asia-Pacific Telecommunity (APT) Conference Preparatory Group for World Radiocommunication Conference 2023 (APG23-6).

Navigation

Outcomes of PBNICG/10 Meeting

2.18 APANPIRG/34 noted the global PBN implementation status at international airports presented by the secretariat in PBNICG/10. The current implementation status of the global PBN implementation status as available in ICAO iSTARS was presented. ICAO informed that implementation of APV procedures for all instrument runways ends by 2016, the key requirement of ICAO Assembly Resolution A37-11, was behind global achievement.

2.19 ICAO Council adopted ICAO SARPs for dual-frequency multi-constellation (DFMC) GNSS in March 2023 to improve overall safety, capacity and efficiency by providing better navigation performance and availability. The DFMC GNSS SARPs will introduce the next generation of GNSS for aviation, such as two entirely new GNSS constellations, Galileo (Europe) and BeiDou (China).

2.20 The Meeting was also informed the PBNICG/10 Meeting compared the pros and cons of Baro-VNAV approaches and reviewed the concept of Established on RNP AR APCH.

Outcomes of GBAS/SBAS ITF/5 Meeting

2.21 The *revised GBAS safety assessment guidance document related to anomalous ionospheric conditions (Edition 2.0)* was reviewed and endorsed by the CNS SG/27 through **Conclusion CNS SG/27/06**, while, the *Revised SBAS safety assessment guidance document related to anomalous ionospheric conditions (Edition 2.0)* was endorsed by CNS SG/27 through **Conclusion CNS SG 27/07**.

2.22 To complete the remaining tasks with high priority in the Action List, including GBAS and SBAS implementation guidance documents, Workshop/Meeting for APAC airspace users and regulators, and Discussion and deliberation on technical issues in relation to GBAS/SBAS Safety Assessment and Performance Demonstration, and considered essential for fulfilling the objectives stated in the Terms of Reference (ToRs) of the APAC GBAS/SBAS ITF, the CNS SG/27 adopted **Conclusion CNS SG/27/08** to extend the period of Asia/Pacific GBAS/SBAS Implementation Task Force for another 3 years (i.e., up to 2026).

Revised Navigation Strategy for Asia Pacific Region

2.23 CNS SG/27 reviewed the proposal to revise the Navigation Strategy for the Asia/Pacific Region in view of the latest development in GNSS navigation, which was adopted via Conclusion APANPIRG/27/37 in 2016. APANPIRG/34 further reviewed and adopted the following Conclusion:

Conclusion APANPIRG/34/10 (<i>CNS SG/27/09</i>) - Revised Navigation Strategy- APAC		
What: Draft Revised Navigation Strategy-APAC in view of the latest development in GNSS navigation provided in Appendix B to Agenda Item 3.4 be adopted.		Expected impact: <input checked="" type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To update the revised Navigation Strategy-APAC	Follow-up: <input type="checkbox"/> Required from States	
When: 13-Dec-23	Status: Adopted by PIRG	
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: -		

2.24 The adopted Revised Navigation Strategy-APAC is provided in **Attachment C** to this paper for easy reference.

Other Navigation Issues

2.25 The CNS SG/27 was informed of the status of BeiDou Navigation Satellite System (BDS) standardization in ICAO, including the BDS SARPs endorsement progress, the BDS-related contents in GNSS manual revision, and BDS-related requirements development and validation in

ARAIM SARPs.

Surveillance

Outcomes of SURICG/8 Meeting

2.26 CNS SG/27 reviewed the outcomes of SURICG/8 including the achievements made by the Sixth Meeting of the Mode S Downlinked Aircraft Parameters Working Group (Mode S and DAPs WG/6) and the Third Meeting of the Surveillance Study Group (SURSG/3), and the discussions during the ICAO Aircraft Address and Target Identification in Surveillance Data and Flight Plan Workshop.

2.27 To synchronize the APAC region on the general principles applied for assignment of and migration to SI codes, the following Conclusion, which was formulated by Mode S and DAPs WG/6 Meeting and endorsed by CNS SG/27, was further adopted by APANPIRG/34.

Conclusion APANPIRG/34/11 (CNS SG/27/10 (SURICG/8/1 (Mode S and DAPs WG/6/1))): General Strategy on Assignment of and Migration to SI Code in the APAC Region	
What: The General Strategy on Assignment of and Migration to SI Code in the APAC Region provided in Appendix C to Agenda Item 3.4 be adopted.	Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To synchronize the APAC region on the general principles applied for assignment of and migration to SI codes.	Follow-up: <input type="checkbox"/> Required from States
When: 13-Dec-23	Status: Adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: -	

2.28 A full copy of the adopted General Strategy on Assignment of and Migration to SI Code in the APAC Region is reproduced in **Attachment D** to this paper.

2.29 The CNS SG/27 adopted the Mode S DAPs IGD Edition 5.0 as **Conclusion CNS SG/27/11**, agreed to dissolve the Mode S and DAPs Working Group, and endorsed **Decision CNS SG/27/12 - Revised ToR of Surveillance Implementation Coordination Group** to reflect the change due to the dissolution of Mode S and DAPs WG. The Mode S DAPs IGD Edition 5.0 has been published at <https://www.icao.int/APAC/Pages/eDocs.aspx> under CNS section SUR&ADS-B group.

2.30 The CNS SG/27 discussed the work and progress of updating the coverage charts of ATS Surveillance and Direct Controller and Pilot Communication (DCPC) VHF for the APAC Region, which was expected to be incorporated in the next update of the APAC Seamless ANS Plan, highlighted regional requirements specified in Table CNS II-APAC-3 in APAC e-ANP Volume II, and reviewed the ADS-B Implementation Status in the APAC Region.

Automation

Outcome of ATMAS TF/4 Meeting and ATM Automation System related Issues

Seminar on Air Traffic Management Automation System

2.31 The Seminar on Air Traffic Management Automation System was organized in conjunction with the ATMAS TF/4 meeting on 27 June 2023. The objective of the Seminar is to promote a better understanding of the future development tendency of the Air Traffic Management

Automation System (ATMAS), highlight the importance of GANP and the relevant ASBU blocks such as FF-ICE, SWIM, etc., consider contingency plan for any emergency situations, share individual valuable implementation experiences, and deliberate on concerned topics/issues among the Asia/Pacific (APAC) Member States.

Architecture Design to Address System Upgrade and Interoperability Challenges

2.32 Singapore shared the constraints of current system architecture to meet the needs for frequent system upgrades and encouraged the use of open architecture and modern technologies to improve the implementation of upgrades and interoperability in the modernization of ATM systems.

Repository of the ATMAS in APAC

2.33 The updated table of the ATMAS Status in the APAC region was presented. Based on the ATM automation systems status collected, the preliminary analysis of the key performance indicators on the ATMAS Repository has also been summarized for meeting review. The ATMAS TF/4 meeting was also advised to note the possibility to develop a table for regional ANP to record the status and future planning of ATMAS implementation in the APAC region.

Updates to the Air Traffic Management Automation System Implementation and Operations Guidance Document

2.34 China, Hong Kong China, and Singapore presented the revised draft (Edition 1.3) of the Air Traffic Management Automation System Implementation and Operations Guidance Document (ATMAS IGD). The new draft includes activities and experience about Flight Inspection by adding a new chapter, System Readiness for consideration and endorsement by the meeting. Based on the additional comments by New Zealand and Philippines during the meeting, the ATMAS IGD was further updated for final review by the ATMAS TF/4 meeting. The ATMAS TF/4 meeting adopted the revised ATMAS IGD through **Conclusion ATMAS TF/04/01** - ATMAS IGD Edition 1.3.

Repository of AIDC Implementation Status in APAC

2.35 To follow up the ACTION ITEM 7-1 of APA TF/7, the Meeting reviewed and updated the latest repository of AIDC Implementation Status in APAC region, and noted the preliminary analysis of the current status.

2.36 The ATMAS TF/4 meeting discussed the proposals raised by ACSICG/10 and agreed to keep the name of Column 16 as “Coordination by CDN or Voice” but add “Re-coordination or Coordination Negotiation” to the explanation table to avoid ambiguity. Since Column 7 “Transmission Means” has been included in the APAC Air Navigation Plan Volume II, which could reflect the difference of transmission means used for the messages exchanged between the corresponding AIDC pair, the ATMAS TF/4 meeting agreed to keep the item in the AIDC table to make a comprehensive repository.

AIDC Implementation Issues Report

2.37 The ATMAS TF/4 meeting reviewed and discussed the consolidated implementation issues collected and presented by Indonesia with supports by India and Singapore. The meeting was updated that there are no new reported AIDC implementation issues provided in the ATMAS TF/4, while few updates on AIDC implementation issues are reported from India (17 reports) and Singapore (2 reports). Indonesia and Vietnam informed that there are no issues arising since the last ATMAS TF meeting. The number of AIDC implementation issues reported by Member States/ Administration, based on fault categories are as shown in the table below:

Fault Categories	ATMAS TF/4 (2023)		
	Issues Reported	Closed	Open
a. Communication Link	9	8	1
b. ATM System	65	40	25
c. AIDC Message	23	19	4
d. Airspace Design/Procedures	13	10	3
e. Other	6	3	3
Total	116	80	36

Regional implementation review and updates

2.38 APANPIRG/34 noted that CNS SG/27 was updated about the current development status of the new APAC Seamless ANS Reporting Portal, reminded the latest updates by States/Administrations on CNS requirements specified in ICAO APAC e-ANP, and reviewed the regional commitment progress on Beijing Declaration Implementation Related to CNS.

2.39 The CNS SG/27 noted the latest updates by States/Administrations on CNS requirements specified in ICAO APAC e-ANP and reminded States/Administrations to review the data affecting their administration and provide feedback to ICAO on the data's accuracy in requisite format to update the relevant CNS requirements. It was also informed that the TABLE CNS II-APAC-1 ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATION PLAN has been replaced by the repository of AIDC Implementation Status in APAC region (Table of AIDC Implementation Status in APAC) which now is maintained by ATMAS TF and ACSICG on yearly basis.

Preparation of Emergency Equipment for ATC

2.40 The CNS SG/27 was presented by Japan on the operation of a Transportable Radar Control System (TRCS) and Emergency VFR system for ATC (EVA), which enabled the early recovery of ATC systems required for the operation of commercial flights after catastrophes such as earthquake, fire, Tsunami, and the training for the early resumption at the airport.

2.41 The CNS SG/27 recognized the need for regular maintenance and calibration of the contingency system to ensure its availability in emergencies, advised about the importance of a contingency or business continuity plan, only with the plan in place and exercised the ANSP could ensure continuous operation without interruption. The Meeting also encouraged States to join the work of the third work stream of the APAC ANSP Committee, "Collaborate on business continuity and contingency planning".

Asia/Pacific Seamless ANS Plan (the plan) Update

2.42 The CNS SG/27 was presented about the Seamless ANS Plan (the plan) related discussion outcomes from the APANPIRG/33 Meeting and a proposed update of the Performance Improvement Plan of the Asia/Pacific Seamless ANS Plan for initial review by CNS SG. As a way forward, the CNS SG/27 Meeting agreed to form a "CNS related ASBUs review Ad-hoc Group for next edition of Seamless ANS Plan", which will review the proposed ASBUs, prepare a list of CNS related ASBUs to include in the plan, share interim report to APANPIRG/34, and seek consent from CNS SG/28. The Meeting agreed that the available timelines to complete the task are very difficult to accomplish. Therefore, an ad-hoc group will try its best to fulfill the expectations by preparing revised content for providing an interim report to APANPIRG/34.

Status of CNS Deficiencies

2.43 The CNS SG/27 meeting reviewed the only outstanding issue on the list of Air Navigation Deficiencies in the CNS field, which was related to the unreliability of AFS communication between Afghanistan and Pakistan.

Capacity Building

Study on Human Factor Issues of ATSEP

2.44 APANPIRG/34 noted the revised regional ATSEP human factor guidance document was reviewed and adopted by CNS SG/27 Meeting through **Conclusion CNS SG/27/13 - Regional Guidance Document for Addressing Human Factor Issues of ATSEP**. The Guidance document is prepared for the improvisation of the existing human resource management process towards ATSEP to address the factors adding stress and fatigue, improving job performance, and achieving organizational resilience and cost benefits. It was further noted that IFATSEA agreed to update the guidance document's contents continuously and promote the guidance material in the other regions and in the ICAO Assembly in the coming days.

ATM Infrastructure Operations Capability Building in Lao PDR

2.45 The ICAO funded Implementation Support Project in Lao People's Democratic Republic (Lao PDR) - ATM Infrastructure Operations Capability Building was successfully conducted from October 2022 to May 2023, which was managed by the ICAO APAC Office as Special Implementation Projects under ANB. The onsite support was contributed by expert team from ATMB of CAAC. A Technical Evaluation Report was produced by ATMB, which summarized the project background and work plans and provided a comprehensive and systematic analysis of CNS implementation in Lao PDR.

Cybersecurity of CNS/ATM systems

Update on Trust Framework Activities - the Secretary of the Trust Framework Panel

2.46 CNS SG/27 meeting noted an update on ICAO's activities regarding the trust framework, focusing on establishing the Trust Framework Panel (TFP), its work program, and the outcomes of the panel's first Meeting in April of 2023.

Innovation and New Technologies

Uniting the Strength of Innovation for Building a Seamless Sky - the Asia Pacific Region Innovation & Capacity Building Symposium 2023 (APICS 2023)

2.47 CNS SG/27 meeting noted the initiatives by China and Hong Kong China, supported by the ICAO Regional Office, in organizing APICS 2023 to support the ICAO core strategy in innovation and global initiatives in capacity building.

Update on the Implementation of the ICAO Secretariat Strategy on Innovation

2.48 CNS SG/27 meeting noted an overview of the actions undertaken under the scope of the implementation of Resolution A40-27 - *Innovation in Aviation* and highlighted upcoming initiatives of relevance to the APAC Region, which will span across the 2023-2025 triennium.

CNS Works and Other Business

CNS Points of Contact

2.49 The CNS SG/27 meeting reviewed the CNS Points of Contact of Member States and requested States/Administrations to update points of contact of CNS contingency planning and administrative support for effective and efficient coordination in the CNS aspect.

CNS Challenges in 2024

2.50 Apart from the outcomes of CNS SG/27, APANPIRG/34 noted some CNS challenges which would be further discussed in 2024, including ADS-B implementation in LDCs, GNSS interference, AMHS support for IWXXM information traffic, and Aeronautical frequency use for oil rigs.

2.51 The Secretariat informed the meeting that the GNSS issues went beyond signal interference leading to serious occurrences related to signal jamming and spoofing. The meeting noted that the matter would be addressed by the relevant ICAO expert groups in Headquarters for a global solution.

2.52 The APANPIRG/34 also discussed and noted the following papers under AI 3.4:

Leveraging Innovative Technologies to Support Safe, Secure and Efficient Facilities Management for Outlying Critical Aeronautical Infrastructures (WP/20) - Hong Kong China

2.53 Hong Kong China shared its experience in conducting trials to explore potential applications and benefits of using innovative technologies to enhance facilities management of outlying Critical Aeronautical Infrastructures (CAI), and encouraged States/Administrations to consider adopting cost-effective innovative technologies with a view to further enhancing safety, security and efficiency in air navigation. Examples of Inspection by Drones to Reduce Occupation Safety and Health (OSH) Hazards, AI-powered Defect Detection, Reality Capture for Building a Realistic 3-dimensional (3D) Model, and AI-powered VA with Detection of Potential Intrusion have been introduced, respectively.

2.54 ROK supported the effort by Hong Kong China and highlighted the value of AI and digitization to improve operational safety and efficiency of air navigation services.

Implementation of Licensing and Rating for Air Traffic Safety Electronics Personnel in Indonesia (WP/22)

2.55 Indonesia shared the proposal for potentially integrating the Air Traffic Safety Electronic Personnel (ATSEP) System provision into ICAO Annex 1 Personnel Licensing. The Meeting was informed that *ICAO Annex 1 Personal Licensing* does not mention licensing requirements and procedures for ATSEP. Therefore, ICAO Member States develop their standards and requirements for ATSEP to ensure that the personnel are well-trained, qualified, and competent for the maintenance and operation of the advanced technology and complex system. The Meeting noted that a similar discussion was raised in the CNS SG/27 meeting about IFATSEA initiation to identify the ATSEP provision to incorporate in Annex 1. To standardize the ATSEP personnel licensing system worldwide to overcome the diversity of national requirements and regulations, Indonesia proposed that the ATSEP personal licensing system be included in Annex 1.

2.56 ICAO HQ informed that the Personnel Training & Licensing Panel (PTLP) is deliberating the licensing requirements of ATSEP and AIS personnel, along with reviewing the ICAO

provisions concerning training and personnel licensing in Annex 1 - Personnel Licensing and PANS-Training. The Meeting encouraged APAC States/Administrations to share experiences of their ATSEP Personnel Licensing System if applicable and requested ICAO to facilitate sharing experiences related to ATSEP personnel Licensing System shared by APAC States. Additionally, the Meeting recommended that ICAO HQ continue deliberating on potentially incorporating the ATSEP Personnel Licensing System into ICAO Annex 1 – Personnel Licensing and share updates with APANPIRG in further meetings.

Air Traffic Safety Electronics Personnel Licensing System in Indonesia (IP/06)

2.57 APANPIRG/34 noted the information provided by Indonesia on its' Air Traffic Safety Electronics (ATSEP) Personnel Licensing System. Indonesia shared the general requirements concerning ratings and licenses for ATSEP Personnel, the general process of ATSEP training and competency assessment, and the roles of ANSP and DGCA.

Update on PBN Implementation and the Reduction of Carbon Emission (IP/09) - Indonesia

2.58 APANPIRG/34 noted the progress of PBN in Indonesia and its role in reducing carbon emissions in aviation. The Meeting noted that Indonesia has implemented PBN for enroute, terminal, and approach. In addition, Indonesia has calculated the reduction of carbon emissions from PBN implementation and predicted the decrease in carbon emissions by implementing PBN for the next 5 years. It was estimated that the continuation of the implementation of PBN can improve the reduction of carbon emissions by $\pm 10\%$ in the next 5 years (optimistic prediction).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the outcome of the APANPIRG/34, CNS SG/27, and relevant contributory bodies, and take any necessary follow-up actions; and
- b) discuss any relevant matters as appropriate.
