International Civil Aviation Organization

FIFTH MEETING OF SPECTRUM REVIEW WORKING GROUP (SRWG/5)

Video Teleconference, 15 – 17 March 2021

Agenda Item 2: Review outcomes of relevant meetings

REVIEW OF RELEVANT MEETINGS/WEB-CONFERENCES

(Presented by Secretariat)

SUMMARY

This paper presents the relevant outcomes of the Thirty First Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/31), actions on the works accomplished by the Fourth meeting of Spectrum Review Working Group (SRWG/4) and the Twenty Fourth meeting of CNS Sub-group of APANPIRG.

1. INTRODUCTION

1.1 The Thirty-first Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/31) was held from 14 to 16 December 2020 via video teleconference. The Meeting was attended by 193 participants from 23 Member States, 2 Special Administrative Regions of China, and 8 International Organizations (AAPA, ACI, CANSO, IATA, ICAO, IFALPA, IFATCA and IFATSEA). APANPIRG/31 meeting report, working papers, information papers, and other resources can be accessed by following link:

https://www.icao.int/APAC/Meetings/Pages/2020-APANPIRG31.aspx.

1.2 Twenty Fourth Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/24) of APANPIRG was held from 30 November to 4 December 2020 via video teleconference. The meeting was attended by 176 participants from 26 States/Administrations and 5 International Organizations namely CANSO, EUROCONTROL, IATA, IFATCA and IFATSEA, plus 26 participants from industry partners. CNS SG/24 meeting report, working papers, information papers, and other resources can be accessed by following link:

https://www.icao.int/APAC/Meetings/Pages/2020-CNS-SG24.aspx.

1.3 The APANPIRG/31 meeting reviewed the outcomes of the CNS SG/24, noted with appreciation the work done and achievements by the SG and the contributory bodies reporting to APANPIRG through the SG, the meeting discussed CNS related matters and took following actions on the report of CNS SG/24 meeting and other papers presented under Agenda Item 3.4.

1.4 This paper summarized relevant information and updates with the highlight on the outcomes of SRWG/4 reviewed by CNS SG/24 and noted by APANPIRG/31.

2. DISCUSSION

2.1 The CNS SG/24 meeting adopted following **8** Conclusions and **5** Decisions:

Reference		Subject
Conclusion CNS SG/24/3 *(ACSICG/7/2 (ATFM/SG/10-3))*	-	Amendment of the AFTN/AMHS-based Interface Control Document (ICD) for ATFM
Conclusion CNS SG/24/4	-	Publishing of the CRV Operations Manual
Decision CNS SG/24/5	-	CRV Landing Page on the ICAO APAC Website
Decision CNS SG/24/*6* *(SRWG/4/1)*	-	Frequency requirements for VHF-COM systems and ILS, VOR, DME and GBAS/VDB facilities
Conclusion CNS SG/24/7 *(SRWG/4/2)*	-	Simulation of VHF COM Frequency requirements for next 10 years
Conclusion CNS SG/24/8 *(SRWG/4/3)*	-	Establishment a list of focal point responsible for the operation of Frequency Finder in States
Decision CNS SG/24/9 *(SRWG/4/4)*	-	Revision of the Term of Reference of the SRWG
Conclusion CNS SG/24/10	-	Flight Inspection Guidance Material (FIGM) for APAC Region
Conclusion CNS SG/24/11	-	Protection of ILS Critical and Sensitive Areas in Three Dimensional
Decision CNS SG/24/12 *(SURICG/5/2)*	-	Dissolution of SEA/BOB ADS-B WG
Conclusion CNS SG/24/14 *(SURICG/5/4(DAPs WG/3/2))*	-	Mode S DAPs IGD 2.0
Conclusion CNS SG/24/15 *(SURICG/5/6)*	-	Revised ADS-B Implementation and Operations Guidance Document (AIGD) Edition13
Decision CNS SG/24/16 *(SURICG/5/1)*	-	Establishment of Study Group under SURICG on Sharing of Surveillance Data in SWIM

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

2.3 Based on the outcome of discussions on various agenda items, the CNS SG/24 meeting developed **4** Draft Conclusions for consideration by APANPIRG/31 Meeting which were further adopted by APANPIRG/31. The conclusions adopted by APANPIRG/31 are as follows:

Reference		Subject
APAPPIRG C 31/12 *(Draft Conclusion CNS SG/24/1)*	-	Target Year of CRV Implementation in APAC Region

APANPIRG C 31/13 *(Draft Conclusion CNS SG/24/2 (ACSICG/7/1))*	-	Revised Regional Strategies on AMS and Datalink
APANPIRG C 31/14 *(Draft Conclusion CNS SG/24/13 (SURICG/5/3(DAPs WG/3/1))*)	-	Mode S Forward Fit Equipage in APAC Region
APANPIRG C 31/15 *(Draft Conclusion CNS SG/24/17)*	-	Addressing Human Factor Issues of ATSEP

2.4 All APANPIRG/31 Conclusions related to CNS are included in **Attachment B** to this paper.

Outcome of ICAO 40th Assembly: Integrated CNS

2.5 CNS SG/24 was informed that there was no outstanding issue on CNS in Assembly 40, however, some of the Assembly Resolutions were relevant to CNS area with reference to Resolutions adopted by the Assembly (Provisional Edition October 2019), including:

A40-4: Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation;
A40-7: New entrants
A40-27: Innovation in aviation;
A40-28: Consolidated statement of continuing ICAO policies in the legal field (Appendix F).

2.6 Under Agenda Item 30: *Other issues to be considered by the Technical Commission*, various topics were discussed, and the Technical Commission Report of 40th Assembly (Doc10137) incorporated some paragraphs relevant to CNS, including 30.14, 30.15, 30.16, 30.62, 30.68, and the Resolve 3 of Appendix G. The original text of aforementioned paragraphs is provided in **Attachment C** to this paper for reference.

2.7 Paragraph 30.68 reiterated the AN-Conf/13 Recommendation 2.2/1 as *Subject to existing priorities funded through the 2020-2022 Budget and the availability of extra-budgetary resources, Commission agreed that as recommended by AN-Conf/13* ***Recommendation 2.2/1****, ICAO should launch a multidisciplinary "study to evolve the required CNS and frequency spectrum access strategy and systems roadmap in the short, medium and long term…".*

2.8 The integrated communications, navigation, surveillance and spectrum Task Force (ICNSS-TF) was established in April 2020 to deal with difficult challenges posed by two relevant streams of ICAO activities: "Innovation in aviation" and "Long-term evolution of CNS systems and frequency spectrum access". Aeronautical communications, navigation and surveillance (CNS) have traditionally been considered to be three separate functions, however, these three functions all rely on a scarce natural resource – continued and interference-free access to frequency spectrum. Various sectors of the industry compete for access to this resource to expand their services. As the pressure on the resource increases, it becomes evident that aviation needs to find ways to keep abreast of the rapid pace of technology advancement.

2.9 The ICNSS project focusses on an overall action plan of technology development (in the form of Roadmaps), as well as the streamlining of the CNS Standards making framework itself, including SARPs and detailed standards/specifications.

Review of Regional Process

2.10 CNS SG/24 reviewed the need to explore the spectrum capacity to implement future requirements for VHF-COM systems as well as for NAV systems in the light of determining the need to reduce in particular the channel spacing in the VHF band 108 – 117.975 MHz for ILS Localizer and VOR to 50 kHz, and then adopted the following decision to develop a frequency assignment plan that would include all requirements for VHF-COM and for NAV systems, including GBAS/VDB, for the period up to around 2030:

Decision CNS SG/24/6(SRWG/4/1) - Frequency requirements for VHF-COM systems and ILS, VOR, DME and GBAS/VDB facilities.

That, the SRWG is tasked to develop a rolling frequency assignment plan for VHF-COM and ILS, VOR, DME and GBAS/VDB facilities to meet the operational requirements until [2030], subject to a regular review and updating by the SRWG.

Review of Global COM List for the APAC Region

2.11 APANPIRG/31 noted that with the successful implementation of Frequency Finder, there was no more Frequency List No. 3 published by the ICAO Asia and Pacific Regional Office after the 29th Edition in January 2016, the up-to-date database in Frequency Finder (equivalent to Frequency List No. 3 in APAC region) is visible to all Frequency Finder users.

2.12 The maintenance and promulgation of Frequency List Nos. 1 and 2 are still being conducted by the Regional Office in a timely and periodic manner. It proposes to request States to update specific characteristics for NAV facilities in the Frequency List No. 2 as well as to secure that the information in the Frequency Lists is up-to-date.

2.13 After review of the regional Frequency List No. 3, through further discussion in the meeting, a Conclusion was made by CNS SG/24 as following:

Conclusion CNS SG/24/7(SRWG/4/2) – Simulation of VHF COM Frequency requirements for next 10 years.

To conduct a new round of simulation for VHF COM frequency assignment based on new operational requirements of States to 2030 as necessary.

2.14 Considering the important role of Frequency Finder played in the updating and maintenance of global database, relevant issues including user credential, software robustness, cyber security, etc. were addressed by the meeting. In order to fully benefit from the use of Frequency Finder for spectrum coordination, while effectively managing the relevant risks, the CNS SG/24 endorsed the following Conclusion aimed at improving the administrative process:

Conclusion CNS SG/24/8(SRWG/4/3) – Establishment a list of focal point responsible for the operation of Frequency Finder in States.

That, States in APAC Region are requested to nominate a focal point responsible for operation of the Frequency Finder and coordination for frequencies assignments with ICAO APAC Regional Office in order to reduce operational error and improve quality management for the coordination process.

Review of TOR and Action List

2.15 The most important function of SRWG expert working group was to study the issue of the requirement of 8.33 kHz channel spacing, and it could be considered as completed by 2016 after SRWG/3. However, with the expected changes in air traffic, it has been agreed to conduct another round of simulation on VHF COM frequency assignment in APAC Region based on operational needs submitted by States, it has also been identified in spectrum capacity to accommodate GBAS/VDB and other emerging issues in optimizing the efficient and safe use of radio spectrum. The CNS SG/24 meeting discussed the aforementioned information and experiences from States, and agreed the following Decision:

Decision CNS SG/24/9 (SRWG/4/4) – Revision of the Term of Reference of the SRWG.

*That, the revised Terms of Reference provided in **Appendix J** to the CNS SG/24 Report be adopted.*

Report on the results of the International Telecommunication Union (ITU) World Radiocommunication Conference (2019) (WRC-19)

2.16 The ITU WRC serves as the preeminent event for negotiating long-term frequency spectrum rights. CNS SG/24 was informed about summarized discussions and results from ITU WRC-19 (held 28 October to 22 November 2019 in Sharm el Sheikh, Egypt). In general, the conference results conformed to the ICAO Position. It is now essential to form an expeditious start of the ICAO preparatory activities for the next conference in 2023, as a very large effort will be required on the part of the Organization and its Member States to ensure that the ICAO Position is supported by the conference.

Draft ICAO Position for ITU WRC-23

2.17 The goal of the ICAO Position is to ensure aeronautical access to appropriately protected spectrum for radiocommunication and radionavigation systems that support current and future safety-of-flight applications. In particular, it describes the safety considerations necessary to ensure adequate protection against harmful interference. Support of the ICAO Position by ITU Member States is required to ensure that the position is supported at the WRC-23 and that aviation requirements are met.

Space-based VHF Communications in 117.975-137 MHz Frequency Band

2.18 During CNS SG/24, Singapore presented updates on the preliminary technical study findings of study of space-based VHF concept and the progress of space-based VHF discussions at ICAO and ITU meetings.

2.19 It was noted that further work needs to be done and agreed to recommend States/Administrations who are interested and capable to join the relevant study, and as present ICAO Position for WRC-23 already included space-based VHF agenda. The Secretariat was requested to coordinate with SRWG chair and ACSICG chair to clarify how to track and monitor this initiative, and form an ad hoc group, if necessary, to take the concerns from States on a regional level so as to make the

study meaningful, and the outcome of this deliberation will be reported back to CNS SG/25 meeting for consideration.

Protection of ILS Critical and Sensitive Areas in Three-Dimensional and ILS Facility Performance Category Requirements

2.20 Hong Kong, China shared some observations to CNS SG/24 on a common scenario of potential impacts of departing aircraft on arriving aircraft under runway mixed-mode operation in many airports. Hong Kong International Airport encountered cases on Localizer (LOC) signal fluctuations occurred during single runway mixed-mode operation, the pilots of arriving aircraft reported LOC signal fluctuations at the time when departing aircraft on the same runway flew over the LOC antenna, and the ILS CA/SA on ground was found clear without any intrusion. ICAO Annex 10 Volume I, Attachment C, highlighting the need for States to extend protection of the ILS Critical and Sensitive Areas (CA/SA) from two-dimensional (2D) context to volumes. Currently, Annex 10 Vol. I Attachment C concerning guidance in protection of ILS CA/SA focuses on protection in 2D instead of three-dimensional (3D).

2.21 Hong Kong China invited States to note the importance of protecting the ILS CA/SA in volumes and the minimum evaluation period for specific ILS facility performance category. ICAO was requested to provide more guidance for ANSPs to protect CA/SA in volumes and to achieve the required facility performance category for new ILS installations within the shortest evaluation period. In view of significance of this subject with impacts on flight safety, the CNS SG/24 meeting adopted the following Conclusion:

Conclusion CNS SG/24/11- Protection of ILS Critical and Sensitive Areas in Three Dimensional

That, States to:
a) take note of the importance in extending protection of ILS Critical and Sensitive Areas (CASA) from two dimensional to three dimensional as stated in ICAO Annex 10 (7th Edition, Amendment 92), Volume I, Attachment C, Paragraph 2.1.9.5;

b) be aware that departing aircraft and/or manoeuvring helicopters/aircraft can cause disturbances to ILS signals received by arriving aircraft under single runway mixed mode operation;

c) take measures to mitigate potential impacts caused by disturbances in ILS signals under single runway mixed mode operation;

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) follow-on the APANPIRG/31 conclusions, in particular:
- **Conclusion CNS SG/24/7(SRWG/4/2)** – Simulation of VHF COM Frequency requirements for next 10 years, refers to WP/05.
- **Conclusion CNS SG/24/8(SRWG/4/3)** – Establishment a list of focal point responsible for the operation of Frequency Finder in States, refers to WP/04.

c) discuss any relevant matter as appropriate

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List of Conclusion/Decisions adopted by CNS SG/24 on behalf of APANPIRG on Technical Matters

Conclusion CNS SG/24/3(ACSICG/7-2 (ATFM/SG/10-3)) - Amendment of the AFTN/AMHS-based Interface Control Document (ICD) for ATFM	
What: That, the AFTN/AMHS-based Interface Control Document for ATFM Version 2.0 provided in **Appendix E** to this Report be adopted and posted on the ICAO Asia/Pacific Regional Office website to supersede the existing version, for use by Asia/Pacific Administrations in implementing cross-border ATFM communications in accordance with the provisions of the Regional Framework for collaborative ATFM.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To align with message format provisions of Annex 10 Vol II, and to support implementation by States through amendment to specific provisions.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Subgroup
Who: ☒Sub groups ☒ APAC States ☐ICAO APAC RO ☐ICAO HQ ☒ other: ACSICG/7	

Conclusion CNS SG/24/4 - Publishing of the CRV Operations Manual	
What: That the CRV Operations Manual provided in **Appendix F** to this Report be adopted as first Edition for publishing and use.	Expected impact: ☐Political / Global ☐Inter-regional ☐Economic ☐Environmental ☒ Ops/Technical
Why: Provides the information and directions required for CRV OG performance and CRV operations.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Decision CNS SG/24/5 - CRV landing page on the ICAO APAC website	
What: That ICAO APAC Office is requested to create CRV landing page on ICAO APAC web page to providing information on CRV and guidance on how to join, leave or make changes.	Expected impact: ☐Political / Global ☒ Inter-regional ☐Economic ☐Environmental ☒ Ops/Technical
Why: Provides online access to the information and directions required for the Request Fulfilment Process and procedures to join, leave or make changes the CRV network	Follow-up: ☐Required from States

When: 4-Dec-20	Status: Adopted by Subgroup
Who: ☒Sub groups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Decision CNS SG/24/6(SRWG/4/1) - Frequency requirements for VHF-COM systems and ILS, VOR, DME and GBAS/VDB facilities	
What: That, the SRWG is tasked to develop a rolling frequency assignment plan for VHF-COM and ILS, VOR, DME and GBAS/VDB facilities to meet the operational requirements until [2030], subject to a regular review and updating by the SRWG.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To secure adequate spectrum for these facilities for the near future.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Sub-group
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion CNS SG/24/7(SRWG/4/2) – Simulation of VHF COM Frequency requirements for next 10 years	
What: To conduct a new round of simulation for VHF COM frequency assignment based on new operational requirements of States to 2030 as necessary.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To support regional strategy on the use of 8.33KHz channel spacing.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Sub-group
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion CNS SG/24/8(SRWG/4/3) – Establishment a list of focal point responsible for the operation of Frequency Finder in States	
What: That, States in APAC Region are requested to nominate a focal point responsible for operation of the Frequency Finder and coordination for frequencies assignments with ICAO APAC Regional Office in order to reduce operational error and improve quality management for the coordination process.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To reduce operational error in accessing the tool of Frequency Finder and improve the spectrum management quality by enhancing the administrative process.	Follow-up: ☒Required from States

When: 4-Dec-20	Status: Adopted by Sub-group

Decision CNS SG/24/9 (SRWG/4/4) – Revision of the Term of Reference of the SRWG	
What: That, the revised Terms of Reference provided in **Appendix J** to the Report be adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: Need to refine the scope of related tasks and include the new members.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Sub-group
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Note: This revision is to conduct simulation on VHF COM frequency assignment and expand its scope of work to cover Navigation systems with highlight on GBAS implementation.

Conclusion CNS SG/24/10 – Flight Inspection Guidance Material (FIGM) for APAC Region	
What: That, the first edition of the Flight Inspection Guidance Material (FIGM) provided in **Appendix K** to this Report be adopted.	Expected impact: ☐Political / Global ☐Inter-regional ☐ Economic ☐Environmental ☒Ops/Technical
Why: To provide additional guidance on planning, execution and delivery of flight inspection for States/Administrations in APAC Region.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion CNS SG/24/11- Protection of ILS Critical and Sensitive Areas in Three Dimensional	
What: That, States to: a) take note of the importance in extending protection of ILS Critical and Sensitive Areas (CASA) from two dimensional to three dimensional as stated in ICAO Annex 10 (7th Edition, Amendment 92), Volume I, Attachment C, Paragraph 2.1.9.5; b) be aware that departing aircraft and/or manoeuvring helicopters/aircraft can cause disturbances to ILS signals	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒Ops/Technical

received by arriving aircraft under single runway mixed mode operation; c) take measures to mitigate potential impacts caused by disturbances in ILS signals under single runway mixed mode operation; and ICAO to: d) provide guidance materials in establishing three dimensional ILS CASA and their protection.	
Why: In accordance with ICAO Annex 10 (7th Edition, Amendment 92), Volume I, paragraph 2.1.9.5 – "While critical and sensitive areas are evaluated in a two-dimensional (horizontal) context, protection should actually be extended to volumes, as departing aircraft and/or manoeuvring helicopters/aircraft can also cause disturbances to the ILS signals". However, no detailed guidance was given as to how to establish the ILS CA/SA in three dimensional and how to protect them.	Follow-up: ☒Required from States
When: 4-Dec-20	Status: Adopted by Sub-group
Who: ☒ Sub groups ☒ APAC States ☐ICAO APAC RO ☒ICAO HQ ☐Other:	

Decision CNS SG/24/12 (SURICG/5/2) - Dissolution of SEA/BOB ADS-B WG	
What: Noting that most of the tasks outlined in the TOR have been achieved and the completion of residual part of action items will be performed by SURICG, That, the SEA/BOB ADS-B WG be dissolved.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐Economic ☐ Environmental ☒ Ops/Technical
Why: The SEA/BOB ADS-B WG terms of reference have been completed and pending action items will be performed by SURICG.	Follow-up: ☐Required from States
When: 4-Dec-20	Status: Adopted by Sub-group
Who: ☒Sub groups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐APANPIRG ☒Other: SURICG	

Conclusion CNS SG/24/14 (SURICG/5/4(DAPS WG3/2)) - Mode S DAPs IGD 2.0	
What: That, the *Mode S DAPs Implementation and Operation Guidance Document* Edition 2.0 provided in **Appendix N** to this Report be adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: Editorial correction and revision to reflect regional updates in implementation.	Follow-up: ☐Required from States
When: 4-Dec-20	Status: Adopted by Sub-group

Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:

Conclusion CNS SG/24/15 (SURICG/5/6) - Revised ADS-B Implementation and Operations Guidance Document (AIGD)		
What: That, the revised ADS-B Implementation and Operations Guidance Document (AIGD) provided in **Appendix O** to this Report, which consolidated all change proposals during SURICG/5, be adopted as Version 13.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: Updates and editorial correction	Follow-up: ☐Required from States	
When: 4 Dec 2020	Status: Adopted by Sub-group	
Who: ☒CNS Sub group ☐APAC States ☒ICAO APAC RO ☐ICAO HQ		

Decision CNS SG/24/16 (SURICG/5/1) - Establishment of Study Group under SURICG on Sharing of Surveillance Data in SWIM		
What: Noting the operational needs of this region to enhance surveillance data sharing and new technologies available, That, the Study Group under SURICG on Sharing of Surveillance Data in SWIM (SurSG) with TOR provided in **Appendix P** to the Report, comprising subject matter experts in relevant areas including surveillance and SWIM to be set up to study and recommend solutions on surveillance data sharing to provide surveillance from "departure to destination", be established.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To enhance surveillance coverage, enhance surveillance data availability by providing additional layers of surveillance services, and support implementation of advanced Air Traffic Management (ATM) tools such as Air Traffic Flow Management (ATFM).	Follow-up: ☒Required from States	
When: 4-Dec-20	Status: Adopted by Sub-group	
Who: ☒Sub Groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: SURICG		

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A List of Conclusions from CNS SG/24 approved by APANPIRG/31 Meeting

APAPPIRG C 31/12 *(Conclusion CNS SG/24/1)*- **Target Year of CRV Implementation in APAC Region**	
What: That, set and monitor 2021 as the target for CRV implementation for all ANSPs.	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒Ops/Technical
Why: Considering the challenges and difficulties faced by States/Administrations under current pandemic situation and recommended to postpone the target year of regional implementation of CRV from 2020 to end of 2021 and further align with follow up actions on Common Ground/Ground Telecommunication Network stated in the Beijing Declaration.	Follow-up: ☒Required from States
When: 16-Dec-20	Status: To be adopted by PIRG
Who: ☒ Sub groups ☒ APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:	

APANPIRG C 31/13 (*Conclusion CNS SG/24/2(ACSICG/7/1))* - **the Revised Regional Strategies on AMS and Datalink**	
What: That, the revised Aeronautical Mobile Service (AMS) Strategy for the Asia/Pacific Region provided in **Appendix C** and the revised Strategy for Implementation of the Air-Ground Data Link in the Asia/Pac Region provided in **Appendix D** to the Report be adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒Ops/Technical
Why: Need to update the regional strategies on AMS and Datalink based on the latest developments	Follow-up: ☒Required from States
When: 16-Dec-20	Status: To be adopted by PIRG
Who: ☒ Sub groups ☒ APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:	

APANPIRG C 31/14 (*Conclusion CNS SG/24/13 (SURICG/5/3(DAPS WG3/1*)) - **Mode S Forward Fit Equipage in APAC Region**	
What: Regarding fitment of Mode S equipage, That, States/Administrations in APAC Region be strongly encouraged to mandate that registered aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with a date of manufacture on or after 1 January 2022 be equipped with Mode S avionics compliant with Enhanced Surveillance (EHS).	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Why: Considering that a number of DAPs	Follow-up: ☒Required from States

applications will require EHS and that it's easy for new aircraft to be equipped with EHS. Retrofitting existing airframes with EHS will need further deliberation under challenging pandemic situation.	
When: 16-Dec-20	Status: To be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☒APANPIRG ☐ICAO HQ ☒Other: SURICG	

APANPIRG C 31/15 (*Conclusion CNS SG/24/17)* **- Addressing Human Factor Issues of ATSEP**	
What: That, a) the States are encouraged to make reference and implement the recommendations made out of the IFATSEA study report *Factors adding stress and fatigue to ATSEP* provided in **Appendix R** to the Report for pro-active measures; b) States are also encouraged to join the small working group for finding the left-out gaps and in preparing the regional ATSEP human factor guidance material.	Expected impact: ☐Political / Global ☐Inter-regional ☒ Economic ☐Environmental ☒ Ops/Technical
Why: to continuously improve the human performance management in practice to better support CNS/ATM system operations.	Follow-up: ☒Required from States
When: 16-Dec-20	Status: Draft to be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:	

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Attachment C to WP/02

Text extracted from Doc 10137

30.14 The Commission considered A40-WP/82, A40-WP/352 and A40-WP/188, addressing communications, navigation, and surveillance (CNS) issues, with particular regard to global navigation satellite system (GNSS). A40-WP/82, presented by Finland on behalf of the EU and its Member States, the other Member States of the ECAC; and by EUROCONTROL, addressed the evolution of CNS systems and the associated threats and vulnerabilities, with particular regard to satellite-based CNS systems. It proposed a series of actions aimed at increasing the resilience of such systems to interference through a holistic approach at the global level. A40-WP/352, presented by Saudi Arabia, identified the need to strengthen the protection of GNSS signals from harmful interference and degradation of performance through regulatory and technical measures. A40-WP/188, presented by IFATCA, IFALPA and IATA, called for measures to manage and reduce the impact from harmful interference to GNSS on the safety and efficiency of aircraft and ATM operations.

30.15 The Commission noted the essential commonality of purpose among the three papers, which proposed actions by States and ICAO to strengthen CNS systems resilience and mitigate harmful interference to GNSS, in coordination with industry. The Commission agreed with the proposals and recommended that the Council act with urgency on measures aimed at elimination of harmful interference to GNSS. It was noted that the actions for ICAO were within the scope of the existing work programme.

30.16 The Commission reviewed A40-WP/208, presented by the United Arab Emirates, which emphasized that civil aviation was becoming increasingly dependent on mobile satellite systems and proposed that ICAO examine an international solution to the regulation of mobile satellite services providers offering services related to the safety of civil aviation. Noting that such activities were unfunded and may not be undertaken without additional resources, the Commission recommended that the Council review the proposal with respect to existing priorities funded through the 2020-2022 Budget and the availability of extra-budgetary resources.

30.62 The Commission reviewed A40-WP/119, presented by CANSO, ICCAIA and Singapore, which addressed the challenges faced by ANSPs in safely and efficiently delivering the necessary capacity to accommodate the forecast traffic growth and proposed a number of actions to meet the objectives within the GANP and the GASP. The Commission noted that the actions proposed were consistent with action taken by the ICAO Council in response to AN-Conf/13 Recommendation 4.3/1.Nevertheless, the contents of the paper, especially matters related to the need to consider interdependencies between KPAs, should be forwarded to the appropriate expert group for further consideration. The Commission agreed that States should be urged to enhance collaboration and partnership to address common challenges to facilitate appropriate funding for ATM systems and CNS infrastructure, as well as to ensure that the appropriate financial mechanisms were in place to enable an effective deployment of operational improvements.

30.68 The Commission reviewed A40-WP/207, presented by ICCAIA, ACI, CANSO and IFATCA. Acknowledging the evolving requirements for secure, reliable, interoperable and ubiquitous CNS systems to support safe, efficient and cost-effective transport and the need to protect the spectrum allocated for those systems, the Commission agreed that States should actively support the ICAO position during the International Telecommunication Union (ITU) World Radiocommunication Conference 2019 (WRC-19). Subject to existing priorities funded through the 2020-2022 Budget and the availability of extra-budgetary resources, the Commission agreed that as recommended by AN-Conf/13 Recommendation 2.2/1, ICAO should launch a multidisciplinary “study to evolve the required CNS and frequency spectrum access strategy and systems roadmap in the short, medium and long term…”.

APPENDIX G
Delimitation of air traffic services (ATS) airspaces

Whereas Annex 11 — *Air Traffic Services* to the Convention requires a Member State to determine those portions of airspace over its territory within which air traffic services will be provided and, thereafter, to arrange for such services to be established and provided;

Whereas Annex 11 to the Convention also makes provision for a Member State to delegate its responsibility for providing air traffic services over its territory to another State by mutual agreement;

Whereas cooperative efforts between Member States could lead to more efficient air traffic management;

Whereas both the delegating and the providing State can reserve the right to terminate any such agreement at any time; and

Whereas Annex 11 to the Convention prescribes that those portions of the airspace over the high seas where air traffic services will be provided shall be determined on the basis of regional air navigation agreements, which are agreements approved by the Council usually on the advice of regional air navigation meetings;

The Assembly resolves, with reference to regional air navigation plans, that:

1. the limits of ATS airspaces, whether over States' territories or over the high seas, shall be established on the basis of technical and operational considerations with the aim of ensuring safety and optimizing efficiency and economy for both providers and users of the services;

2. established ATS airspaces should not be segmented for reasons other than technical, operational, safety and efficiency considerations;

3. if any ATS airspaces need to extend over the territories of two or more States, or parts thereof, agreement thereon should be negotiated between the States concerned, taking into account the need for cost-effective introduction and operation of CNS/ATM systems, and more efficient airspace management, in particular, in the upper airspace;

4. the providing State in implementing air traffic services within airspace over the territory of the delegating State shall do so in accordance with the requirements of the delegating State, which shall establish and maintain in operation such facilities and services for the use of the providing State as are mutually agreed to be necessary;

5. any delegation of responsibility by one State to another or any assignment of responsibility over the high seas shall be limited to technical and operational functions pertaining to the safety and regularity of the air traffic operating in the airspace concerned;
and, furthermore, *declares* that:

6. any Member State which delegates to another State the responsibility for providing air traffic services within airspace over its territory does so without derogation of its sovereignty; and

7. the approval by the Council of regional air navigation agreements relating to the provision by a State of air traffic services within airspace over the high seas does not imply recognition of sovereignty of that State over the airspace concerned.

Associated practices

1. Member States should seek the most efficient and economic delineation of ATS airspaces, the optimum location of points for transfer of responsibility and the most efficient coordination procedures in cooperation with the other States concerned and with ICAO.

2. Member States should consider, as necessary, establishing jointly a single air traffic services provider to be responsible for the provision of air traffic services within ATS airspace extending over the territories of two or more States or over the high seas.

3. The Council should encourage States providing air traffic services over the high seas to enter, as far as is practicable, into agreements with appropriate States providing air traffic services in adjacent airspaces, so that, in the event the required air traffic services over the high seas cannot be provided, contingency plans, which may require temporary modifications of ATS airspace limits, will be available to be put into effect with the approval of the ICAO Council until the original services are restored.

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