



ICAO

International Civil Aviation Organization

**Fifth Meeting of the Surveillance Implementation
Coordination Group (SURICG/5)**

Web-conference, 22 – 24 September 2020

**Agenda Item 2: Review of outcomes of relevant meetings including ICAO 40th Assembly,
DGCA/56 and APANPIRG/30 on Surveillance**

OUTCOMES OF RELEVANT MEETINGS ON SURVEILLANCE

(Presented by the Secretariat)

SUMMARY

This paper presents the related outcomes of ICAO 40th Assembly, the 56th Conference of Directors General of Civil Aviation Asia and Pacific Regions (DGCA/55) and APANPIRG/30 for review by the meeting.

1. INTRODUCTION

1.1 The 40th Assembly was held at ICAO Headquarters in Montréal, Canada, from September 24 to October 4 to establish the worldwide policy of the Organization for the upcoming triennium. During Assembly sessions, ICAO's complete work programme in the technical, economic, and legal cooperation fields was reviewed in detail. Assembly outcomes provided to the other bodies of ICAO and its Members to guide their continuing and future work. Documentation about this Assembly is available at: <https://www.icao.int/Meetings/A40/Pages/documentation.aspx>

1.2 The DGCA Conf/56 was held from 19 to 23 August 2019 in Kathmandu, Nepal. The report of 56th DGCA Conference and a list of actions items agreed by the Conference are available at: <https://www.icao.int/APAC/Meetings/Pages/DGCA56.aspx>

1.3 APANPIRG/30 meeting was held from 4-6 November 2019 at ICAO APAC Office, Bangkok, Thailand. The meeting reviewed the outcomes of CNS SG/23 meeting held from 2 to 6 September 2019 and the Fourth Meeting of the Surveillance Implementation Coordination Group (SURICG/4) and the Fourteenth meeting of the SEA and BOB ADS-B Working Group (SEA/BOB ADS-B WG/14). The main outcome of CNS SG/23 meeting on surveillance was consolidated in the Report of APANPIRG/30 Meeting which is posted at: <https://www.icao.int/APAC/Meetings/Pages/2019-APANPIRG30.aspx>

2. DISCUSSION

Outcome of ICAO 40th Assembly

2.1 There was no outstanding issue on surveillance 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

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A40-27: Innovation in aviation;**A40-28:** Consolidated statement of continuing ICAO policies in the legal field (Appendix F).

2.2 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 A** to this paper for reference.

2.3 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...”*.

2.4 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.

2.5 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.

Action Items agreed by DGCA Conf/56

2.6 The Theme Topic for the 56th Conference of DGCAs is “Harmonizing Efforts to Meet the Capacity Constraints”. The Conference developed 36 Action Items and urged States/Administrations to take follow-up actions and provide ICAO APAC Office a status report of implementation. The DGCA Conf/56 Action Items related to the areas of CNS are shown in the table below:

Discussion Paper No.	Action Item	Description
Agenda Item 1 - Theme Topic “Harmonizing efforts to meet the capacity constraints”		
DP/1a/2	Action Item 56/2	The Conference urged States/Administrations to collaborate with industry partners in the implementation of ATM projects and harmonize efforts in the ANS focus areas of the Beijing Declaration.
DP/1a/3	Action Item 56/3	The Conference urged States/Administrations to:

Discussion Paper No.	Action Item	Description
		a) promote use of latest advanced technologies and enhance security infrastructure at airports; b) improve their training capabilities and consider training opportunities provided by other States, especially India; and c) ensure that a business case analysis is undertaken for new technologies and due emphasis is given to training and planning.
DP/1a/10	Action Item 56/6	The Conference urged: a) APANPIRG to support the implementation of the sixth edition of the GANP; b) States to support the GANP by the development and maintenance of a national air navigation plan and its supporting documents to align with the GANP and regional air navigation plan; and c) APANPIRG and the ICAO Asia and Pacific Office & Regional Sub Office to facilitate and coordinate such activities to ensure regional harmonization and alignment to the GANP.
Agenda Item 3 - Aviation Safety		
DP/3/12 DP/3/18	Action Item 56/11	The Conference urged ICAO to examine the potential benefits, balanced against the associated costs of the development of provisions and guidance material for certification of air navigation services providers as a priority.
DP/3/24	Action Item 56/12	The Conference urged States/Administrations to note the various challenges posed by the commercial drone operations, consider learning from the experiences of States with more mature regulatory frameworks as well as engagement with ICAO and JARUS, and explore the utility of the SORA tool to facilitate regulatory development in UAS.
Agenda Item 4 - Air Navigation		
DP/4/2	Action Item 56/15	The Conference noted the implementation progress of ADS-B implementation in India and encouraged States / Administrations to share ADS-B data with neighboring States to take full benefits of ADS-B.
DP/4/3	Action Item 56/16	The Conference: a) recognized the benefits of ANS performance measurement and the challenges in its implementation and noted that support to ICAO is necessary to develop a KPI framework guidance document for Air Navigation Services Providers (ANSPs); and b) encouraged Asia and Pacific States, APANPIRG and the aviation industry to use the 6th edition of the GANP

Discussion Paper No.	Action Item	Description
		together with the future guidance document in the implementation of performance management.
Agenda Item 5 - Aviation Security and Facilitation		
DP/5/6 DP/5/8	Action Item 56/21	The Conference, noting the significance of cyber security, urged the States/Administrations to: <ul style="list-style-type: none"> a) promote the development of a cyber security culture across the aviation sector following the same model as safety and security culture including building dialogue, robust consultation, consensus, transparency and trust and effective communication and collaboration between all parties; b) encourage States and Industry to develop programmes to build an aviation cyber security workforce that can respond to the challenge both now and into the future as well as educate the current aviation workforce on cyber security challenges; and c) request ICAO to focus on the development of principle-based guidance on aviation sector cyber-security to assist States with integrating aviation into national frameworks, and to provide guidance on the purpose and application of the trust framework.
Agenda Item 8 - Technical and Regional Cooperation		
DP/8/1	Action Item 56/29	While noting the progress made to complete the Pacific Small Islands Developing States Aviation Needs Analysis (PSIDS Study) by September 2019, the Conference: <ul style="list-style-type: none"> a) requested ICAO to provide an update to APAC DGCA/57 regarding the follow up on the study and eventual implementation of its recommendations; and b) without prejudicing the outcome of the Study, requested ICAO to consider apportioning sufficient funds to implement the recommendations and solutions from the PSIDS Study in the next triennium.
DP/8/2	Action Item 56/30	The Conference, while recognising the need to adopt learner-centered pedagogies to enhance competency training to equip NGAP to meet the aviation needs of the future, requested ICAO to develop guidelines to select technological training tools that supports competency based training, using learner-centered pedagogies, under the ICAO TRAINAIR PLUS Programme.

Discussion Paper No.	Action Item	Description
DP/8/14	Action Item 56/32	<p>The Conference urged States/Administrations to:</p> <ul style="list-style-type: none"> a) note the wide range of projects and trainings managed and implemented worldwide and in the APAC Region by the ICAO Technical Cooperation Bureau and the Global Aviation Training Office; b) work with ICAO TCB as a partner for implementation of their civil aviation projects as well as encourage other aviation stakeholders in this regard; c) encourage additional training organizations in the APAC Region to join TrainAir Plus Programme to benefit from its numerous training solutions and competency development activities; and d) utilize courses listed in the ICAO Course Catalogue.
Agenda Item 9a - Beijing Declaration – Follow up and way forward		
	Action Item 56/33	<p>Recognizing the Ministers’ commitment to Human Resource Development effectively through the Beijing Declaration, the Conference urged:</p> <ul style="list-style-type: none"> a) States/Administrations to: <ul style="list-style-type: none"> i. develop a remuneration level for inspectors, Scheme of Recruitments; ii. introduce Inspector Training System (ITS), Online training and Refresher Training; iii. redesign safety oversight functions (performance based and risk based); and iv. introduce innovative programmes to attract NGAP; and b) ICAO to develop guidance materials to this effect.
	Action Item 56/34	<p>Recognizing the Ministers’ commitment to implement the Beijing Declaration, and noting the progress in implementing these commitments in the APAC Region, the Conference:</p> <ul style="list-style-type: none"> a) encouraged the States/Administrations to: <ul style="list-style-type: none"> i. continue their efforts to achieve the Beijing Declaration target dates; ii. apply political will to aviation safety regulation and oversight by linking to national priorities and plans supported by economic benefits; iii. develop policies and a National Aviation Safety Plan (NASP), including the implementation of a State Safety Programme (SSP), developed with and endorsed by high-level in Government; iv. establish an appropriately organized, funded and empowered civil aviation system, structured to

Discussion Paper No.	Action Item	Description
		<p>effectively fulfil the tasks that it is expected to undertake;</p> <ul style="list-style-type: none"> v. have specific action plans and perform continuous self-monitoring, using USOAP tools and supported by ICAO APAC Regional Office, COSCAPs and PASO; vi. use regional and sub-regional collaboration mechanisms and bilateral partnerships for sharing resources and the assistance required with implementation; vii. enhance States' collaboration, share lessons learned and successes; viii. ensure that correct and up-to-date statistics are reported timely to the Regional Office in the preparation for the next Ministerial Conference in 2020; and ix. pay close attention to the outcomes of the 40th Assembly and its impact on the Aviation Safety and Air Navigation Services; and <p>b) requested ICAO to:</p> <ul style="list-style-type: none"> i. conduct more regular validations under USOAP; ii. conduct Combined Action Team (CAT) missions specific to SSP; and iii. revise the Beijing Ministerial Declaration Section 3 on AIG at the next opportunity based on the current applicable ICAO provisions and guidance to establish a permanent independent investigation authority in addition to regional/sub-regional accident investigation authority wherever possible, and with the addition of a target timeframe for implementation.
Agenda Item 12a — Other Business a) Any Other Matters		
DP/12a/1	Action Item 56/35	The Conference urged: a) States/Administrations to: <ul style="list-style-type: none"> i. note the results from the survey, especially the challenges in effective implementation in all five key areas and the gaps in the existing support, as well as the diversity of needs across the region and that such, assistance and support would have to continue to be more targeted and customised;

Discussion Paper No.	Action Item	Description
		ii. note the governance approach outlined in this report, including use of the Terms of Reference (ToR) template by APAC regional groups to review existing and new ToR, while taking in to account any A-40 Resolutions in this regard and the RCM TF would report the outcomes of these reviews to the DGCA Conference in 2020; iii. endorse the list of initiatives suggested to streamline the communication channels and to consider adopting templates for reports and records of outcomes for regional groups, and best practices for the management of State Letters as well as request ICAO to implement the suggested initiatives; and iv. consider the identified support mechanisms for technical assistance and the enhanced roles of other International Organizations and industry partners to complement ICAO APAC RO efforts; and b) ICAO APAC RO to enhance support for technical assistance.
DP/12b/1	Action Item 56/36	The Conference adopted “Promoting ICAO Gender Equality Programme in conjunction with Next Generation of Aviation Professionals (NGAP) initiative” as the Theme Topic for the 57th DGCA Conference of the Asia and Pacific Regions to be held from 22 – 26 November 2020, hosted by Bangladesh and accordingly give emphasis to the theme topic in formulating discussion and information papers.

Outcome of APANPIRG/30 meeting

2.7 APANPIRG/30 reviewed the outcomes of the Twenty Third Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/23) of APANPIRG. The meeting 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/23 meeting and other papers presented under AI 3.4.

2.8 The meeting noted that CNS SG/23 meeting had adopted following 9 Conclusions and 4 Decisions on technical and operational matters, the surveillance related ones are listed as below:

- Conclusion CNS SG/23/10 (SURICG/4/1) - ADS-B and Flow Management
- Conclusion CNS SG/23/11 (SURICG/4/2) - UAS Cooperative Surveillance Equipage
- Conclusion CNS SG23/12 (SURICG/4/3) - Adoption of Mode S DAPs Implementation and Operations Guidance Document
- Conclusion CNS SG/23/15 (SURICG/4/7) - Revised ADS-B Implementation and Operations Guidance Document (AIGD)

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Decision CNS SG/23/13 (*SURICG/4/5*) - Establishment of the Asia/Pacific ATM Automation System Task Force (ATMAS/TF)

4th Meeting of the Surveillance Implementation Coordination Group

2.9 The APANPIRG/30 meeting noted the outcome of the Fourth Meeting of the Surveillance Implementation Coordination Group (SURICG/4) including those outcomes of SEA/BOB ADS-B WG/14 and Mode S DAPS WG/2 meetings.

Outcome of the SEA/BOB ADS-B WG/14 meetingSpace Based ADS-B and Flow Management

2.10 ICCAIA presented an update in SEA/BOB ADS-B WG/14 on the development status of space based ADS-B which could be used to support long range flow management, traffic load calculation and ATC planning and airspace safety. The Aireon system, organization, procedures and capabilities will be examined by the European Safety Agency (EASA) and certified as an ATC surveillance service provider.

2.11 It will be possible for Aireon to provide its registered ANSP users with surveillance for ADS-B equipped aircraft from Departure locations to Destination locations worldwide. An alternate possibility for data sharing is that the adjacent States use space based ADS-B. Aireon registered ANSP users typically are offered with 50 to 100 NM coverage into the adjacent FIR to support FIR boundary safety. Considering that the proposed application of space-based ADS-B could be used to enhance the accuracy of estimated boundary and runway arrival time, to improve predictability and certainty of Air Traffic Operations in a seamless way especially in South East Asia or Bay of Bengal sub-regions, the meeting adopted Conclusion CNS SG/23/10 (SURICG/4/1) regarding ADS-B and Flow Management. Through the Conclusion, States are encouraged to consider the application of new surveillance technologies and/or data sharing which can provide surveillance from “departure to destination”.

24-bit Aircraft Address and Spectrum Issues for small UAS

2.12 USA highlighted issues of 24-bit aircraft address and 1090 MHz spectrum associated with consideration for small UAS. The paper had been discussed at the ICAO Surveillance Panel’s Aeronautical Surveillance Working Group meeting in September 2018.

2.13 Projections of small UAS growth in the U.S. indicate that it is likely that there will be over a million such vehicles by 2025. Therefore, the number of available ICAO aircraft addresses would be insufficient for all of the envisioned small UAS in the U.S. Currently, FAA does not issue ICAO aircraft addresses to small UAS registered under Part 107 of the U.S. Code of Federal Regulations, section 14. Also, the FAA does not issue ICAO aircraft addresses to “hobbyist” small air vehicles registered in the U.S. Only aircraft/vehicles registered via the FAA’s Civil Aircraft Registry are issued an ICAO aircraft address.

Spectrum issues associated with small UAS

2.14 An earlier study and analysis conducted by MITRE (CAASD) in 2016 explored the impact of very high densities of small UAS (sUAS) transmitting ADS-B using the Universal Access Transceiver (UAT). A broader range of operating scenarios characterized by various sUAS traffic densities and transmission power levels was examined. RF experts within the FAA believe that avionics manufacturers cannot accurately control RF transmit power below 1W, nor can FAA/FCC effectively regulate RF transmit power levels below 1W. Therefore, FAA focuses on the 1W results in the AIAA paper, which shows that even the minimum analysed density of 0.5 sUAS per square kilometre / 1.75

sUAS per square mile (1400 sUAS operating within 800 square miles) causes FAA ground stations to become blinded from seeing manned aircraft ADS-B reports.

2.15 The 1090 MHz frequency is currently more congested than the 978 MHz frequency, since 1090 MHz is also used by ATCRBS and Mode S systems (TCAS, SSRs and multilateration systems). Therefore, any impacts on 1090 MHz from sUAS ADS-B transmissions on this frequency are expected to be significantly worse than those calculated for UAT on 978 MHz. In view of the foregoing, it can be concluded that even at RF transmit power levels that are equivalent to cell phones (1 Watt), sUAS operating in a typical large urban area at airspace densities of one sUAS per two square kilometres and equipped with a 1090ES-capable Mode S transponder would be expected to cripple any ICAO standard surveillance system.

2.16 The meeting noted the Conclusion CNS SG/23/11 (SURICG/4/2) adopted by CNS SG regarding UAS Cooperative Surveillance Equipage. States are invited to be aware that widespread 1090ES-capable Mode S transponder equipage by large population of UAS may not be feasible in some States due to limited 24-bit aircraft address allocation and congested spectrum concerns. States should monitor potential congestion on 1090 MHz and availability of 24-bit aircraft address due to operation of UAS, or other emerging aircraft types.

Aireon ALERT and Globalbeacon

2.17 Aireon ALERT is the first free, global, real-time emergency aircraft location service. Air Navigation Service Providers (ANSPs), aircraft operators, regulators and search and rescue organizations in need of crucial aircraft location data, can rely on Aireon ALERT to help provide an ADS-B OUT 1090MHz equipped aircraft's most recently known position. Aireon ALERT is a one-time, per event aircraft location service. Aireon ALERT will only be able to provide data in emergency situations to pre-registered stakeholders. Registration and 24/7/365 service is operated by the Irish Aviation Authority (IAA). Registration can be made at the webpage: <https://aireonalert.com/> on which, additional information is available.

2.18 GlobalBeacon is jointly created by Aireon and FlightAware to provide a way to compliance with ICAO's Global Aeronautical Distress Safety System (GADSS) Standards and Recommended Practices (SARPS) for flight tracking. By combining FlightAware's web interface and worldwide airline flight tracking information with Aireon's space-based ADS-B data, GlobalBeacon will provide airlines with a real-time aircraft tracking dashboard that features configurable alerts, providing immediate notification of abnormal events. Should an aircraft deviate from its intended flight path, the airline operations center will be notified. The GlobalBeacon became operational on Monday 5 November 2018. Further details of GlobalBeacon can be obtained from FlightAware.

Report of DAPs WG/2 Meeting

2.19 The meeting noted the information on implementation and planning status of DAPs application, as well as technical issues addressed by States and ICAO SP Panel. The meeting encouraged the DAPs WG to further progress the research on Interrogator Identifier (II) Code coordination and interrogation strategy, and invite avionics manufacturers and avionics users to share their knowledge and experiences at the WG meetings.

DAPs Implementation and Operation Guidance Document

2.20 The meeting noted that the Mode S DAPs Implementation and Operation Guidance Document developed by the DAPs WG was adopted by the CNS SG through Conclusion CNS SG/23/12 (SURICG/4/3). The Mode S DAPs Implementation and Operation Guidance Document is provided in Appendix K to the report of CNS SG/23 meeting.

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ATM Automation System Development Issues

2.21 The SURICG/4 meeting identified a gap between the capabilities of the automation system and the user expectations. A description of emerging requirements was also provided with suggestion to consider the relevant planning and transition plans for the ATM automation system in the APAC region. The implementation of service and performance based ATM automation system should be in compliant to ASBU framework and GANP roadmap, and meet the operational requirements and future development. China proposed to consider subsequent establishment of a regional task force to conduct research on ATM automation systems, which need to be defined more precisely.

Open Architecture for Air Traffic Management System

2.22 Singapore illustrated the limitations of current ATM systems in which typical key functional modules are packaged into a single system which is highly customized by the original equipment manufacturers (OEMs). There is no established standard for the functions and interfaces of individual functional modules. The disadvantages and limitations of ATMS packaged in this way were discussed and considered as challenges under rapid technology advancement and increased cybersecurity threats. A number of new ATM functionalities is expected to be integrated with the ATM automation system. It is unlikely that a legacy ATM automation system could meet such expectations.

2.23 An open architecture based on Service Oriented Architecture (SOA) concept was proposed for the Air Traffic Management (ATM) automation system. It could be broken down into several modularized services using set of standardized interfaces to communicate across all services. The advantages of this architecture was deliberated as the possibility for ANSP to select the best individual module for their purpose from different OEM, upgrade modules independently, integrate new functionalities into system module by module. Regarding the ambition to implement this architecture, standardization is one of the key challenges. The topics discussed in the paper maybe tasked to the new regional Task Force on ATM automation systems, when established.

Exploration and Application of ATC Handover Technology Between ATM Automation Systems Based on Flight Data Interaction

2.24 China introduced a method of electronic handover between ATC center and regional small airports through CAAC Standard MH/T4029.3 Category C data. Category C data handover replaced the coordination process of AIDC with the synchronization of flight plan. The handover using Category C data made it unnecessary to define a specific waypoint in the process. It has good applicability in handover between ATC center and regional airports with small and lower airspace of responsibility. After the implementation of Category C data handover, the SSR code and release time application process can be simplified for outbound flights of regional airports, and the telephone handover action can be directly replaced by data interaction between systems.

ICAO Asia Pacific Regional ATM Automation System Symposium

2.25 The meeting noted the outcome of the ICAO APAC Regional ATM Automation System Symposium (APAC RATMS) held in Nanjing, China, from 22 to 23 November 2018. The symposium was organized in response to Action Item 54/13 of the 54th DGCA Conference on ATM automation system and the requirement resulted from discussions at CNS SG/21 meeting. It was deemed important to establish a dedicated Task Force in order to study the operational and technical experience, and shape the future development roadmap and performance-based guidance for the ATM automation system.

2.26 The meeting noted that a briefing on the above proposal was also provided to ATM SG/7 meeting. A number of States/Administration expressed their willingness to support the work of the Task Force including: China, Hong Kong China, India, Indonesia, Nepal, Singapore, Thailand and USA. In view of the foregoing, the meeting adopted Decision CNS SG/23/13 (SURICG/4/5) regarding

the establishment of ATM Automation System Task Force (ATMAS/TF). The TOR of the Task Force is provided in Appendix L to the report of CNS SG/23 meeting.

APAC Regional Surveillance Strategy

2.27 The meeting noted that the SURICG/4 meeting had reviewed the APAC regional Surveillance Strategy adopted by APANPIRG/27 meeting in 2016 and proposed some changes based on the outcome of AN Conf/13 and latest developments. The meeting endorsed the proposed changes and adopted the following Conclusion:

Conclusion APANPIRG/30/15 (CNS SG/23/14-SURICG/4/6) - Revised Surveillance Strategy for the APAC Region	
What: That, the Revised Surveillance Strategy for the APAC Region provided in Appendix D to the Report on agenda item 3.4 be adopted.	Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To reflect the outcome of ANC13 and the latest development of surveillance technology.	Follow-up: <input checked="" type="checkbox"/> Required from States
When: 6-Nov-19	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:	

ADS-B Implementation and Operations Guidance Document (AIGD)

2.28 The meeting noted that SURICG/4 meeting had updated AIGD based on the contributions from States and developments on ADS-B in the APAC Region. The proposed changes to AIGD are summarized as below:

- Added procedures on handling GPS time and week counters rollover (Section 9.13) and;
- Added two new problem types and updated the status of known ADS-B avionics problems to Attachment A of Appendix 2 “List of known ADS-B avionics problems”,

2.29 The meeting noted the proposed changes and adopted the Version 12 of the revised ADS-B Implementation and Operations Guidance Document (AIGD) through Conclusion CNS SG/23/15 (SURICG/4/7). The revised AIGD Version 12 is provided in Appendix N to the report of CNS SG/23 meeting.

Dealing with the Impact of Unmanned Aerial Systems (UAS)

2.30 New Zealand provided updates to SURICG/4 meeting on UAS issues. In the period March 2018 to March 2019 there have been 126 reported incidents from the public, Crew of airborne aircraft, other UAS operators and ATC related to the unauthorized UAS operating in controlled airspace, usually in close proximity to aircraft or airports, a 100% increase over the previous 12-month. In most cases there is no clear evidence that the object was a UAS. The UAV portal Airshare has proved useful, however, it required advanced notification of the operation and created additional workload for ATC. Airshare could be enhanced to increase participation from cooperative UAS, identify non-cooperative UAS, provide mobile app for UAS users. The potential to use tracking data with Airshare was also discussed to support automatic approvals. New types of surveillance systems need to be identified, and tested on target with the size 0.01m² radar cross section, while understanding the limitation.

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Outcome of the Workshop on Aeronautical Surveillance Systems

2.31 APAC Aeronautical Surveillance Workshop held from 5-6 November 2018 covered a number of agenda on the latest developments focusing ADS-B Improvement, ACAS system and the current and future surveillance systems. The agreed outcomes and Conclusions of the workshop had been further reviewed and considered by SURICG/4, and made reference during the revision of regional surveillance strategy. The presentations made at the workshop are available on the following webpage: <https://www.icao.int/APAC/Meetings/Pages/2018-WASS.aspx>

ATS Surveillance and DCPC VHF Coverage Charts for APAC Region

2.32 According to the Conclusion APANPIRG/29/22, a mechanism to produce charts with regular updates in a sustainable manner was put in place to show the latest situation of ATS surveillance and DCPC VHF coverage in the Asia Pacific Seamless ANS Plan for the region. The need to enhance the surveillance and Direct Controller and Pilot Communication (DCPC) VHF coverage where gaps exist in APAC Region along some of the busy air traffic routes at boundaries between FIRs has been identified during APANPIRG/29 in 2018.

2.33 The ICAO APAC Regional Office issued the State Letter AP012/19 (CNS) on 6 February 2019 with a target date by 8 March 2019 for States/Administrations to respond to the survey. After receiving response from 15 States in accordance with the format of the survey while 2 States provided descriptive / pictorial coverage without details of coordinates, the initial ATS Surveillance DCPC VHF Charts were produced. The meeting appreciated the joint efforts made by Hong Kong China and Thailand in producing the initial charts with support by various States/Administrations. The meeting agreed that the initial charts were in good shape for being published in the latest version of Seamless Air Navigation Service Plan (Version 3.0).

2.34 APANPIRG/30 meeting noted the ADS-B Implementation Status in the APAC Region updated by SURICG/4 provided in *Appendix A* to CNS/SG/23/WP/7.

Amendments to Doc 7030 – ADS-B Provisions

2.35 SURICG/2 meeting endorsed Proposals for Amendment (PfAs) to the MID/ASIA and PAC sections of ICAO Doc 7030 – *Regional Supplementary Procedures*. The PfAs proposed by Australia provided updates to the requirements for ADS-B equipment standards, clarification of requirements about use of zero values for NACp, and also included a new sentence relating to ADS-B data quality thresholds. ANPANPIRG/28 adopted the following conclusion:

Conclusion APANPIRG/28/25: Regional Supplementary Procedures for ADS-B Operation

That,

- 1) the Proposal for Amendment (PfA) to the Regional Supplementary Procedure (SUPP Doc 7030) be processed in accordance with established procedure, based on information provided in Appendix G to the Report on Agenda Item 3.4; and
- 2) ICAO be requested to coordinate the PfA as required, with the objective of achieving inter-regional alignment of requirements for Operation of ADS-B.

2.36 The approved PfAs were circulated to States on 18 June 2020 through a State Letter with reference: T8/11.2 – AP130/20 (CNS), and this change will be incorporated in the new Six Edition of Doc 7030/6 as part of the restructuring process of Doc 7030.

ICAO Surveillance Document updates

2.37 It was informed by the secretary of Surveillance Panel that following document updates were in progress and updated version will be published soon, including:

- Doc 8071 Volume III - Manual on Testing of Radio Navigation Aids (Doc 8071) Volume III — Testing of Surveillance Radar Systems,
- Doc 9924- Aeronautical Surveillance Manual,
- Doc 9994- Manual on Airborne Surveillance Applications

2.38 Surveillance Panel is planning to approve amendment to Doc 9863, ACAS manual, at the next meeting (end of September, 2020).

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) note the information contained in this Paper;
- b) review the Action Items related to CNS fields agreed by the DGCA Conf/56; and
- c) identify any follow-up actions resulted from this Paper.

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.



Attachment B to SURICG/5 - WP/02

References : T 8/11.2 – AP130/20 (CNS)

18 June 2020

Subject : **Approval of a Proposal for Amendment to the Regional Supplementary Procedures (Doc 7030/5), (Serial No. APAC-S18/03–PAC 5-2) (Serial No.: APAC-S18/10 – MID/ASIA 5-3)**

Sir/Madam,

1. I wish to inform you that the attached amendment of the Proposal for Amendment to the Regional Supplementary Procedures (Doc 7030/5), (Serial No. APAC-S18/03 - PAC 5-2) (Serial No. APAC-S18/10 – MID/ASIA 5-3) has been processed according to the procedure approved by the Council on 2 June 2020 and so is now approved.
2. The material concerned is implemented on the date of approval by the Council.
3. This change will be incorporated in the new Sixth Edition of Doc 7030/6 as part of the restructuring process of Doc 7030.

Yours sincerely,

Arun Mishra
ICAO Regional Director
Asia and Pacific

Enclosure:

Proposal for Amendment to the Regional
Supplementary Procedures (Doc 7030/5),
(Serial No. APAC-S18/03 - PAC 5-2)
(Serial No. APAC-S18/10 – MID/ASIA 5-3)

ATTACHMENT A

PROPOSAL FOR AMENDMENT OF THE REGIONAL SUPPLEMENTARY PROCEDURES, PACIFIC (PAC) REGION (Doc 7030/5)

(Serial No.: APAC-S 18/03-PAC 5-2)

a) **Regional Supplementary Procedures:**

Doc 7030/5 – PAC SUPPs

b) **Proposed by:**

Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)

c) **Proposed amendment:**

Editorial Note: Amendments are arranged to show the text as shown below:

- | | |
|---|-----------------------------------|
| a) Text to be deleted is shown with a line through it. | text to be deleted |
| b) New text to be inserted is highlighted with grey shading. | new text to be inserted |
| 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 |

Add the following in the PAC SUPPs, Chapter 5 – Surveillance, Section 5.5:

5.5 AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B)

Nil

5.5.1 The procedures contained in 5.5.2 to 5.5.3 shall be applicable in those portions of the following FIRs where an ADS-B-based ATS surveillance service is provided:

Anchorage Oceanic, Auckland Oceanic (East of 180°), Easter Island, Nadi, Oakland Oceanic, and Tahiti.

5.5.2 An aircraft carrying 1 090 MHz extended squitter (1090ES) ADS-B equipment shall disable ADS-B transmission unless:

- a) the aircraft emits position information of an accuracy and integrity consistent with the transmitted value of the position quality indicator; or

- b) the aircraft always transmits a value of 0 (zero) for one or more of the position quality indicators (NUCp, NIC, NACp, or SIL); or
- c) the operator has received an exemption granted by the appropriate ATS authority.

Note.— The following documents provide guidance for the installation and airworthiness approval of ADS-B OUT system in aircraft and ensure compliance with a) above:

1. *European Aviation Safety Agency (EASA) AMC 20-24; or*
2. *European Aviation Safety Agency (EASA) CS-ACNS (Subpart D – Surveillance – SUR); or*
3. *FAA AC No. 20-165A (or later versions) – Airworthiness Approval of ADS-B; or*
4. *Configuration standards reflected in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.*

5.5.3 Downlinked ADS-B data shall not be used by an ATS system for determining aircraft position when any of the position quality indicators (NUCp, NIC, NACp or SIL) have a value of 0 (zero).

d) **Proposer’s reason for amendment:**

- 1) Implementation of ADS-B is gradually increasing in States in the Asia/Pacific Region.
- 2) However, it is recognized that there are a number of aircraft transmitting misleading, or non-compliant ADS-B data not in accordance with ICAO Standards specified in Annex 10 — *Aeronautical Telecommunications, Volume IV — Surveillance and Collision Avoidance Systems*. The proposed amendment will provide procedures to correctly deal with and reduce misleading and non-compliant ADS-B transmissions. Examples of those incorrect ADS-B transmissions include the following:
 - a) aircraft broadcasting incorrect message formats;
 - b) aircraft broadcasting inertial positional data and indicating wrong high integrity data in the message;
 - c) using GPS sources that do not generate correct integrity data, whilst indicating in the messages that the data has high integrity;
 - d) transmitting ADS-B data with changing (and incorrect) flight integrity; and
 - e) transmitting ADS-B data with incorrect flight identity continuously.

e) **Proposed implementation date of the amendment:**

Upon approval by Council

f) **Action by the Secretary General:**

The proposal has been circulated to the following States and international organizations:

Afghanistan	India	Sri Lanka
Albania	Indonesia	Sudan
Algeria	Iran (Islamic Republic of)	Suriname
Andorra	Iraq	Sweden
Angola	Ireland	Switzerland
Argentina	Israel	Syrian Arab Republic
Armenia	Italy	Tajikistan
Australia	Jamaica	Thailand
Austria	Japan	Togo
Azerbaijan	Jordan	Trinidad and Tobago
Bahamas	Kazakhstan	Tunisia
Bahrain	Kenya	Turkey
Bangladesh	Kuwait	Turkmenistan
Belarus	Kyrgyzstan	Uganda
Belgium	Latvia	Ukraine
Benin	Lebanon	United Arab Emirates
Bhutan	Libya	United Kingdom
Bolivia (Plurinational State of)	Lithuania	United Republic of Tanzania
Bosnia and Herzegovina	Luxembourg	United States
Botswana	Madagascar	Uruguay
Brazil	Malaysia	Uzbekistan
Brunei Darussalam	Maldives	Venezuela (Bolivarian Republic of)
Bulgaria	Mali	Viet Nam
Burkina Faso	Malta	Yemen
Cameroon	Mauritania	Zambia
Canada	Mauritius	Zimbabwe
Cabo Verde	Mexico	
Central African Republic	Monaco	International Organizations
Chad	Mongolia	EUROCONTROL
Chile	Montenegro	CANSO
China	Morocco	IAOPA
Colombia	Mozambique	IATA
Congo	Namibia	IBAC
Côte d'Ivoire	Nepal	IFALPA
Croatia	Netherlands	IFATCA
Cuba	New Zealand	
Cyprus	Niger	
Czechia	Nigeria	
Democratic People's Republic of Korea	North Macedonia	
Democratic Republic of the Congo	Norway	
Denmark	Oman	
Djibouti	Pakistan	
Dominican Republic	Paraguay	
	Peru	
	Philippines	

Ecuador	Poland
Egypt	Portugal
El Salvador	Qatar
Eritrea	Republic of Korea
Estonia	Republic of Moldova
Eswatini	Romania
Ethiopia	Russian Federation
Finland	San Marino
France	Saudi Arabia
Gabon	Senegal
Gambia	Serbia
Georgia	Seychelles
Germany	Sierra Leone
Ghana	Singapore
Greece	Slovakia
Guinea-Bissau	Slovenia
Haiti	Somalia
Hungary	South Africa
Iceland	Spain

g) **Secretariat's comments:**

This proposal for amendment was developed on the basis of Conclusion 28/25 of the twenty eighth meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group.

ATTACHMENT B

PROPOSAL FOR AMENDMENT OF THE REGIONAL SUPPLEMENTARY PROCEDURES MIDDLE EAST/ASIA (MID/ASIA) REGION (Doc. 7030/5)

(Serial No.: APAC-S18/10 – MID/ASIA 5-3)

a) **Regional Supplementary Procedures:**

Doc 7030/5 – MID/ASIA SUPPs

b) **Proposed by:**

Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)

c) **Proposed amendment:**

Editorial Note: Amendments are arranged to show deleted text using strikeout and added text with grey shading, as shown below:

- | | |
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| b) New text to be inserted is highlighted with grey shading. | new text to be inserted |
| 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 |

Amend the following in the MID/ASIA SUPPs, Chapter 5 – Surveillance, Section 5.5:

5.5 AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B)

5.5.1 The procedures contained in 5.5.2 to 5.5.3 shall be applicable in those portions of the following FIRs where an ADS-B-based ATS surveillance service is provided:

Auckland Oceanic (West of 180°), Bangkok, Beijing, Brisbane, Chennai, Colombo, Delhi, Dhaka, Fukuoka, Guangzhou, Hanoi, Ho-Chi-Minh, Hong Kong, Honiara, Incheon, Jakarta, Kabul, Karachi, Kathmandu, Kolkata, Kota Kinabaru, Kuala Lumpur, Kunming, Lahore, Lanzhou, Male, Manila, Melbourne, Mumbai, Nauru, New Zealand, Phnom Penh, Port Moresby, Pyongyang, Sanya, Shanghai, Shenyang, Singapore, Taipei, Ujung Pandang, Ulan Bator, Urumqi, Vientiane, Wuhan and Yangon.

5.5.2 An aircraft carrying 1 090 MHz extended squitter (1090ES) ADS-B equipment shall disable ADS-B transmission unless:

- the aircraft emits position information of an accuracy and integrity consistent with the transmitted value of the position quality indicator; or
- the aircraft always transmits a value of 0 (zero) for one or more of the position quality indicators (NUCp, NIC, NACp, or SIL); or

- c) the operator has received an exemption granted by the appropriate ATS authority.

Note.— The following documents provide guidance for the installation and airworthiness approval of ADS-B OUT system in aircraft and ensure compliance with a) above:

1. *European Aviation Safety Agency (EASA) AMC 20-24; or*
2. *European Aviation Safety Agency (EASA) CS-ACNS (Subpart D – Surveillance – SUR); or*
23. *FAA AC No. 20-165A (or later versions) – Airworthiness Approval of ADS-B; or*
34. *Configuration standards reflected in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.*

5.5.3 Downlinked ADS-B data shall not be used by ~~the~~ **an ATCS** system for determining aircraft position when any of the position quality indicators (NUCp, NIC, NACp or SIL) have a value of 0 (zero).

d) Proposer's reason for amendment:

Implementation of ADS-B is gradually increasing in States in the Asia/Pacific Region. However, it is recognized that there are a number of aircraft transmitting misleading, or non-compliant ADS-B data not in accordance with ICAO Standards specified in Annex 10 — *Aeronautical Telecommunications, Volume IV — Surveillance and Collision Avoidance Systems*. The proposed amendment will provide procedures to correctly deal with, and reduce misleading and non-compliant ADS-B transmissions. Examples of those incorrect ADS-B transmissions include the following:

- a) aircraft broadcasting incorrect message formats;
- b) aircraft broadcasting inertial positional data and indicating wrong high integrity data in the message;
- c) using GPS sources that do not generate correct integrity data, whilst indicating in the messages that the data has high integrity;
- d) transmitting ADS-B data with changing (and incorrect) flight integrity; and
- e) transmitting ADS-B data with incorrect flight identity continuously.

e) Proposed implementation date of the amendment:

Upon approval by Council.

f) Action by the Secretary General:

The proposal has been circulated to the following States and international organizations:

Afghanistan	India	Sri Lanka
Albania	Indonesia	Sudan
Algeria	Iran (Islamic Republic of)	Suriname
Andorra	Iraq	Sweden
Angola	Ireland	Switzerland
Argentina	Israel	Syrian Arab Republic
Armenia	Italy	Tajikistan
Australia	Jamaica	Thailand
Austria	Japan	Togo
Azerbaijan	Jordan	Trinidad and Tobago

Bahamas	Kazakhstan	Tunisia
Bahrain	Kenya	Turkey
Bangladesh	Kuwait	Turkmenistan
Belarus	Kyrgyzstan	Uganda
Belgium	Latvia	Ukraine
Benin	Lebanon	United Arab Emirates
Bhutan	Libya	United Kingdom
Bolivia (Plurinational State of)	Lithuania	United Republic of Tanzania
Bosnia and Herzegovina	Luxembourg	United States
Botswana	Madagascar	Uruguay
Brazil	Malaysia	Uzbekistan
Brunei Darussalam	Maldives	Venezuela (Bolivarian Republic of)
Bulgaria	Mali	Viet Nam
Burkina Faso	Malta	Yemen
Cameroon	Mauritania	Zambia
Canada	Mauritius	Zimbabwe
Cabo Verde	Mexico	
Central African Republic	Monaco	International Organizations
Chad	Mongolia	EUROCONTROL
Chile	Montenegro	CANSO
China	Morocco	IAOPA
Colombia	Mozambique	IATA
Congo	Namibia	IBAC
Côte d'Ivoire	Nepal	IFALPA
Croatia	Netherlands	IFATCA
Cuba	New Zealand	
Cyprus	Niger	
Czechia	Nigeria	
Democratic People's Republic of Korea	North Macedonia	
Democratic Republic of the Congo	Norway	
Denmark	Oman	
Djibouti	Pakistan	
Dominican Republic	Paraguay	
Ecuador	Peru	
Egypt	Philippines	
El Salvador	Poland	
Eritrea	Portugal	
Estonia	Qatar	
Eswatini	Republic of Korea	
Ethiopia	Republic of Moldova	
Finland	Romania	
France	Russian Federation	
Gabon	San Marino	
Gambia	Saudi Arabia	
Georgia	Senegal	
Germany	Serbia	
Ghana	Seychelles	
Greece	Sierra Leone	
Guinea-Bissau	Singapore	
Haiti	Slovakia	
Hungary	Slovenia	
Iceland	Somalia	
	South Africa	
	Spain	

g) **Secretariat's comments:**

This proposal for amendment was developed on the basis of Conclusion 28/25 of the twenty eighth meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group.

— END —