



ICAO

**Twenty Fourth Meeting of the Communications/  
Navigation and Surveillance Sub-group (CNS SG/24) of  
APANPIRG**

Web-conference, 30 November – 4 December 2020

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**Agenda Item 2:** Review outcomes of APANPIRG/RASG Chairpersons review, APANPIRG/30 meeting, 40th Session of ICAO Assembly, ATM Sub-group and other major meetings relevant to CNS Sub-group

**ATM/SG/8 OUTCOMES**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the key outcomes from Eighth Meeting of the Air Traffic Management Sub-Group (ATM/SG/8) relevant to CNS.

**1. INTRODUCTION**

Heading

1.1 The Eighth Meeting of the Air Traffic Management Sub-Group (ATM/SG/8) of the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) was held by Video Teleconference (VTC) from the ICAO Asia and Pacific Regional Office, Bangkok, Thailand.

1.2 The meeting was attended by 220 registered participants from 27 States, two Special Administrative Regions of China and five International and ATM-related organizations, including Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong China, Macao China, Fiji, France (French Polynesia), India, Indonesia, Japan, Lao People's Democratic Republic (PDR), Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea (ROK), Singapore, Sri Lanka, Thailand, United States of America (USA), Viet Nam, CANSO, IATA, IFALPA, IFATCA, and ICAO.

**2. DISCUSSION**

FIT-Asia and RASMAG Outcomes

*FIT-Asia/10*

2.1 ICAO provided a summary of the outcomes from the Tenth Meeting of the FANS Interoperability Team-Asia (FIT-Asia/10, VTC, 03 – 06 August 2020) and the Twenty-Fifth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/25, VTC, 27 – 30 October 2020).

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2.2 The improvement in the submission of Problem Reports (PRs) by ANSPs to the Central Reporting Agency (CRA) that was noted at FIT-Asia/9 continued at FIT-Asia/10. A total of 66 PRs had been raised between July 2019 and June 2020, compared with 45 in the previous 12-month period.

2.3 FIT-Asia/10 had noted that performance based separations were known or intended to have been implemented within high seas airspace included India, Indonesia, Maldives, Myanmar, Philippines and Sri Lanka. States had been requested to notify the ICAO Regional Office so that a Proposal for Amendment (PfA) to Doc 7030 – Regional Supplementary Procedures (SUPPS) may be prepared. Following the receipt of information subsequent to the FIT-Asia/10 meeting, coordination had commenced on the inclusion of relevant provisions in SUPPS for Indonesia, Philippines and Sri Lanka.

2.4 Performance-Based Communications and Surveillance (PBCS) non-compliance report templates were intended for ANSPs to inform the relevant Regional Monitoring Agency (RMA) of aircraft/aircraft operators where data link performance did not comply with specifications. A revised non-compliance report form template was proposed to FIT-Asia/10 in order to include additional information, to harmonize with the template already adopted in the North Atlantic (NAT) Region, and to use MS Excel format to facilitate data handling by the RMA.

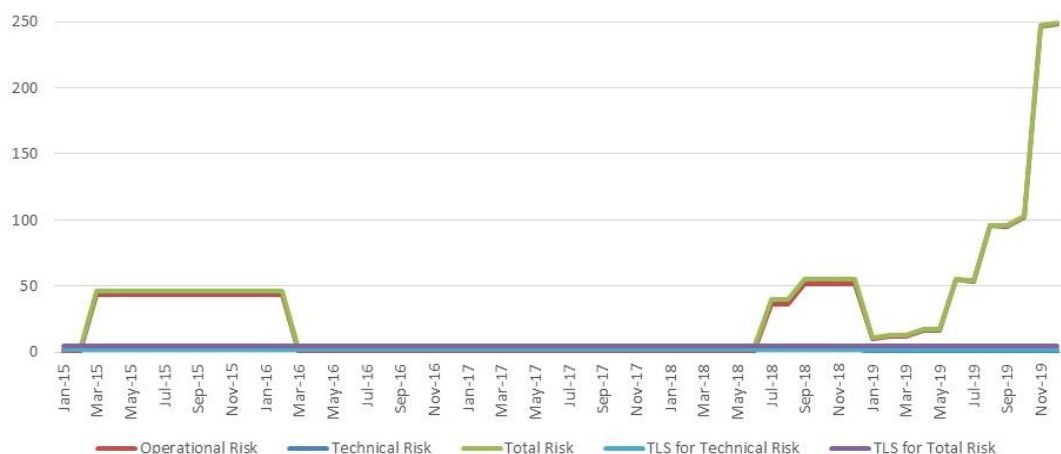
2.5 RASMAG/25 had agreed to the following Conclusion developed by the FIT-Asia/10:

***Conclusion RASMAG/25-1: Revised PBCS Non-Compliance Report Form Template***

*That, the PBCS Non-Compliance Report Form Template at Appendix C to the Report be uploaded to the Asia/Pacific Regional Office website, to replace the previous template.*

***Reduced Vertical Separation Minimum (RVSM) Vertical Safety***

2.6 The USA had provided an RVSM safety report for the AKARA-FUKUE Corridor airspace within the Incheon FIR. The AKARA corridor airspace involved four FIRs (Fukuoka, Incheon, Taipei and Shanghai) and had a unique, Annex 11 non-compliant arrangement, whereby two ATC units provided services within the same airspace. A new direct speech circuit had been provided between Shanghai and Incheon Area Control Centres (ACCs). Due to enhanced surveillance and reporting, there had been an increase to 29 LHDs, which had resulted in a 57% increase in the estimated vertical risk to **247.0 × 10<sup>-9</sup>**. (Figure 1). The risk estimate exceeded the TLS by a factor of nearly 50 times, more than an order of magnitude.



**Figure 1: AKARA Twelve-month Rolling Vertical Collision Risk Estimates, 2015 – 2019**

### Seamless ANS Plan and Monitoring Update

2.7 The meeting noted that the Asia/Pacific Region’s primary means of planning to support the ICAO Doc 9750 *Global Air Navigation Plan* (GANP) was the *Asia/Pacific Seamless ANS Plan*, which required the involvement and active participation of States and all stakeholders. At present, the *Asia/Pacific Seamless ANS Plan* had several important subsidiary plans, and it was expected that Aerodrome Operations (AOP)-related subsidiary plans would need to be developed as well.

2.8 A total of 28 States/Administrations (63.6% of the APAC States/Administrations), had submitted one or more report(s) on the ICAO Seamless ATM Reporting Portal (accessible through the ICAO Secure Portal). Among those 28 States/Administrations, only six States had submitted at least four reports from 2014 to 2018 (note: ‘regular reporting’ was measured over a period of three years).

2.9 As 2019 had been a review year for the *Asia/Pacific Seamless ATM Plan*, the meeting noted that it had been renamed as the *Asia/Pacific Seamless ANS Plan*, and now included a need to develop a National Air National Plan (NANP). A template for the development of a NANP is at <https://www.icao.int/APAC/Documents/edocs/National%20Air%20Navigation%20Template%20V6.0.docx>.

2.10 In general, the ten priority regional targets planned for Phase I (November 2015 - November 2019) Phase 1 had not been achieved, even three years after the initial target date. States had been urged by APANPIRG/27 to give higher priority both at CAA and ANSP levels, and to mobilize human and financial resources to complete the implementation of Phase 1 objectives.

2.11 The ten priorities had been updated by APANPIRG/30 to 16 priorities. However, the Seamless reporting portal had not been able to be updated thus far to match the 6<sup>th</sup> Edition of GANP and Version 3.0 of the *Asia/Pacific Seamless ANS Plan*, meaning that data was now unfortunately out-of-date. The meeting noted that States with ICAO Council Members were requested to advocate for an updated portal to be provided as soon as possible, in accordance with APANPIRG Conclusion 30-6. In response to an enquiry from Hong Kong China, ICAO clarified that States/Administrations should withhold updates until the new Seamless Reporting Portal was ready.

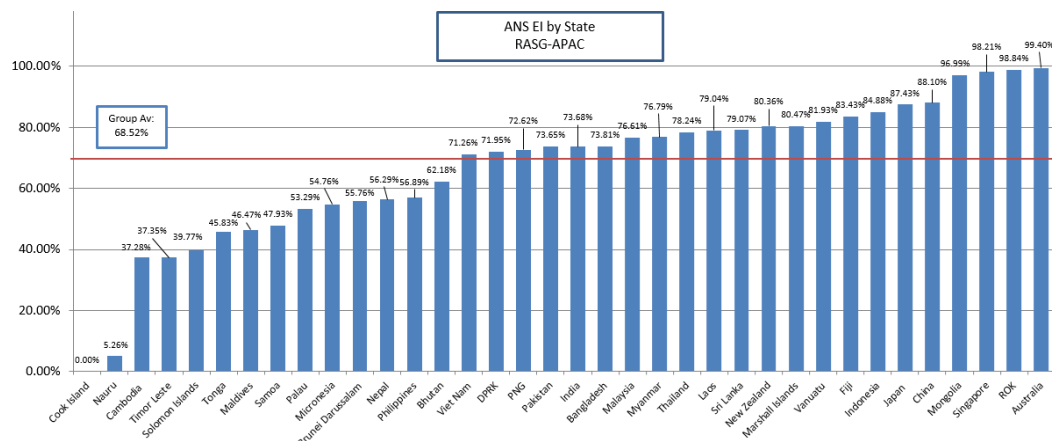
2.12 Ultimately, the *Asia/Pacific Seamless ANS Plan* was expected to be incorporated into Volume III of the Regional Air Navigation Plan (RANP), to become fully web-based.

2.13 Hong Kong, China provided an update on its AIDC implementation status. ICAO advised that the information should be provided to the CNS/SG to update information in the eANP Vol. II.

### ANS USOAP Update

2.14 ICAO provided information on the ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA). The paper discussed the Protocol Questions (PQs) used to assess a State’s safety oversight system, and an annual update of ANS USOAP status.

2.15 The average ANS Effective Implementation (EI) of APAC region was 68.52%, as at February 2020. **Figure 2** illustrates the EI ratings for ANS-related PQs of APAC States:



**Figure 2:** USOAP ANS EI Comparisons by State (July 2020)

2.16 The following data is provided for the comparison of effective implementation of the seven ANS fields under USOAP using the specific PQs related to these fields:

ANS Fields	EI of Each ANS Field (%)	
	2019	2020
ATS	71.47%	72.98%
AIS	67.11%	69.7%
PANS OPS	66.91%	69.57%
CHARTS	61%	65.54%
CNS	73.80%	73.71%
MET	68.17%	70.79%
SAR	58.99%	61.21%

**Table 1:** USOAP EI Comparisons by ANS Fields

2.17 The average EIs of CE4, CE7 and CE8 were lower than 60%. If the State understands the CE deliverable as follows, reads the PQ, guidance to auditors, and any previous finding in conjunction with the CE, then it should be clear what the auditor is seeking:

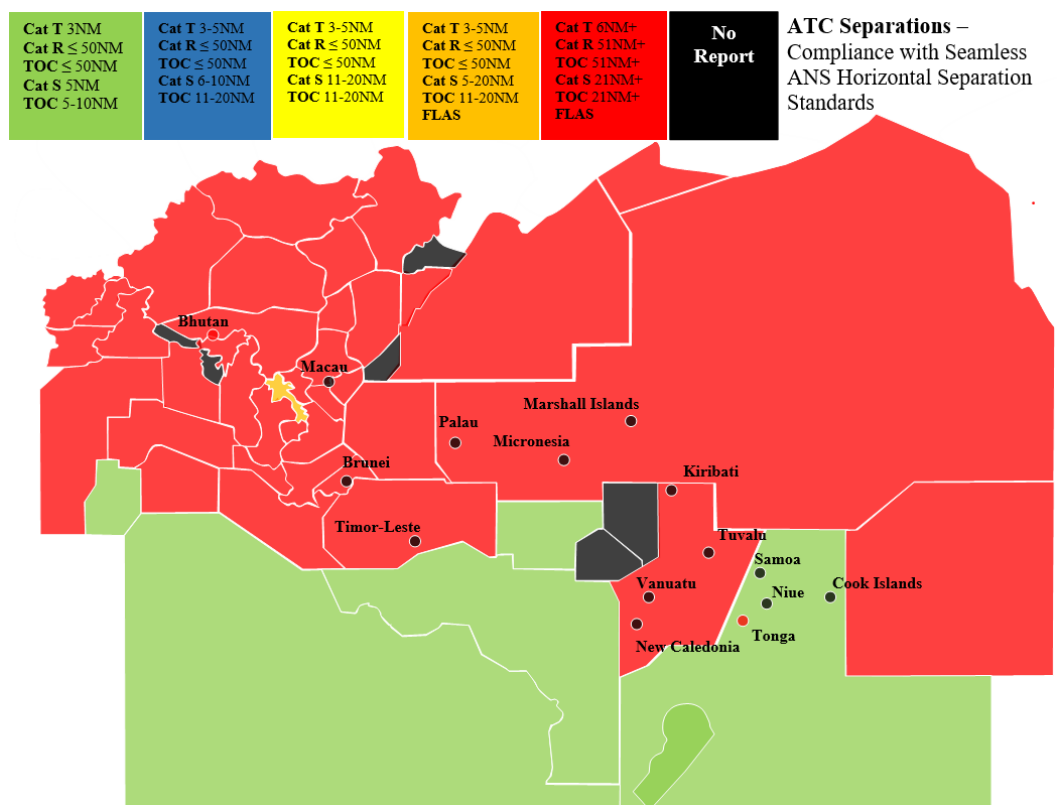
- CE-4: systems described in organizational manuals used to assure the competency of the CAA’s regulatory personnel such as the selection, training and assessment of auditors.
- CE-7 – systems described in CAA operational unit’s manuals to effectively conduct surveillance of approval, licence or certificate holders, which normally involves sampling using audit checklists (including unannounced spot checks); and
- CE-8 – systems described in organizational manuals that provide a means of reporting, identification, tracking, analysis, and resolution of safety concerns, including those stemming from safety incidents and accidents (focusing on systemic or ‘preventive’ actions, rather than individual ‘corrective’ actions).

Application of ATC Separation Standards

2.18 ICAO presented data on surveyed ATC separation standards that were being applied within the Asia/Pacific Region as compared to the provisions in the *Asia/Pacific Seamless ANS Plan*.

2.19 When improvements to ATS surveillance (and presumably communications) are made, a core principle of the *Asia/Pacific Seamless ANS Plan* was to ensure that the operational benefits are provided to airspace users, to provide some return for the cost of the improvements. However, in many cases, no benefit is provided other than safety monitoring of procedural separations.

2.20 **Figure 3** provided an indication of the efficiency of ATC separations as they were theoretically being applied within Flight Information Regions (FIRs) and at Transfer of Control (TOC) points as at the ATM/SG/8, according to the latest data available to the ICAO Regional Office.



**Figure 3:** Compliance with Seamless ANS Horizontal Separation Standards

2.21 Except for China, according to survey data, no State in Asia had been applying ATC separation standards based on the provisions of the *Asia/Pacific Seamless ANS Plan* and ICAO Document 4444 – *PANS ATM*. Therefore, the Asian Region as a whole had failed to deliver the service levels new CNS systems were capable of. In particular, ICAO had noted that there were significant weaknesses in many Asian State’s application of terminal separations, so this area had now been included in the survey. This inefficiency, and the failure to implement proper Air Traffic Flow Management (ATFM) where necessary, sequencing mechanisms such as Arrival Manager (AMAN) and efficient Standard Terminal Arrival Routes (STARs) and use of runways for departures between arrivals, meant that many terminal airspace operations were operating well below potential capability.

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2.22 The meeting noted that human decision-making at management level could be responsible for this poor result, indicating a region-wide paradigm shift in organisational culture was necessary. Asian States in particular were urged to recognise the problem and establish policies, rules and procedures for ANSPs to greatly improve the benefits from modern CNS/ATM systems, including training for senior managers to recognise the gap between current practice and best practice.

2.23 The ATM/SG/8 meeting had an extensive discussion on the most appropriate ATC separations and TOC spacing, against the background of the need for greater efficiency to respond to COVID-19 and the limited progress to implement PANS ATM separation standards and the expectations of the *Asia/Pacific Seamless ANS Plan*. Discussion topics included the background, barriers and the need for efficiency improvements that:

- a) utilised 5NM enroute and 3NM in terminal airspace, if ATS surveillance is in place and controllers are trained (given that PANS ATM separations included a buffer);
- b) declared the minimum separation standard for use within an FIR as being based on the State's capability, not that of neighbouring FIRs;
- c) recognised that the minimum separation standard was expected to be used only as appropriate as required by controllers on an individual conflict pair basis;
- d) noted that the assessment of FLAS did not include airspace within 50NM of an FIR boundary;
- e) recognised that PBCS is not a factor in the application of ATS surveillance-based separations within VHF coverage; and
- f) recognised that possible degradation of normal performance should not be used to set the default separation standard, as this is a contingency situation.

Air Traffic Flow Management Steering Group Outcomes

2.24 The meeting was informed of the outcomes of the 10<sup>th</sup> Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/10), held by Video Teleconference from 04 to 08 May 2020.

*Related Meetings Outcomes (ATFM Information Exchange)*

2.25 The APAC Flight Information Exchange Model (FIXM) 4.1 Extension, initiated by ATFM/SG and developed by the APAC System-Wide Information Management (SWIM) Task Force (SWIM TF), had been reviewed by the FIXM Change Control Board (CCB) and subsequently published on the FIXM website at <https://fixm.aero>. APANPIRG 30 subsequently adopted the FIXM extension under Conclusion APANPIRG/30/12 (CNS SG/23/6-SWIM TF/3/4) – *Asia/Pacific FIXM Extension for ATFM*. The FIXM extension was posted on the ICAO APAC Regional Office eDocuments web-page for immediate use by APAC administrations, where capability to do so existed.

2.26 The CNS/SG/23 meeting had, under *Conclusion CNS SG/23/1 (ACSICG/6/1) – ATFM/AMHS-Based Interface Control Document for ATFM* drafted by ATFM/SG/9, adopted the AFTN/AMHS-based Interface Control Document (ICD) for use by APAC Administrations in implementing cross-border ATFM communications in the non-SWIM environment. A further update of the ICD was also developed by ATFM/SG/10, which agreed to *Draft Conclusion ATFM/SG/10-3: Amendment of the AFTN/AMHS-based Interface Control Document (ICD)*. The Draft Conclusion was subsequently endorsed by the Seventh Meeting of the Aeronautical Communications Services Implementation Coordination Group (ACSICG/7, Web-Conference, 21 – 23 July 2020).

Asia/Pacific Unmanned Aircraft Systems Update

2.27 ICAO provided information on developments in the field of Unmanned Aircraft Systems (UAS), recalling that ATM/SG/7 had adopted the *Asia/Pacific Regional Guidance for the Regulation and Safe Operation of UAS within National Airspace (Conclusion ATM/SG/7-9)*.

2.28 The UAS Advisory Group (UAS-AG) of the Remotely-Piloted Aircraft Systems (RPAS) Panel had developed the ICAO UAS Toolkit, which was a repository of information on the management of UAS that fell outside the scope of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) developed for RPAS operations. The toolkit was available at:

<https://www.icao.int/safety/UA/UASToolkit/Pages/default.aspx>.

2.29 The ICAO COVID-19 Series Webinars webinars on UAS-related topics included:

- Enabling UAS Operations ([link](#));
- Enabling UAS Operations Part II – Panel Discussion ([link](#));
- Introducing ICAO UAS Model Regulations ([link](#));
- UAS Beyond Visual Line of Sight Operations – for Regulators ([link](#)); and
- ICAO UAS Traffic Management (UTM) Framework ([link](#)).

2.30 The ICAO DRONE ENABLE 2021 Symposium would be held by VTC from 13 – 15 and 20 – 21 April 2021. More information was available at [www.icao.int/meetings/droneenable4](http://www.icao.int/meetings/droneenable4).

Recent CNS-Related Developments

2.31 ICAO provided information on recent developments in the Communications, Navigation and Surveillance (CNS) area relevant to ATM, including several Draft Conclusions that would be presented to the Twenty-Fourth Meeting of the CNS Sub-Group APANPIRG (CNS SG/24, 30 November – 04 December 2020).

2.32 The meeting noted that a Flight Inspection and Procedure Validation (FIPV) Seminar had established an ad hoc group, which successfully completed the ICAO *APAC Flight Inspection Guidance Material*.

2.33 An Asia/Pacific Cyber Safety and Resilience Workshop with Tabletop Exercise had been held from 19 – 21 November 2019 to develop awareness on cyber issues affecting aviation, and foster a cyber-safety culture that will promote a resilient and secure cyberspace.

2.34 The Mode S Downlink of Aircraft Parameters (DAPs) WG/3 had explored the utilization of Mode-S DAPs data, Assignment of Interrogator Codes for Multilateration (MLAT) and Automatic Dependent Surveillance – Broadcast (ADS-B), to propose an APAC regional plan.

2.35 The Sixth meeting of the AIDC Task Force (APA TF/6, VTC, 14 – 16 July 2020) had highlighted new AIDC connections between:

- a) Shenyang and Khabarovsk (OLDI);
- b) Kuala Lumpur and Chennai;
- c) Singapore and Kuala Lumpur;
- d) Bangkok and Kuala Lumpur;

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- e) Bangkok and Vientiane;
- f) Manila ACC and Hong Kong;
- g) Manila and Singapore; and
- h) Manila and Taipei.

2.36 The Seventh Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/7) had revised the *Aeronautical Mobile Service (AMS) Strategy and Strategy for Implementation of the Air-Ground Data Link in the Asia/Pac Region*. The meeting recommended to postpone the target year of regional implementation of Common Regional Virtual Private Network (CRV) from 2020 to the end of 2021.

2.37 The Fifth Meeting of the Surveillance Implementation Coordination Group (VTC, 22 – 24 September 2020) had, *inter alia*, shared an Operational Evaluation of Space-Based ADS-B (SB ADS-B) and proposed sharing surveillance data over System Wide Information Management (SWIM)/CRV. The meeting was informed that 30 States/Administrations had installed ADS-B ground stations, 12 States had issued ADS-B mandates and eight States used ADS-B for separation.

2.38 The ATM Automation System Seminar and TF /1 (28 – 30 October 2020) had shared experiences and information from CAA/ANSPs and industry. The meeting had proposed the *Recommended Functions and Performances of Air Traffic Management Automation System* (Edition 0.0) as the basis to develop regional guidance.

2.39 The meeting discussed the need for intensified coordination between the APAC and MID Regions to resolve the long standing AIDC issue between Oman (which used the European On-Line Data Interchange system – OLDI) and Mumbai, preferably through means of a small working group. India informed the meeting that the OLDI vendor in Oman was the same that supplied the Kolkata ACC's system.

Establishment of ADS-B Out Exclusive Airspace

2.40 Singapore presented its plan to establish ADS-B out exclusive airspace in the Singapore FIR in phases to fulfil the objectives of the *Asia/Pacific Seamless ANS Plan* with the aim of enhancing safety and optimising airspace use. The implementation Plan is:

- a) Phase 1 – from April 2021, Singapore would utilise ADS-B for ATC monitoring, at and above FL290, with no requirement for aircraft to be ADS-B equipped for the airspace in the remainder of Singapore FIR [beyond the ADS-B out exclusive airspace that had already been designated in December 2013]; and
- b) Phase 2 – from January 2022, Singapore would operationalise ADS-B out exclusive airspace and require aircraft operating at and above FL290 in the north-eastern portion of the Singapore FIR to be ADS-B equipped, and extend the mandate to the whole Singapore FIR from January 2023.

2.41 ICAO recalled the need for a Doc. 7030 amendment to contain a regional air navigation agreement for a mandate within that portion of international airspace over the 'high seas'. The meeting also noted that there were a number of other States contemplating the use of ADS-B within international airspace, including SB ADS-B, so it would be better to have several States jointly submit a PfA. The Chair encouraged a Small Working Group of interested States to work on the PfA. ICAO indicated that this initiative would be notified to the upcoming CNS/SG meeting for their information.

Mode S Conspicuity Code

2.42 The meeting was provided with a update on the Asia/Pacific Secondary Surveillance Radar (SSR) Codes Allocation Plan, with respect to the reservation of a Mode S Conspicuity Code. The *Surveillance Strategy for the Asia/Pacific Region*, adopted by APANPIRG/27, stated that States should make full use of aircraft Mode S capabilities where suitable surveillance systems are available, to reduce reliance on 4-digit octal codes.

2.43 ATM/SG/6 had agreed to *Conclusion ATM/SG/6-3: Proposed Air Navigation Plan Volume II Amendment*, proposing the withdrawal of Mode A SSR Code 1000 from the RANP Table ATM II-APAC-2 (SSR codes allocation plan) and identifying it as the Mode S conspicuity code for the APAC Region. A PfA to the RANP had been circulated and approved. Code 1000 had been removed from the RANP table, and a specific regional requirement that Mode A Code 1000 had been reserved for use as a Mode S conspicuity code in Part IV – *Air Traffic Management (ATM)*.

2.44 The 2019 update of the *Asia/Pacific Seamless ANS Plan* had also included a related performance expectation, noting that ATC units operating within controlled airspace wholly served by Mode S SSR and/or ADS-B surveillance should implement the use of the standard non-discrete Mode A code 1000 for Mode S transponder equipped aircraft, to reduce the reliance on assignment of discrete Mode A SSR codes.

Mumbai RNP Approach and Revised PBN SID/STARs

2.45 IP03 discussed the implementation of Required Navigation Performance (RNP) Approach (APCH) procedures at Mumbai in September 2020, which complimented the Area Navigation (RNAV) 1 Standard Instrument Departures/Standard Terminal Arrival Route (STAR) established in 2008. The paper noted the need for PBN approaches to cater for contingency scenarios when conventional landing aids may not be available, and to support operations during adverse weather conditions.

Space-Based ADS-B Coverage Over Indian FIRs

2.46 India provided the meeting with news on the positive development of SB ADS-B surveillance over the entire Indian oceanic airspace, commencing 01 January 2021.

2.47 India described the many benefits of this deployment, including traffic awareness and monitoring during Phase I. During Phase II, more efficient separation minima would be introduced to enhance airspace capacity, maintaining the same or improved level of safety with the application of Advanced Surveillance Enhanced Procedural Separation (ASEPS).

2.48 ICAO noted that the provisions for ASEPS were now in ICAO Doc. 4444 – *PANS ATM* (Amendment 9 to Edition 16, Chapter 8, Section 8.7.4). This allowed the use of RNP 4 or RNP 2, CPDLC (RCP 240) and SB ADS-B to enable separations of 19NM or less, subject to the caveats contained within PANS ATM (including a safety case).

2.49 India confirmed that there would be at least six months of testing, then the results would be presented to FIT-Asia. If the performance was as expected, then Phase II could be implemented in coordination with adjacent FIRs, to provide surveillance-based separations with the SB ADS-B technology.

Future Air Traffic Systems of Japan (CARATS) Vision

2.50 Japan presented its long-term vision for the future air traffic systems of Japan – *CARATS: Collaborative Actions for Renovation of Air Traffic Systems*.

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2.51 IP05 provided a high level overview of CARATS' goals, including improvements in safety, capacity user-friendliness (and by inference, environmental impacts). Examples of such initiatives included continental Controller Pilot Data Link Communications (CPDLC), the optimisation of Tokyo Haneda's airspace and use of DAPS to improve ATC situational awareness.

2.52 Given the fiscal situation, Japan stressed that decisions to implement were only made following a collaborative framework with industry, academia and government.

Introduction of Domestic CPDLC in Japan

2.53 Japan provided information on the implementation of CPDLC within the domestic en route environment [at or above FL335 by Sapporo, Tokyo, Kobe, Fukuoka ACCs] where radar surveillance service is available, in order to increase ATC capacity and improve safety.

ATM Automation System Transition Lessons Learned

2.54 Thailand provided a summary of lessons learned from the implementation of new its ATM Automation System. The transition was completed in Q1 2020, supporting one ACC, seven approach control units and thirty-six aerodrome control units, along with associated CNS systems.

2.55 Thailand noted that when implementing AIDC to facilitate automated transfer of control to neighbouring ATS units, starting with the minimum message set specified in the *Asia/Pacific Seamless ANS Plan* should help minimize problems.

2.56 The centralized national flight plan (FPL) and ATS message management function had helped to ensure that FPL and ATS messages routed into ATM automation systems were not duplicated and could be properly processed. The paper also discussed the need for integrated ATFM capability, procurement processes for large ATM systems and the associated management of vendor relationships and transition planning, including training.

BIMT7 Meeting Outcomes

2.57 IP09 provided a summary of the outcomes from the Seventh Meeting of the Bangladesh, India, Myanmar, Thailand ATM Coordination Group (BIMT/7, Dhaka, Bangladesh, 05 – 06 February 2020). Key highlights included development of the route network, discussion about a timeline for the Secondary Surveillance Radar (SSR) Mode S Conspicuity Code Transition, AIDC implementation, ATFM matters (including non-receipt of DEP messages), LHDs, and ATM contingency planning. Due to the on-going ICAO validation of FIRs, Bangladesh had also made proposals to amend the Dhaka FIR boundary to be coincident with its territory, which needed to be addressed by India and Myanmar.

Mekong ATM Coordination Group Outcomes

2.58 Cambodia, China, Hong Kong China Lao PDR, Myanmar, Thailand, Viet Nam and IATA discussed the main outcomes from the Eighth Meeting of the Mekong ATM Coordination Group (MK-ATM/CG/8, Da Lat, Viet Nam, 11 – 13 December 2019). The meeting discussed route development, ATFM, SWIM implementation and ATM contingency planning matters.

Implementation of Unidirectional Parallel Tracks (IP11)

2.59 Hong Kong, China discussed the successful introduction of two unidirectional parallel ‘tracks’ connecting A1/P901 IKELA and G86 KAPLI within the Hong Kong FIR, by modification of the original single bi-directional track. Hong Kong, China stated that the tracks had greatly enhanced operational safety and efficiency in the en-route ATC sectors, and noted that the benefits would be further optimised if the tracks could be extended into adjacent FIRs.

2.60 The meeting noted that this was a welcome example of proactive capacity building that would assist the post-COVID recovery. Furthermore, Hong Kong, China would continue to work with adjacent ANSPs to formally establish ATS surveillance-based ‘tracks’ as a parallel route system based on an RNAV/RNP specification.

Implementation of RNP 4 on ATS Routes M767 and N884

2.61 Singapore and the Philippines presented IP13 on their joint development of RNP 4 route specification for ATS routes M767 and N884, in addition to the current RNP 10. The paper noted that RNP 4 enabled a reduction of longitudinal and lateral separation between suitably equipped aircraft to enhance airspace capacity and increase air traffic management efficiency. There were plans to re-designate the two routes to RNP 2 in the future.

2.62 ICAO thanked Singapore and the Philippines for the work to enhance capacity on these routes, especially for considering fleet equipage. ICAO recalled that it was important to recognise the advantages of starting the transition process from RNP 4 where possible, and that there was a regionally-recognised equivalence if the fleet equipage for RNP 2 was not high enough. The relevant regional policy within the *Asia/Pacific Seamless ANS Plan* is replicated below for ease of reference.

*7.14 As far as practicable, all new ATS Routes should be PBN Routes in accordance with the following specifications to support APTA-B0/1 – 8, and APTA-B1/1 – 5:*

- *Category R airspace – RNP 4, RNP 10 (RNAV 10) (other acceptable navigation specifications – RNP 2 oceanic); and*
- *Category S airspace – RNAV 2 or RNP 2.*

*Note 1: ATS routes should be designated with a navigation performance specification commensurate with the CNS/ATM operational environment (within Category S airspace, the PBN specification is not significant to ATC as it is used for track-keeping assurance, not ATC separation). The ATS route navigation performance specification selected should be harmonised and utilise the least stringent requirement needed to support the intended operation. When obstacle clearance or ATC separation requirements demand, a more stringent navigation specification may be selected.*

*Note 2: RNP 2 is expected to be utilised before Phase 2, when the RNP 2 instrument procedure design, ATC separation standards and operational approval are in place. The Asia/Pacific recognises an equivalency for RNP 2 as being an aircraft approved for RNAV 2, RNP 1 and with GNSS. Prior to the ICAO standard flight plan being updated to recognise RNP 2, States should ensure that aircraft operators with RNP 2 approval file designator ‘Z’ in field 10 and ‘NAV/RNP 2’ in field 18 (in addition to designator ‘R’ to indicate PBN approved).*

*Note 3: within Category R airspace, transition to RNP 4 or RNP 2 oceanic specifications is recommended at the earliest opportunity. RNP 4 and RNP 2 requires ADS-C and CPDLC, whereas RNP 2 oceanic requires dual independent installations.*

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ATM Security Requirements

2.63 ICAO presented information on ANSP/ATM ICAO security requirements, and additional information relating to the establishment and dissemination of the 1<sup>st</sup> Edition of the *ICAO Cyber Security Action Plan* and ongoing developments in related guidance material and resources.

2.64 Noting the output of the ICAO Cyber Security Study Group and the provisions of the *Cybersecurity Action Plan, Training Roadmap* and *Trust Framework*, States were urged to disseminate the *Cybersecurity Action Plan* and coordinate its implementation with all relevant national agencies, industry, and stakeholders in accordance with State Letter AS8/1.9.1-20/114 (05 November 2020).

COVID-19 ATM Economics

2.65 IATA stressed that the airline industry was in an extremely precarious financial position, so every cost must deliver a benefit. To ensure the significant benefits offered by air transport continue, WP32 noted that a whole-of-government response is required to recover from COVID-19. This must include government support for key system enablers like ANSPs in order to avoid unsustainable cost increases that airlines would be unable to absorb.

2.66 IATA announced that major industry losses would continue into 2021, even though performance was expected to improve over the period of the forecast. A net loss of \$118.5 billion was expected for 2020. A net loss of \$38.7 billion is expected in 2021. Performance factors were expected to show improvements in the second half of 2021 after a difficult 2021 first half. Airlines had cut costs by an average of 45.8%, but revenues were down 60.9%. The result is that airlines would lose about \$66 for every passenger carried in 2020, for a total net loss of \$118.5 billion. More data is at: <https://www.iata.org/en/iata-repository/publications/economic-reports/airline-industry-economic-performance---november-2020---report/>

2.67 Regarding Capital Projects (CAPEXs) or an Operational Initiatives (OPEXs), IATA also stated that a post-COVID-19 review of services required consideration of rationalisation of services or an assessment of graduated services to reflect the reality of the new operating environment. Most importantly, any change must ensure a tangible benefit to airspace users with safety improvements, and efficiency or fuel savings.

2.68 IATA stated that to help drive growth, ANSPs should reduce current charges in order to stimulate flights, which drives revenue. In analysing the elasticity of demand, analysis had shown that a combination of lower rates driving more rapid growth in flight numbers can increase ANSP revenue more rapidly. However, maintaining or increasing charges is likely to stymie any recovery, as most airlines will be unable to operate. The meeting agreed to the following Draft Conclusion, for APANPIRG/31's consideration:

**Draft Conclusion ATM/SG/8-3: Review of National Air Navigation Plans (NANPs)**

That, States should review their NANPs in accordance with a whole-of-government approach and the requirements of the Regional Air Navigation Plan to:

- (1) include airspace user consultation to determine post COVID-19 service provision levels and the related investment and expenditure required, including identifying temporary or permanent service provision modification to reduce operational costs; and
- (2) seek government support for their Air Navigation Service Providers (ANSPs) during the post-COVID-19 recovery.

ATM Economics Seminar Outcomes

2.69 ICAO presented the outcomes of the COVID-19-Related ATM Economics Seminar (VTC, 08 October 2020). A total of nine presentations were made during the Seminar, which are available at: <https://www.icao.int/APAC/Meetings/Pages/2020-COVID-19-ATM-Seminar.aspx>.

2.70 The Seminar had noted that if ANS losses during the pandemic had been high at USD 7.5 billion by October 2020, then this had only been 3.7% of airline losses (APAC the most). ICAO had noted the positive efforts of some ANSPs to improve efficiencies to support airlines, including India and Indonesia. However, in general, ICAO hadn't noted many ANSPs taking action in accordance with the Council's Aviation Recovery Task Force (CART) Recommendation 10, which requested States to consider appropriate extraordinary emergency measures to support financial viability and to maintain an adequate level of safe, secure and efficient operations.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information in this paper; and
- b) discuss any relevant matters.

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