



ICAO

International Civil Aviation Organization

The Eighth Meeting of the APANPIRG ATM Sub-Group

Video Teleconference, 23 – 27 November 2020

**Agenda Item 3: Performance Frameworks and Metrics**

**SEAMLESS ANS PLAN AND MONITORING UPDATE**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the status of the *Asia/Pacific Seamless Air Navigation Services (ANS) Plan*, reporting, and the implementation progress of air navigation improvements in the Asia/Pacific Region. Due to the lack of current reporting system, the ICAO Regional Office was not able to update the current implementation status as the reporting portal was not updated to match the 6th Edition of GANP and Version 3.0 of the Seamless ANS Plan. Implementation status in this paper is as of March 2019.

**1. INTRODUCTION**

1.1 ICAO Doc 9750 *Global Air Navigation Plan (GANP)* contained the vision of an integrated, harmonized, and globally interoperable Air Navigation Services (ANS) system until and beyond 2028. To achieve this objective, the involvement and active participation of States from each of the seven ICAO Regions is essential. To facilitate the adaptation process of global expectations, a regional plan was created.

1.2 The first version of the Asia/Pacific Seamless ATM Plan was published in 2013. In 2014, the APANPIRG/25 Meeting adopted Regional Priorities and Targets for the APAC Region through the following Conclusion:

***Conclusion APANPIRG 25/2 – APAC Regional Air Navigation Priorities and Targets***

*That, the Regional Priorities and Targets contained in Appendix A to this Report on Agenda Item 3.0 be endorsed by APANPIRG.*

1.3 After the creation of an ICAO web-based reporting tool, APANPIRG adopted the following:

***Conclusion APANPIRG 25/5 – Web-based Seamless ATM Implementation Progress Reporting Process***

*That, States/Administrations be urged to report on their Seamless ATM implementation progress at least once a year through the ICAO online reporting process from November 2014 onwards.*

1.4 The ICAO Regional Office also encouraged APAC States/Administrations to nominate their Points of Contact (POCs) as requested by ICAO State Letter. The POCs are responsible for submitting and updating their respective State's progress of *Seamless ANS Plan* implementation.

1.5 In order to match the 6<sup>th</sup> Edition of GANP, APANPIRG/30 reviewed and adopted the *Asia/Pacific Seamless ANS Plan Version 3.0* (renamed from Asia/Pacific Seamless ATM Plan). The next review year for the *Asia/Pacific Seamless ANS Plan* is 2022.

1.6 The ICAO Regional Office was previously advised by HQ in January 2019 that a new reporting portal would be available by late 2019. APANPIRG adopted the following:

***APANPIRG Conclusion 30/6 - ICAO HQ Support for Regional ANS Implementation***

*That, ICAO HQ is invited to:*

*(1) given the greatly increased number and complexity of Aviation System Block Upgrade (ASBU) elements in the draft 6th Edition of the Global Aviation Navigation Plan (GANP), the redefinition of ASBU Block 0 elements that were expected to be completed by 2019, and the need for more detailed and comprehensive guidance provided on the ASBU Portal for each element than is currently provided, consider:*

*(i) the consequences for States of different capabilities to ensure that the No Country Left Behind (NCLB) policy is fully considered; and*

*(ii) the extra resources, tools and training required to enable States to be able to understand, review, determine priorities and costs/benefits, and implement the applicable ASBU elements; and*

*(2) ensure that the redevelopment of the Regional Air Navigation Plan Volume III templates allow the Asia/Pacific Seamless Air Navigation Service (ANS) Plan to be fully incorporated into Vol. III without amendment; and*

*(3) ensure an urgent upgrade of the electronic regional ANS Monitoring and Reporting Scheme to:*

*(i) allow States to electronically submit data related to the Seamless ANS Plan and its subsidiary plans; and*

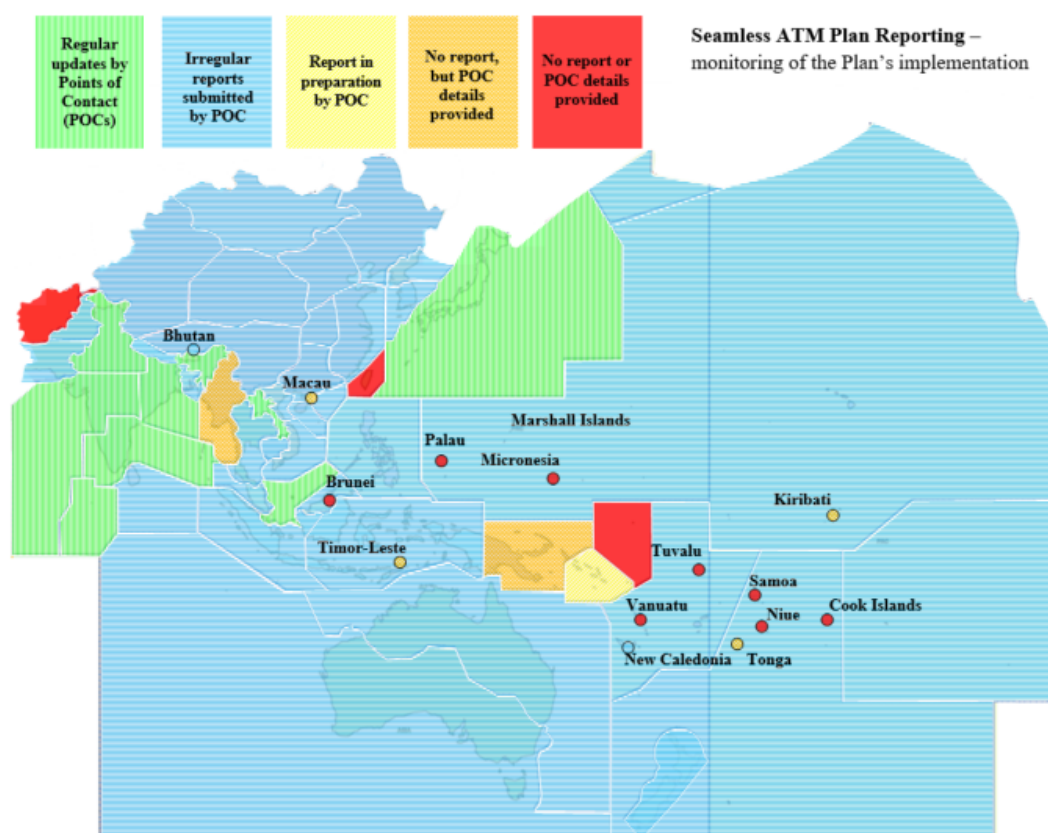
*(ii) ensure the ICAO Regional Office can amend online elements, metrics and priorities, consistent with APANPIRG endorsements.*

## 2. DISCUSSION

### Reporting Status

2.1 As a follow-up to Conclusion APANPIRG 25/5, a number of States/Administrations had reported on their Seamless ATM implementation progress. The status of the reporting process as at March 2019 is depicted in **Figure 1**.

*Important note: the Regional Seamless reporting tool (accessible via the Regional Office website at <https://www.icao.int/APAC/Pages/ATMReport.aspx>) had not yet been updated by ICAO HQ to take into account the changes to the latest version of the Global Air Navigation Plan and what is now called the Asia/Pacific Seamless ANS Plan, so the reporting status information should be treated with caution. Therefore, only last year's data is able to be shown as the last data update of the current system was in March 2019.*



**Figure 1:** Seamless ATM Reporting

2.2 A total of **28** States/Administrations, i.e. 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' is measured over the past three years).

2.3 It should be noted that Seamless ATM data is used to support an iSTARS tool intended to illustrate ANS planning and implementation (<https://portal.icao.int/space/Pages/Catalogue.aspx>).

2.4 A total of **16** States/Administrations had not prepared Seamless ATM reports:

Afghanistan, Brunei Darussalam, Cook Islands, Kiribati, Marshall Islands, Micronesia (Federated State of), Myanmar, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Democratic Republic of Timor-Leste, Tonga, Tuvalu and Vanuatu.

2.5 Details of the reporting status of each State is provided in **Attachment A**. Table 1 provides an indication of the year-by-year reporting of States, indicating that apart from India, Japan and Singapore, no APAC State or Administration had institutionalized Seamless ATM reporting, despite this being agreed at APANPIRG.

2013	2014	2015	2016	2017	2018
Nil*	Australia French Polynesia Hong Kong China India Japan Macao, China Republic of Korea Singapore Sri Lanka Thailand	Australia Bangladesh Bhutan China Fiji French Polynesia Hong Kong China India Indonesia Japan Macao China Malaysia Maldives New Caledonia, Fr. New Zealand Philippines Republic of Korea Singapore Sri Lanka Thailand	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Philippines Republic of Korea Singapore Sri Lanka Thailand Viet Nam	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Pakistan Philippines Republic of Korea Singapore Sri Lanka Thailand United States Viet Nam	Australia Bangladesh Bhutan Cambodia China DPRK Fiji French Polynesia Hong Kong China India Indonesia Japan Lao PDR Macao China Malaysia Maldives Mongolia Nepal New Caledonia, Fr. New Zealand Pakistan Philippines Republic of Korea Singapore Sri Lanka Thailand United States Viet Nam
0	10 (22.7%)	20 (45.4%)	26 (59%)	28 (63.6%)	28 (63.6%)

**Table 1:** Number of States that have selected one or more ASBU elements for implementation

#### Points of Contact

2.6 As per **Attachment A** to this paper, a total of **35** States/Administrations (79.5%) had nominated a Point of Contact (POC), including Brunei Darussalam recently. A total of **nine** States had not nominated any POC:

Afghanistan, Cook Islands, Marshall Islands, Micronesia (Federated state of), Nauru, Palau, Samoa, Tuvalu and Vanuatu.

#### Relation with the e-ANP

2.7 The introduction of the APAC e-ANP (Electronic Air Navigation Plan) took place at the end of 2015. Volumes 1 and 2 include regional requirements and were now approved, while the adoption of Volume 3 including the regional objectives was pending. The approved eANP Volume I and Volume II were now available at: <http://www.icao.int/APAC/Pages/APAC-eANP.aspx>.

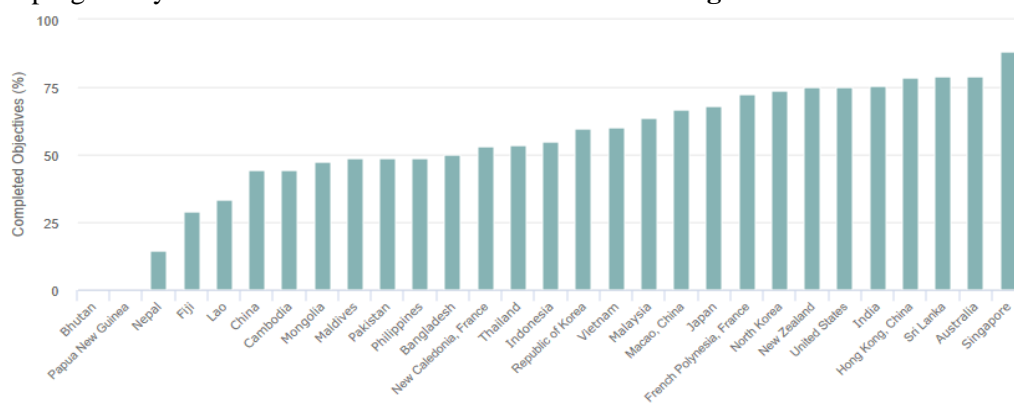
2.8 All regional priorities and targets adopted through the Conclusion APANPIRG 25/2 were contained in the e-ANP Volume 3. All Seamless ATM objectives were also incorporated in the e-ANP Volume 3, which contained all priorities, targets, metrics and supporting documents within the APAC main planning table in accordance with the e-ANP template adopted by the Council.

Regional Picture

2.9 The purpose of monitoring implementation progress is to identify difficulties and issues, and take corrective actions at APANPIRG, Sub Group, and/or Task Force levels as appropriate.

2.10 The Regional Picture depicts the progress of States/Administrations against the GANP and e-ANP Volume III objectives. This picture is to be used as a tool by the different APANPIRG bodies (as per the Responsibility Matrix) to steer their action and take corrective actions as needed to ensure full implementation of the objectives. In order to improve the quality and accuracy of the data reported, the ICAO APAC Office interacted with POCs on an ongoing basis and cross checks the information available from other sources of collection.

2.11 The Regional Picture was presented to the APANPIRG/27 meeting to review the progress of implementation of the 45 Seamless ATM elements. As at March 2019, the implementation progress by States and Administrations is illustrated in **Figure 2**:

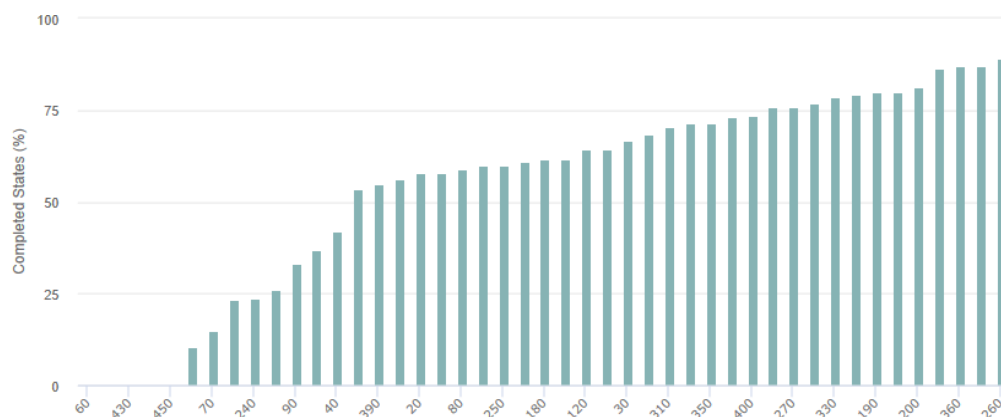


**Figure 2:** Percentage of completed objectives by States

2.12 States had been urged by APANPIRG/27 to give higher priority both at CAA and Air Navigation Service Provider (ANSP) levels, and to mobilize human and financial resources to complete the implementation of Phase 1 objectives. Notwithstanding this, Phase 1 was far from being implemented, even three years after the initial target date. Moreover, the meeting noted that in 2019, States were expected to start implementing Phase II elements, which was aligned with the Global Air Navigation Plan (GANP) Aviation System Block Upgrade (ASBU) Block 1.

2.13 **Attachment B** provides information on the implementation status of Seamless elements within the Pacific.

2.14 **Figure 3** provides an illustration of the overall regional implementation, by Seamless ATM elements.



**Figure 3:** Percentage of Completed Seamless ATM Elements

2.15 In general, the priority regional targets planned for Phase I (November 2015- November 2019) had not yet been achieved (**Table 2**).

<b>Acceptable Implementation</b>	
ADS-C, CPDLC	<b>B0-TBO</b>
<b>Partial Implementation</b>	
Strategic Civil Military coordination	<b>Regional</b>
Tactical Civil Military coordination	<b>Regional</b>
ADS-B airspace	<b>B0-ASUR</b>
ATS surveillance with data integrated	<b>B0-ASUR</b>
ATS Inter-facility Data-link Communications (AIDC)	<b>B0-FICE</b>
Civil Military use of Special Use of Airspace (SUA)	<b>B0-FRTO</b>
<b>Partial and Slow Implementation</b>	
Approaches, including PBN	<b>B0-APTA</b>
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	<b>B0-NOPS</b>
<b>Unacceptable Implementation Progress</b>	
Aeronautical Information Management (AIM)	<b>B0-DATM</b>

**Table 2:** Summary of Priority Elements

#### Seamless ANS Plan

2.16 The ASBU framework that supports the regional plan can be accessed via the HQ website <https://www4.icao.int/ganpportal/ASBU>. The *Asia/Pacific Seamless ATM Plan* was updated in 2019 by APANPIRG/30 as the new Asia/Pacific Seamless ANS Plan Version 3.0, available at:

<https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20Seamless%20ATM%20Plan%20V%203.0.pdf>

2.17 A critical part of the effort to effectively implement the *Asia/Pacific Seamless ATM Plan* was the need for States to develop a National Air Navigation Plan (NANP) – as detailed in Section 9 of the *Asia/Pacific Seamless ATM Plan*. The following regional expectations for the NANP’s Basic Planning Elements (BPEs) are copied from the Regional Air Navigation Plan Vol. I:

**Background** – a brief introduction aimed at high level decision-makers that describes the need for the plan with benefits and costs, including the necessity for global and regional harmonization and interoperability:

- a) general (not necessarily quantitative) description of the Plan’s benefits;
- b) general description of the costs\*; and
- c) details of how the State Plan connects to the global and regional planning hierarchy.

*\*Note 1: this is a matter for the State to determine, and could be in terms of quantitative, qualitative, cost of implementation or cost of not implementing.*

*\*Note 2: ICAO do not require details of costs from States, as this is for the State’s benefit.*

**Stakeholder Consultation** – high level descriptions and statements:

- a) of the process used to consult with stakeholders, including the military; and
- b) from key stakeholders (such as Heads of CAAs, ANSPs, military organisations, etc.) endorsing the State Plan.

**Analysis** – Information on the State’s analysis of:

- a) all applicable ASBU and regional elements deemed to be applicable, including a statement of the State’s priorities\* for implementation; and
- b) elements that are deemed to be not applicable, and how these were determined.

*\*Note: this assessment should be guided by the priorities determined by APANPIRG*

**Planning** – descriptions of:

- a) the implementation process, such as how the different stakeholders will work together, design systems and provide feedback on implementation; and
- b) each applicable global and regional element’s implementation managers (those responsible for execution of the implementation) and timelines.

**Progress** – details in the State Plan as to the progress of implementation against the planning timelines.

*Note: this also provides an indication that the Plan is a ‘living document’ subject to periodic review and update.*

2.18 A template for the development of a NANP can be accessed from the ICAO website at <https://www.icao.int/APAC/Documents/edocs/National%20Air%20Navigation%20Template%20V6.0.docx>.

2.19 There were 16 Priority 1 [ASBU Block 0 and 1 and Regional] Elements as follows:

- a) Aeronautical Meteorology: AMET-B0/1 – 4;
- b) Aeronautical Information Management: DAIM-B1/1 – 6\*;
- c) Airport CDM: ACDM-B0/1 – 2;
- d) ANSP human and simulator performance (Regional);
- e) ATS Inter-facility Datalink Communications: FICE-B0/1;

- f) Ballistic launches/space re-entry management (Regional);
- g) Civil-Military Special Use Airspace (SUA) management (Regional);
- h) Civil-Military strategic and tactical coordination (Regional);
- i) Core data communications: VDL Mode O/A and AMHS COMI-B0/3, 7;
- j) Direct and Free Route Operations: FRTO-B0/1 – 4;
- k) Enhanced SAR systems (Regional);
- l) Ground-based Surveillance: ASUR-B0/1 – 4;
- m) Network Operations: NOPS-B0/1 – 5; Asia/Pacific Seamless ANS Plan V3.0 18
- n) Performance-based Navigation Approach Procedures: APTA-B0/1 – 2;
- o) Runway Sequencing: RSEQ-B0/1 – 2; and
- p) Safety Nets SNET-B0/1 – 4.

\*Note: DAIM-B1/7 is placed within PASL Phase III

#### Future Plans

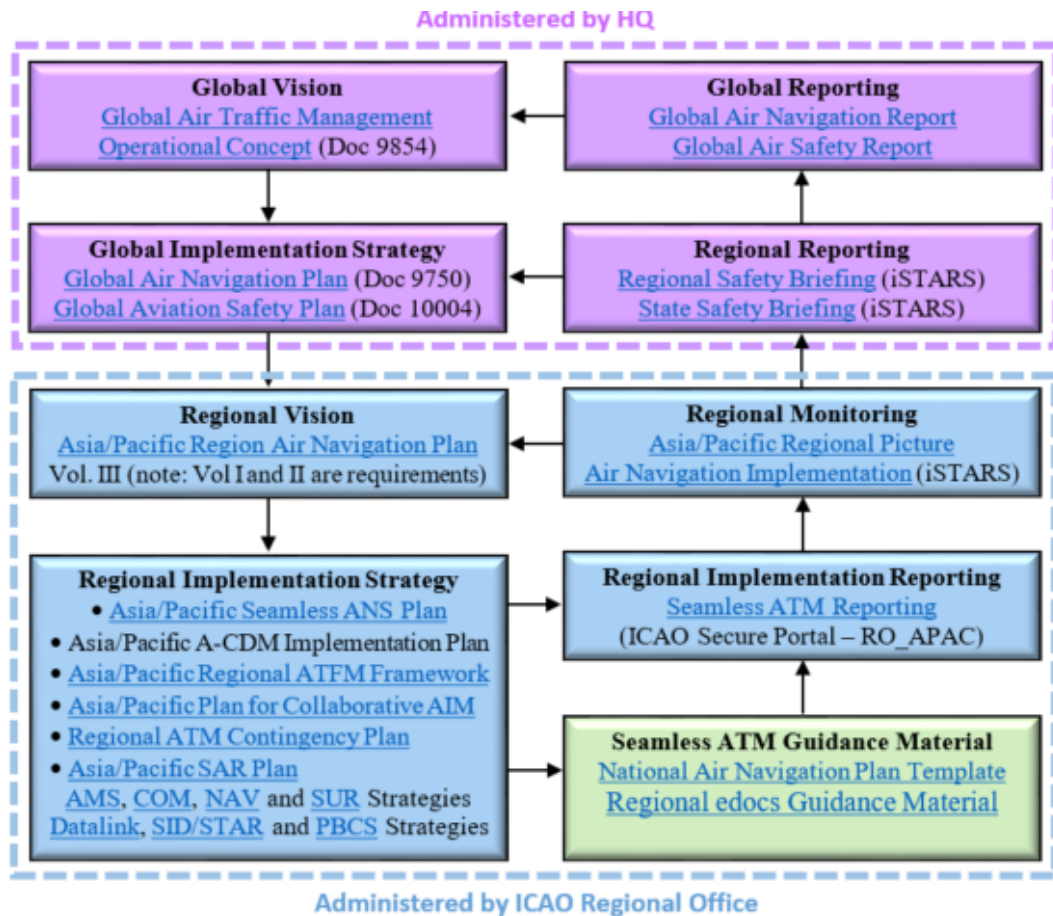
2.20 A significant effort has been made by the ICAO APAC Regional Office to increase the number of points of contact, reporting States/Administrations and provide assistance as required. The different bodies under APANPIRG and their participants should also ensure that the data reported through the reporting system are consistently accurate.

2.21 At present, the Seamless ANS Plan has several important subsidiary plans, namely the:

- *Asia/Pacific Search and Rescue Plan;*
- *Asia/Pacific Region ATM Contingency Plan;*
- *Asia/Pacific Framework for Collaborative ATFM;*
- *Asia/Pacific Plan for Collaborative AIM; and*
- *Asia/Pacific Airport Collaborative Decision Making Implementation Plan.*

2.22 The intention to develop these implementation monitoring systems is to enhance the current electronic Seamless ATM Monitoring and Reporting Scheme with assistance from ICAO HQ to include the ability to report on the subsidiary plan elements, and allow the Region to input its priorities, metrics and targets.

2.23 Ultimately, the *Asia/Pacific Seamless ANS Plan* was expected to be incorporated into Volume III of the Regional Air Navigation Plan, when this became fully web-based. **Figure 4** provides an overview of the current relationship of the *Asia/Pacific Seamless ANS Plan* and the Regional Air Navigation Plan.



**Figure 4:** Air Navigation Planning and Reporting Structure

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss the 16 new Priority 1 ASBU elements; and
- c) discuss any relevant matters as appropriate.

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State/administration	Points of contact nominated?	Reporting Form submitted?	Regular updates?	Latest update
Afghanistan	No			
Australia	Yes	Yes	No	2016 - 3
Bangladesh	Yes	Yes	No	2018 - 3
Bhutan	Yes	Yes	Yes	2018 - 2
Brunei Darussalam	Yes	No	No	
Cambodia	Yes	Yes	No	2019 - 1
China	Yes	Yes	No	2018 - 1
Cook Islands	No			
Democratic People's Republic of Korea	Yes	Yes	NO	2016 - 2
Fiji	Yes	Yes	No	2017 - 4
French Polynesia, France	Yes	Yes	Yes	2017 - 4
Hong Kong, China	Yes	Yes	Yes	2018 - 2
India	Yes	Yes	Yes	2018 - 3
Indonesia	Yes	Yes	No	2018 - 3
Japan	Yes	Yes	Yes	2018 - 4
Kiribati	Yes	No	No	
Lao People's Democratic Republic	Yes	Yes	Yes	2018 - 2
Macao, China	Yes	Yes	No	2017 - 1
Malaysia	Yes	Yes	No	2019 - 1
Maldives	Yes	Yes	Yes	2018 - 4
Marshall Islands	No			
Micronesia (Federated States of)	No			
Mongolia	Yes	Yes	No	2019 - 2
Myanmar	Yes	No	No	
Nauru	No			
Nepal	Yes	Yes	No	2016 - 1
New Caledonia, France	Yes	Yes	No	2015 - 2
New Zealand	Yes	Yes	No	2016 - 3
Pakistan	Yes	Yes	No	2017 - 3
Palau	No			
Papua New Guinea	Yes	No	No	
Philippines	Yes	Yes	No	2016 - 4
Republic of Korea	Yes	Yes	No	2016 - 3
Samoa	No			
Singapore	Yes	Yes	Yes	2018 - 4
Solomon Islands	Yes	No	No	
Sri Lanka	Yes	Yes	Yes	2018 - 3
Thailand	Yes	Yes	Yes	2018 - 1
Timor Leste	Yes			
Tonga	Yes			
Tuvalu	No			
United States	Yes	Yes	No	2017 - 2
Vanuatu	No			
Viet Nam	Yes	Yes	Yes	2018 - 4

Updated 21 June 2019



	RVSM	
	Radar	ADS-C
Reduced Vertical Separation Minima (FL290-FL410) PANS-ATM 5.3.2		
Radar Surveillance separation services are provided in all or portions of the CTA		
Automatic Dependant Surveillance-Contract aircraft tracking are provided in the CTA		
Automatic Dependant Surveillance-Broadcast from Terrestrial receivers is provided in all or portions of the CTA		
Automatic Dependant Surveillance-Broadcast from Satellite receivers is provided in all or portions of the CTA		
Required Surveillance Performance 180, ICAO PBCS Manual Doc 9869		
Required Communication Performance 240, ICAO PBCS Manual Doc 9869		
Message Latency Monitor is set to 300s for CPDLC aircraft entering the CTA		
Controller Pilot Data Link Communication is utilized in the CTA		
Flight Management Computer Waypoint Reporting is used to forward position reports to the ATSP		
Satellite Voice Communication services are supported in the CTA		
50 NM Lateral separation is applied in the CTA per ICAO PANS-ATM 5.4.1.2.1.6 Table 5-2		
50 NM Longitudinal separation is applied in the CTA per ICAO PANS-ATM 5.4.2.9		
10 Minutes Longitudinal Separation is applied per PANS-ATM 5.4.2.4 without the mandatory assignment of Mach Speeds to the aircraft		
30 NM Lateral separation is applied in the CTA per ICAO PANS-ATM 5.4.1.2.1.6 (The 30 NM lateral separation was reduced to 23 NM)		
23 NM Lateral separation is applied in the CTA per ICAO PANS-ATM 5.4.1.2.1.6 Table 5-2		
20 NM Longitudinal separation is applied in the CTA per ICAO PANS-ATM 5.4.2.9		
30 NM Longitudinal separation is applied in the CTA per ICAO PANS-ATM 5.4.2.9		
23 NM Lateral separation to climb/descend an aircraft through the level of another aircraft is applied in the CTA per ICAO PANS-ATM 5.4.1.2.1.6 Table 5-2		
ADS-C Climb and Descent Procedure is applied in the CTA per ICAO PANS-ATM 5.4.2.8		
ADS-B In-Trail Procedure is applied in the CTA per ICAO PANS-ATM 5.4.2.7		
The ATSP supports FMC lateral offsets to climb or descend an aircraft through blocking aircraft		
User Preferred Routes are supported in the CTA		
Dynamic Airborne Reroute Procedure (DARP) reroutes that have been issued in another FIR are accepted by the ATSP		
Dynamic Airborne Reroute Procedure (DARP) reroutes are supported by the ATSP		
AIDC CPL/EST Messages are supported by the ATSP.		
AIDC CDN Messages are supported by the ATSP.		
AIDC Weather Deviation Messages are supported by the ATSP.		
AIDC Offset Messages are supported by the ATSP.		
AIDC Block Altitude Messages are supported by the ATSP.		
AIDC Mach Speed Assignment Messages are supported by the ATSP.		
AIDC FAN/FCN Messages are supported by the ATSP.		
AIDC ADS-C message forwarding is supported by the ATSP.		
AIDC TRU Messages are supported by the ATSP.		
AIDC Enhanced CDN Messages are supported by the ATSP.		
AIDC Enhanced ABI Messages are supported by the ATSP.		
Collaborative Decision Making is supported by the ANSP		
Enroute CFM ( <b>Collaborative Flow Management?</b> ) is supported by the ATSP		
Published Optimized Profile Descents and/or Tailored Arrivals are supported by the ATSP		
Optimized Climbs are supported by the ATSP.		