



INTERNATIONAL CIVIL AVIATION ORGANIZATION

TWENTY SIXTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION
PLANNING AND IMPLEMENTATION REGIONAL GROUP
(APANPIRG/26)

Bangkok, Thailand, 7 – 10 September 2015

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.0: Regional and National Performance Framework

**UPDATE ON THE SEAMLESS ATM REPORTING PROCESS
AND REGIONAL PICTURE**

(Presented by Secretariat)

SUMMARY

This paper presents the status of the Seamless ATM Reporting process since November 2014, and the regional picture as of 19 August 2015 reflecting the implementation progress of Air Navigation Improvements in APAC Region against the objectives set forth by the GANP ASBU Block 0 and Seamless ATM plan v1.0

Strategic Objectives:

- A: **Safety** – Enhance global civil aviation safety
- B: **Air Navigation Capacity and Efficiency**—Increase the capacity and improve the efficiency of the global aviation system
- E: **Environmental Protection** — minimize the adverse environment effects of civil aviation activities.

1. INTRODUCTION

1.1 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.

1.2 Therefore milestones, targets and metrics of each key planning elements for Air Navigation Report Forms (ANRFs) were adopted by APANPIRG, with the exception of B0-OPFL and B0-WAKE:

Conclusion APANPIRG 25/3 – Air Navigation Report Forms (ANRFs) and Responsibility Matrix

That, the ANRF regarding the Block 0 ASBUs (except B0-RSEQ, B0-OPFL, and B0-WAKE) provided in the APANPIRG/25/WP26 Appendices A to P together with the matrix of responsibilities placed at Appendices B and C to the Report on Agenda Item 3.0 be adopted for the APAC Region.

1.3 Following the building up of a web-based reporting tool by ICAO, the meeting adopted the following Conclusion:

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 (POC) as requested by ICAO state letter. The Points of Contact are responsible for submitting and updating their respective State's progress of implementing the Seamless ATM Plan.

1.5 This paper presents the status of the reporting process, the outcomes of the first year of reporting.

1.6 In order to ensure a comprehensive and consistent approach throughout the APANPIRG bodies, similar information was circulated and discussed in the CNS SG/19 ATM SG/3 meetings.

2. DISCUSSION

Status of the reporting process

2.1. As a follow-up to the Conclusion APANPIRG 25/5 a number of States/Administrations reported on their Seamless ATM implementation progress. The status of the reporting process as per 19 August 2015 is placed at **Appendix A**.

2.2. **A total of 19 States/Administrations, i.e. 43% of the APAC States/Administrations¹**, have submitted one or more report(s) on the ICAO Seamless ATM Reporting portal. Among those 19 States/Administrations, 5 update their progress on a regular basis, which is an excellent practice.

2.3. One State/Administration has prepared a first report but not submitted it yet.

2.4. There is still a total of 24 States/Administrations that have not prepared reports.

2.5. Some States have experienced difficulty in their interaction with the online reporting function, mainly for access authorization. The ICAO Regional Office has provided the concerned users with information and assistance.

¹ including territories

Points of Contact

2.6. As per Appendix A, 27 States/Administrations have nominated their seamless Points of Contact. However 17 States/Administration have not reported the nomination of their POC.

Matrix of responsibilities

2.8. As part of the Conclusion APANPIRG 25/3, a responsibility matrix was adopted.

2.9 Since then, as per IP/06 regarding the outcomes of the coordination meeting between APANPIRG & RASG APAC held on 21st May 2015, RASG–APAC stressed the need to continue with the lead responsibility for the implementation of TCAS II; APANPIRG would provide results of monitoring collected through the seamless ATM online reporting process to RASG–APAC.

2.10 Therefore it is proposed to amend the Responsibility Matrix adopted by APANPIRG/25 for the item Airborne Safety Systems as follows. The amended matrix is placed at **Appendix B**.

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
Airborne Safety Systems	170	2	B0-ACAS	Airborne Collision Avoidance Systems (ACAS) Improvements	CNS- SG RASG

Relation with the e-ANP

2.11 The introduction of the APAC e-ANP (Electronic Air Navigation Plan) is planned for end 2015. While the draft volumes 1 and 2 include regional requirements, the draft Volume 3 includes the regional objectives.

2.12 All regional priorities and targets adopted through the Conclusion APANPIRG 25/2 are contained in the draft e-ANP volume 3. Likewise, all seamless ATM objectives are incorporated in the draft e-ANP volume 3. All priorities, targets, metrics and supporting documents are incorporated in the APAC main planning table in accordance with the e-ANP template adopted by the Council.

Regional Picture

2.13 The purpose of monitoring the implementation progress is to find out where the difficulties and issues lay, and take corrective actions at APANPIRG, Sub Group, and/or Task Force levels as appropriate.

2.14 The regional picture depicts the progress of States/Administrations in Asia Pacific against the GANP and e-ANP Volume III objectives. This picture will be used as a tool by the different APANPIRG bodies (as per Responsibility matrix) to steer their action and take corrective actions as needed to ensure full implementation of the objectives.

2.15 Outcomes of the reporting process after a first year are placed at **Appendix C**. The regional picture shows the progress of implementation against the indicators as per APAC main planning table and adopted ANRF. The progress is presented along different groupings:

- Page 1 out of 7: Progress against the 10 APAC Regional Priorities of APANPIRG Conclusion 25/2 (all objectives were set for phase 1 of the Seamless ATM Plan (Nov. 15)
- Page 2 to 7 out of 7: Progress of the 45 seamless items presented in different families for the 2 phases of the seamless ATM plan (phase 1 Nov. 15 and phase 2 Nov. 18):
 - Optimal capacity
 - Optimal trajectories
 - Airspace
 - Civil/Military integration
 - Performing safely
 - Communications
 - Information management
 - Surveillance

2.16 APAC States/Administrations are presented in alphabetical order. The date of the latest report submitted is given in the second column to indicate the freshness of information. N/A means that the reporting State found this item Not Applicable in its national plans, as a result of its gap analysis. No data means that no data was provided by the reporting State, meaning that either the whole item was not yet analyzed or had been analyzed but no progress was indicated.

2.17 There would be an interest to present this information geographically to detect for examples non seamless areas along Main Traffic Flows, however the limited resources at ICAO HQ prevented this undertaking to progress.

2.18 In order to improve the quality of the picture, the ICAO APAC Office has interacted with POCs by cross checking the information available in the ICAO Regional Office from other sources of collection and challenging the submitted reports where necessary.

Future Plans

2.19 The reporting process will develop and induce the new items being incorporated in the targets/objectives that will stem from ASBU Block 1 elements (2018 - 2023) and from the next versions of the Seamless ATM Plan (the updated version being planned for 2016).

2.20 A significant effort has been done by the ICAO APAC Regional Office to increase the number of points of contact, reporting States/Administrations and provide assistance as required.

2.21 However, overall, the response to an important, region-wide tool and APANPIRG Conclusion 24/55 which expected States to submit the first Regional Seamless ATM Reporting Form to the ICAO Regional Office by 01 March 2014 and aforementioned conclusions 25/2, 25/3 and 25/5 is still poor. While the ratio of reporting States/Administrations having reported is encouraging, it is still insufficient to monitor and solve the difficulties of implementation, and thus ensure that the regional targets and seamless objectives will be met with sufficient confidence.

2.22 In that perspective Conclusion APANPIRG 25/5 remains valid and should be reiterated.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) urge States/Administrations not having done so to nominate their points of contact and report on their Seamless ATM implementation progress at least once a year through the ICAO online reporting process;
- b) analyze the first Regional Picture, seek any clarification and consider gaps of implementation for its further action;
- c) discuss and adopt the following draft Conclusion:

Draft Conclusion APANPIRG xx/x – Amended Responsibility Matrix

That, the amended APANPIRG matrix of responsibilities placed at Appendix B be adopted for the APAC Region; and

- d) discuss any other matters as required.

Status of the Seamless ATM reporting process (19 August 2015)

State/Administration	Status	Points of contact nominated	Latest submission
Australia	Submitted Regular updates	Yes	Q 2015-3
Bangladesh	Submitted	Yes	Q 2015-2
Bhutan	Submitted Second update in preparation	Yes	Q 2015-2
China	Submitted Regular updates	Yes	Q 2015-3
Fiji	Submitted	Yes	Q 2015-3
French Polynesia, France	Submitted Regular updates	Yes	Q 2015-3
Hong Kong, China	Submitted	Yes	Q 2014-1
India	Submitted Second update in preparation	Yes	Q 2014-4
Japan	Submitted	Yes	Q 2014-4
Macao, China	Submitted	Yes	Q 2014-4
Malaysia	Submitted	Yes	Q 2015-2
Maldives	Submitted	Yes	Q 2015-3
New Caledonia, France	Submitted	Yes	Q 2015-2
Philippines	Submitted	Yes	Q 2015-3
Republic of Korea	Submitted Regular updates	Yes	Q 2015-3
Singapore	Submitted Regular updates	Yes	Q 2015-3
Sri Lanka	Submitted	Yes	Q 2014-3
Thailand	Submitted	Yes	Q 2014-4
United States	Submitted	Yes	Q 2015-1
New Zealand	In preparation	Yes	-
Afghanistan	No report	No	-

State/Administration	Status	Points of contact nominated	Latest submission
Brunei Darussalam	No report	No	-
Cambodia	No report	Yes	-
Cook Islands	No report	No	-
Democratic People's Republic of Korea	No report	No	-
Indonesia	No report	Yes	-
Kiribati	No report	No	-
Lao People's Democratic Republic	No report	No	-
Marshall Islands	No report	No	-
Micronesia (Federated States of)	No report	No	-
Mongolia	No report	No	-
Myanmar	No report	Yes	-
Nauru	No report	No	-
Nepal	No report	Yes	-
Pakistan	No report	Yes	-
Palau	No report	No	-
Papua New Guinea	No report	No	-
Samoa	No report	No	-
Solomon Islands	No report	Yes	-
Democratic Republic of Timor-Leste	No report	Yes	-
Tonga	No report	No	-
Vanuatu	No report	No	-
Vietnam	No report	No	-
Wallis and Futuna Islands, France	No report	No	-

Responsibility matrix for all Seamless items

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
Apron Management	10	3	Regional	-	ATM SG
ATM-Aerodrome Coordination	20	3	Regional	-	ATM SG
Aerodrome capacity	30	3	Regional	-	ATM SG
Safety and Efficiency of Surface Operations	40	3	B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	CNS SG
Arrival Manager/Departure Management (AMAN/DMAN)	50	2	B0-RSEQ	Improve Traffic flow through Sequencing (AMAN/DMAN)	ATM SG
ATC Sector Capacity	60	2	Regional	-	ATM SG
Airport Collaborative Decision-Making (ACDM)	70	2	B0-ACDM	Improved Airport Operations through Airport-CDM	ATM SG
Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	80	1	B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	ATM SG

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
Continuous Descent Operations (CDO)	90	2	B0-CDO	Improved Flexibility and Efficiency in Descent Profiles using Continuous Descent Operations (CDOs)	CNS SG
Continuous Climb Operations (CCO)	100	2	B0-CCO	Improved Flexibility and Efficiency Departure Profiles – Continuous Climb Operations (CCO)	CNS SG
Performance-based Navigation (PBN) Approach	110	1	B0-APTA	Optimization of Approach Procedures including vertical guidance	CNS SG
Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	120	2	B0-CCO B0-CDO	Optimization of Approach Procedures including vertical guidance	CNS SG
Performance-based Navigation (PBN) Visual Departure and Arrival Procedures	130	3	Regional	-	ATM SG
Performance-based Navigation (PBN) Routes	140	2	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	CNS SG
Performance-based Navigation (PBN) Airspace	150	2	Regional	-	ATM SG
Safety Nets	160	2	B0-SNET	Increased effectiveness of ground-based safety nets	CNS SG
Airborne Safety Systems	170	2	B0-ACAS	Airborne Collision Avoidance Systems (ACAS) Improvements	CNS SG RASG

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
ATS Surveillance	180	1	B0-ASUR	Initial Capability for Ground Surveillance	CNS SG
Airspace classification	190	2	Regional	-	ATM SG
Flight Level Orientation Schemes (FLOS)	200	2	Regional	-	ATM SG
Flight Level Allocation Schemes (FLAS)	210	2	Regional	-	ATM SG
ATS Inter-facility Data-link Communications (AIDC)	220	1	B0-FICE	Increased Interoperability Efficiency & Capacity through Ground-Ground Integration	CNS SG
Automated Transfer of Control	230	2	Regional	-	ATM SG
ATS Surveillance data sharing	240	2	Regional	-	CNS SG
ATM systems enabling optimal PBN/ATC operations	250	2	B0-APTA	Optimization of Approach Procedures including vertical guidance	CNS SG
ATC Horizontal separation	260	2	Regional	-	ATM SG

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
ATS surveillance with data integrated	270	1	B0-ASUR	Initial Capability for Ground Surveillance	CNS SG
ADS-C and CPDLC	280	1	B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	CNS SG
UPR and DARP	290	3	B0-FRTO	Improved Safety and Efficiency through the initial application of Data Link En-Route	ATM SG
Aeronautical Information Management	300	1	B0-DATM	Service Improvement through Digital Aeronautical Information Management	ATM SG
Meteorological Information	310	2	B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	MET SG
ATM Managers' Performance	320	2	Regional	-	ATM SG
ATC simulators performance	330	2	Regional	-	ATM SG
Safety assessment of changes	340	2	Regional	-	ATM SG
ATM Operators' performance	350	2	Regional	-	ATM SG

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
Civil Military use of SUA	360	1	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Strategic Civil Military coordination	370	1	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Tactical Civil Military coordination	380	1	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Civil Military system integration	390	2	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Civil Military nav aids joint provision	400	2	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Civil Military common training	410	2	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Civil Military common procedures	420	2	Regional	Improved Operations through Enhanced En-Route Trajectories	ATM SG
Nil	430	2	B0-ASEP	Air Traffic Situational Awareness (ATSA)	CNS SG
Nil	440	3	B0-WAKE	Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	ATM SG

Seamless ATM Specification title	Seamless Reference	Regional Priority	Regional/ ASBU Module	ASBU - Module title	Endorsing body
Nil	450	3	B0-OPFL	Increased Runway Throughput through Optimized Wake Turbulence Separation	ATM SG



ANS implementation in Asia-Pacific: Regional Picture as of 19 August 2015

THE 10 ASIA-PACIFIC REGIONAL PRIORITIES ADOPTED BY APANPIRG/25, 2014

Seamless Item	ASBU	Target
Network Operations	B0-NOPS	<p>1. All High Density FIRs supporting the busiest Asia/Pacific traffic flows and high-density aerodromes should implement ATFM incorporating CDM using operational ATFM platform/s. <i>Note: High Density FIRs are defined as:</i> <i>a) South Asia: Delhi, Mumbai;</i> <i>b) Southeast Asia: Bangkok, Hanoi, Ho Chi Minh, Jakarta, Kota Kinabalu, Manila, Sanya, Singapore, Vientiane; and</i> <i>c) East Asia: Beijing, Fukuoka, Guangzhou, Hong Kong, Kunming, Incheon, Shanghai, Shenyang, Taipei, Wuhan.</i> <i>[APANPIRG Conclusion 22/8 and 23/5 refer]</i></p>
PBN	B0-APTA	<p>2. Approach: Where practicable, all high-density aerodromes with instrument runways serving aeroplanes should have precision approaches or APV or LNAV. <i>Note 1: High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year.</i> <i>Note 2: the Asia/Pacific PBN Plan Version 3 required RNP APCH with Baro-VNAV or APV in 100% of instrument runways by 2016</i></p>
Ground Surveillance	B0-ASUR	<p>3. All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B.</p>
Ground Surveillance	B0-ASUR	<p>4. ADS-B or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable, with data integrated into operational ATC aircraft situation displays.</p>
Trajectory-Based Operations-Data Link En-Route	B0-TBO	<p>5. Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.</p>
Flight and Flow Information for a Collaborative Environment	B0-FICE	<p>6. All States between ATC units where transfers of control are conducted have implemented the messages ABI, EST, ACP, TOC, AOC as far as practicable.</p>
Aeronautical Information Management	B0-DATM	<p>7. ATM systems should be supported by digitally-based AIM systems through implementation of Phase 1 and 2 of the AIS-AIM Roadmap.</p>
Civil/Military	B0-FRTO	<p>8. Enhanced En-Route Trajectories: All States should ensure that SUA are regularly reviewed by the appropriate Airspace Authority to assess the effect on civil air traffic and the activities affecting the airspace.</p>
Civil/Military	Strategic Civil Military coordination (Regional)	<p>9. Enhanced En-Route Trajectories: All States should ensure that a national civil/military body coordinating strategic civil-military activities is established.</p>
Civil/Military	Tactical Civil Military coordination (Regional)	<p>10. Enhanced En-Route Trajectories: All States should ensure that formal civil military liaison for tactical response is established.</p>

Nov. 2015

Seamless Item	Air Traffic Flow Management/ Collaborative Decision-Making (ATFM/CDM)	Performance-based Navigation (PBN) Approach	Ground-based Surveillance	ATS surveillance with data integrated	ADS-C and CPDLC	ATS Inter-facility Data-link Communications (AIDC)	Aeronautical Information Management	Civil Military use of SUA	Strategic Civil Military coordination	Tactical Civil Military coordination
ASBU	80	110	180	270	280	220	300	360	370	380
	B0-NOPS	B0-APTA	B0-ASUR	B0-ASUR	B0-TBO	B0-FICE	B0-DATM	B0-FRTO	Regional	Regional

THE 10 ASIA-PACIFIC REGIONAL PRIORITIES (APANPIRG/25, 2014)

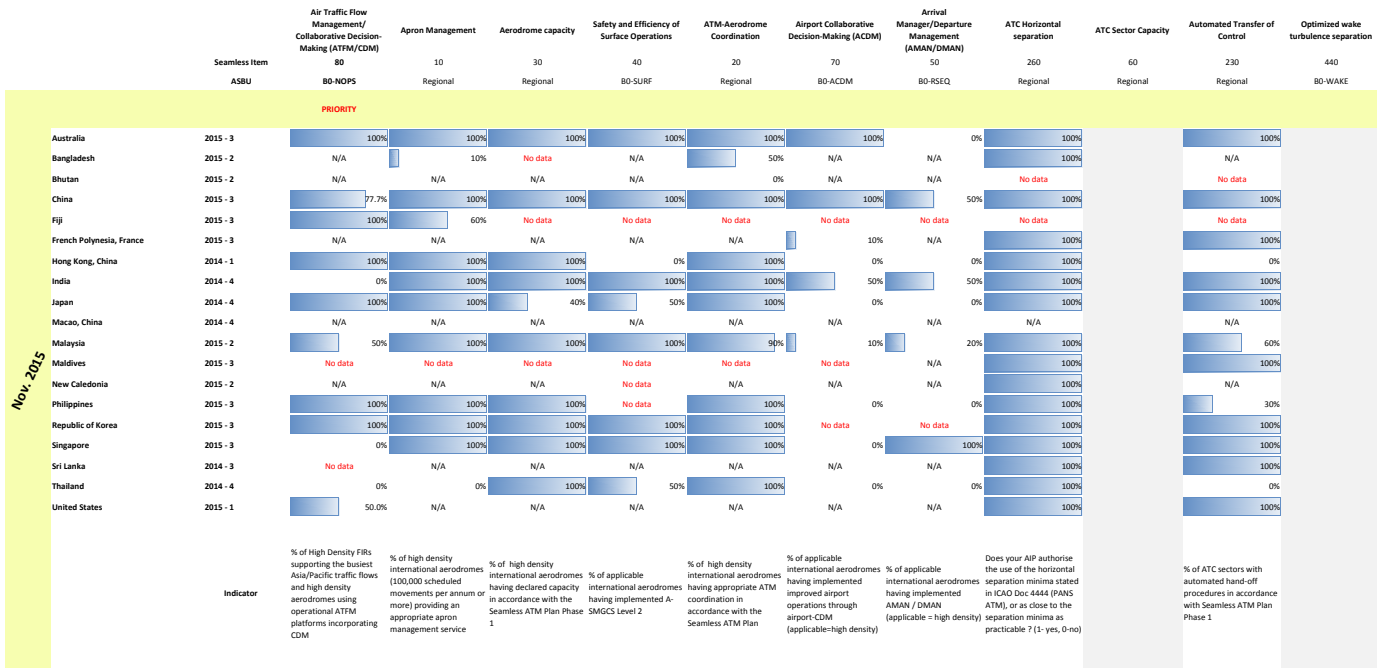
Country	Year	ATFM/CDM	PBN	Ground-based Surveillance	ATS surveillance with data integrated	ADS-C and CPDLC	ATS Inter-facility Data-link Communications (AIDC)	Aeronautical Information Management	Civil Military use of SUA	Strategic Civil Military coordination	Tactical Civil Military coordination
Australia	2015 - 3	100%	100%	100%	100%	100%	100%	76.9%	100%	100%	100%
Bangladesh	2015 - 2	N/A	30%	N/A	30%	N/A	No data	61.5%	No data	No data	100%
Bhutan	2015 - 2	N/A	No data	N/A	No data	N/A	No data	0%	N/A	No data	No data
China	2015 - 3	77.7%	100%	11.1%	100%	N/A	100%	38.5%	N/A	100%	100%
Fiji	2015 - 3	100%	70%	100%	100%	100%	100%	7.7%	N/A	N/A	N/A
French Polynesia, France	2015 - 3	N/A	100%	100%	100%	100%	100%	7.7%	N/A	No data	N/A
Hong Kong, China	2014 - 1	100%	100%	0%	No data	N/A	0%	No data	100%	N/A	100%
India	2014 - 4	0%	100%	N/A	80%	100%	75%	100%	100%	100%	100%
Japan	2014 - 4	100%	0%	0%	100%	100%	100%	No data	100%	100%	100%
Macao, China	2014 - 4	N/A	No data	N/A	N/A	N/A	N/A	38.5%	N/A	N/A	N/A
Malaysia	2015 - 2	50%	0%	0%	100%	50%	100%	76.9%	100%	100%	100%
Maldives	2015 - 3	80%	100%	0%	100%	100%	0%	0%	No data	No data	No data
New Caledonia, France	2015 - 2	N/A	0%	N/A	N/A	N/A	N/A	No data	N/A	N/A	N/A
Philippines	2015 - 3	100%	100%	0%	50%	100%	0%	46.2%	100%	100%	0%
Republic of Korea	2015 - 3	100%	No data	No data	100%	N/A	No data	84.6%	100%	100%	100%
Singapore	2015 - 2	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	2014 - 3	No data	No data	100%	100%	100%	100%	84.6%	100%	100%	100%
Thailand	2014 - 4	0%	No data	0%	100%	N/A	0%	0%	100%	100%	100%
United States	2015 - 1	50%	N/A	50%	N/A	50%	50%	No data	100%	100%	100%

Indicator	% of High Density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes using operational ATFM platforms incorporating CDM	% of high density aerodromes with precision approaches or APV or LNAV (High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)	% of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace?	% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display	% of FIRs utilising data link en-route in applicable airspace	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs	% of Phase 1 and 2 AIS-AIM elements completed (0-13)	% of FIRs in which FUA is implemented	Have you established a national civil/military body that performs strategic civil-military coordination? (1- yes, 0- no)	Have you established a formal civil military liaison for tactical response? (1- yes, 0-no)
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N/A: Not Applicable

Progress against the 10 APAC Regional Priorities

(Regional Picture 19 Aug 2015)



N/A: Not Applicable

Meeting the Seamless ATM objectives - Optimal capacity

(Regional Picture 19 Aug 2015)

Seamless Item	ASBU	Performance-based Navigation (PBN) Approach	Performance-based Navigation (PBN) Routes	Performance-based Navigation (PBN) Airspace	Continuous Descent Operations (CDO)	Continuous Climb Operations (CCO)	Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	Performance-based Navigation (PBN) Visual Departure and Arrival Procedures	ATM systems enabling optimal PBN/ATC operations	UPR and DARP	In-trail procedures
		110	140	150	90	100	120	130	250	290	450
PRIORITY											
Australia	2015 - 3	100%	100%	100%	N/A	N/A	100%		9%	100%	
Bangladesh	2015 - 2	30%	10%	N/A	N/A	N/A	0%		No data	N/A	
Bhutan	2015 - 2	No data	0%	No data	N/A	N/A	No data		N/A	N/A	
China	2015 - 3	100%	10%	100%		0%	0%	100%		N/A	
Fiji	2015 - 3	70%	No data	No data	No data	No data	No data		No data	No data	
French Polynesia, France	2015 - 3	100%	80%	N/A	No data	No data	80%		100%	100%	
Hong Kong, China	2014 - 1	100%	100%	0%	100%	No data	100%		100%	N/A	
India	2014 - 4	100%	40%	N/A	100%	100%	100%		100%	25%	
Japan	2014 - 4	0%	100%	100%		30%	No data	100%		100%	
Macao, China	2014 - 4	No data	N/A	N/A	N/A	N/A	No data		N/A	N/A	
Malaysia	2015 - 2	0%	40%	100%	100%	100%	100%		100%	N/A	
Maldives	2015 - 3	100%	60%	No data	100%	100%	100%		100%	100%	
New Caledonia	2015 - 2	0%	No data	No data	N/A	N/A	100%		N/A	N/A	
Philippines	2015 - 3	100%	30%	0%	50%	50%	100%			20%	0%
Republic of Korea	2015 - 3	No data	70%	No data	30%	0%	No data		100%	N/A	
Singapore	2015 - 3	100%	0%	100%	100%	0%	100%			0%	N/A
Sri Lanka	2014 - 3	No data	100%	N/A	No data	No data	No data			50%	100%
Thailand	2014 - 4	No data	0%	0%	0%	0%	50%		100%	N/A	
United States	2015 - 1	N/A	100%	100%	N/A	N/A	N/A		100%		50.0%
Indicator		% of high density aerodromes with precision approaches or JPV or LNAV (high density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year)	% of ATS routes designated as PBN routes in accordance with Seamless ATM Phase 1	Are all your Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes designated as non-exclusive or exclusive PBN airspace as appropriate? (1=yes, 0=no)	% of international aerodromes/TMA where CDO is implemented	% of international aerodromes where CCO is implemented	% of international aerodromes / TMAs with PBN STAR implemented		% of ATC units with ATM systems enabling optimal PBN operations	% of FIRs using UPR and DARP within R airspace	

Seamless Item	ASBU	Performance-based Navigation (PBN) Approach	Performance-based Navigation (PBN) Routes	Performance-based Navigation (PBN) Airspace	Continuous Descent Operations (CDO)	Continuous Climb Operations (CCO)	Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	Performance-based Navigation (PBN) Visual Departure and Arrival Procedures	ATM systems enabling optimal PBN/ATC operations	UPR and DARP	In-trail procedures
		110	140	150	90	100	120	130	250	290	450
Australia	2015 - 3		100%				No data	No data	No data		No data
Bangladesh	2015 - 2		40%				50%	N/A	0%		No data
Bhutan	2015 - 2		0%				No data	No data	N/A		N/A
China	2015 - 3		0%				No data	No data	No data		N/A
Fiji	2015 - 3		No data				No data	No data	No data		No data
French Polynesia, France	2015 - 3		100%				100%	N/A	No data		N/A
Hong Kong, China	2014 - 1		0%				100%	N/A	No data		N/A
India	2014 - 4		No data				No data	No data	No data		No data
Japan	2014 - 4		0%				100%	0%	100%		No data
Macao, China	2014 - 4		N/A				No data	N/A	N/A		No data
Malaysia	2015 - 2		100%				No data	100%	No data		No data
Maldives	2015 - 3		100%				100%	N/A	100%		No data
New Caledonia	2015 - 2		No data				No data	N/A	N/A		N/A
Philippines	2015 - 3		0%				20%	No data	0%		No data
Republic of Korea	2015 - 3		No data				No data	No data	100%		No data
Singapore	2015 - 3		0%				No data	0%	No data		No data
Sri Lanka	2014 - 3		100%				100%	No data	100%		No data
Thailand	2014 - 4		No data				No data	No data	No data		No data
United States	2015 - 1		No data				N/A	N/A	100%		50.0%
Indicator			% of ATS routes designated as PBN routes in accordance with Seamless ATM Phase 2				% of international aerodromes / TMAs with PBN SID implemented	% of high density aerodromes with PBN procedures that overlay visual arrival and departure procedures	% of ATC units with ATM systems supporting optimal aerodrome capacity and using electronic flight progress strips		% of FIRs having implemented in-trail procedures

N/A: Not Applicable

Meeting the Seamless ATM objectives - Optimal trajectories

(Regional Picture 19 Aug 2015)

Seamless Item	ASBU	Airspace classification	Flight Level Orientation Schemes (FLOS)	Flight Level Allocation Schemes (FLAS)	Civil Military use of SUA	Strategic Civil Military coordination	Tactical Civil Military coordination	Civil Military system integration	Civil Military nav aids joint provision	Civil Military common training	Civil Military common procedures
		190	200	210	360	370	380	390	400	410	420
		Regional	Regional	Regional	BO-FRTO	Regional	Regional	Regional	Regional	Regional	Regional
					PRIORITY	PRIORITY	PRIORITY				
Australia	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bangladesh	2015 - 2	N/A	100%	N/A	No data	No data	100%	No data	100%	No data	100%
Bhutan	2015 - 2	N/A	No data	N/A	N/A	No data	No data	No data	N/A	No data	No data
China	2015 - 3	0%	N/A	No data	N/A	100%	100%	N/A	No data	No data	N/A
Fiji	2015 - 3	No data	No data	No data	N/A	N/A	N/A	N/A	N/A	N/A	N/A
French Polynesia, France	2015 - 3	100%	100%	N/A	N/A	No data	N/A	N/A	N/A	N/A	100%
Hong Kong, China	2014 - 1	100%	100%	100%	100%	N/A	100%	100%	N/A	N/A	N/A
India	2014 - 4	N/A	100%	100%	100%	100%	100%	0%	N/A	100%	100%
Japan	2014 - 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Macao, China	2014 - 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Malaysia	2015 - 2	100%	100%	No data	100%	100%	100%	100%	100%	100%	100%
Maldives	2015 - 3	100%	100%	No data	No data	No data	No data	No data	No data	No data	No data
New Caledonia	2015 - 2	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Philippines	2015 - 3	100%	100%	100%	100%	100%	0%	No data	100%	100%	100%
Republic of Korea	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Singapore	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	2014 - 3	100%	100%	N/A	100%	100%	100%	N/A	N/A	100%	100%
Thailand	2014 - 4	100%	100%	No data	100%	100%	100%	0%	0%	0%	0%
United States	2015 - 1	N/A	100%	N/A	100.0%	100%	100%	100%	N/A	N/A	N/A

Indicator	Does your State/Administration harmonized the upper airspace classification as follows: a) Category R controlled airspace- Class A, and b) Category 5 controlled airspace- Class A, or if there are high level general aviation or military VFR operations: Class B or C.7 (1- yes, 0- no)	Does your State/Administration use the ICAO Table of Cruising Levels based on feet as contained in Appendix 3a to Annex 2.7 (1- yes, 0- no) that does not meet specified equipage 7 (1- yes, 0- no)	Does your Operations Manual give priority for higher density ATS routes, and a lower priority to any aircraft that does not meet specified equipage 7 (1- yes, 0- no)	% of FIRs in which FLUA is implemented	Have you established a national civil/military body that performs strategic civil-military coordination? (1- yes, 0- no)	Have you established a formal civil military liaison for tactical response? (1- yes, 0- no)	Are civil ATS and military systems integrated? 1- yes, 0- no	Are there joint civil and military navigation aids? 1- yes, 0- no	Is Civil Military common training conducted in areas of common interest? 1- yes, 0- no	Are there common procedures for Civil Military operations where appropriate? 1- yes, 0- no
Australia	2015 - 3									
Bangladesh	2015 - 2									
Bhutan	2015 - 2									
China	2015 - 3									
Fiji	2015 - 3									
French Polynesia, France	2015 - 3									
Hong Kong, China	2014 - 1									
India	2014 - 4									
Japan	2014 - 4									
Macao, China	2014 - 4									
Malaysia	2015 - 2									
Maldives	2015 - 3									
New Caledonia	2015 - 2									
Philippines	2015 - 3									
Republic of Korea	2015 - 3									
Singapore	2015 - 3									
Sri Lanka	2014 - 3									
Thailand	2014 - 4									
United States	2015 - 1									

Note: No objective is planned for phase 2 (Nov. 18) for Airspace and Civil/Military integration

N/A: Not Applicable

Meeting the Seamless ATM objectives - Airspace

Meeting the Seamless ATM objectives - Civil/Military integration

(Regional Picture 19 Aug 2015)

Seamless Item	ATM Managers' Performance		ATC simulators performance		Safety assessment of changes		ATM Operators' performance		ATS Inter-Facility Data-link Communications (AIDC)		ADS-C and CPDLC		Aeronautical Information Management		Meteorological Information	
	ASBU		Regional		Regional		Regional		BO-FICE		BO-TBO		BO-DATM		BO-AMET	
	320	330	340	350	220	280	300	310								
									PRIORITY	PRIORITY			PRIORITY			
Australia	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	76.9%	100%	100%	100%
Bangladesh	2015 - 2	No data	N/A	No data	No data	No data	No data	No data	No data	N/A	N/A	N/A	61.5%	30%	0%	0%
Bhutan	2015 - 2	No data	N/A	No data	No data	No data	No data	No data	No data	N/A	N/A	N/A	0%	0%	0%	0%
China	2015 - 3	100%	100%	No data	100%	100%	100%	100%	100%	N/A	N/A	N/A	38.5%	80%	100%	100%
Fiji	2015 - 3	No data	No data	No data	No data	No data	No data	No data	100%	100%	100%	100%	7.7%	No data	No data	No data
French Polynesia, France	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	7.7%	N/A	N/A	N/A
Hong Kong, China	2014 - 1	100%	100%	100%	100%	100%	100%	100%	0%	N/A	N/A	N/A	No data	100%	100%	100%
India	2014 - 4	100%	100%	100%	100%	100%	100%	100%	75%	100%	100%	100%	100%	100%	100%	100%
Japan	2014 - 4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	No data	100%	100%	100%
Macao, China	2014 - 4	0%	0%	0%	100%	100%	100%	100%	N/A	N/A	N/A	N/A	38.5%	100%	100%	100%
Malaysia	2015 - 2	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	76.9%	100%	100%	100%
Maldives	2015 - 3	0%	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	0%	No data	No data	No data
New Caledonia	2015 - 2	100%	100%	100%	100%	100%	100%	100%	N/A	N/A	N/A	N/A	No data	100%	100%	100%
Philippines	2015 - 3	No data	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	46.2%	100%	100%	100%
Republic of Korea	2015 - 3	0%	100%	100%	100%	100%	100%	100%	No data	N/A	N/A	N/A	84.6%	100%	100%	100%
Singapore	2015 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sri Lanka	2014 - 3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	84.6%	N/A	N/A	N/A
Thailand	2014 - 4	100%	100%	0%	0%	0%	0%	0%	0%	N/A	N/A	N/A	0%	0%	0%	0%
United States	2015 - 1	100%	100%	100%	100%	100%	100%	100%	50.0%	50.0%	50.0%	50.0%	No data	100%	100%	100%
Indicator		Does your Operations Manual require the training for all ANSP managers? (1=yes, 0=no)	Do you have a programme for enhancement and improved application of ATC simulators? (1=yes, 0=no)	Do you have safety teams comprising multidisciplinary operational staff and managers which review safety performance and 0-assess significant proposals for change to ATM systems? (1=yes, 0=no)	Do you have human performance-based training and procedures for staff providing ATS? (1=yes, 0=no)	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLD with neighbouring ACCs	% of FIRs utilising data link en-route in applicable airspace	% of Phase 1 and 2 AIS-AM elements completed (0-13)	% of high density aerodromes providing meteorological forecasts, aerodrome warnings and alerts							

Australia	2015 - 3	No data				No data			No data				No data			
Bangladesh	2015 - 2	No data				No data			No data				75%			
Bhutan	2015 - 2	No data				No data			No data				0%			
China	2015 - 3	No data				No data			No data				37.5%			
Fiji	2015 - 3	No data				No data			100%				12.5%			
French Polynesia, France	2015 - 3	0%				No data			100%				100%			
Hong Kong, China	2014 - 1	0%				No data			0%				No data			
India	2014 - 4	No data				No data			No data				No data			
Japan	2014 - 4	100%				100%			100%				No data			
Macao, China	2014 - 4	100%				No data			N/A				No data			
Malaysia	2015 - 2	No data				No data			No data				87.5%			
Maldives	2015 - 3	0%				No data			0%				0%			
New Caledonia	2015 - 2	No data				No data			N/A				No data			
Philippines	2015 - 3	No data				No data			0%				0%			
Republic of Korea	2015 - 3	0%				No data			No data				25%			
Singapore	2015 - 3	No data				No data			No data				No data			
Sri Lanka	2014 - 3	No data				No data			100%				100%			
Thailand	2014 - 4	No data				No data			No data				No data			
United States	2015 - 1	No data				No data			No data				25.0%			
Indicator		Is the prevention of fatigue systems established to support human performance in the delivery of your ATM services? (1=yes, 0=no)							% of FIRs within which all applicable ACCs have implemented full AIDC messaging, or alternate communication standard				% of Phase 3 AIS-AM elements completed (0-8)			

N/A: Not Applicable

Meeting the Seamless ATM objectives - Performing safely

Meeting the Seamless ATM objectives - Communications

Meeting the Seamless ATM objectives - Information management

(Regional Picture 19 Aug 2015)



N/A: Not Applicable

Meeting the Seamless ATM objectives - Surveillance

(Regional Picture 19 Aug 2015)