ICAO BANGKOK UNITING AVIATION

Asia/Pacific Region Datalink Planning and Implementation Status

Shane Sumner

Regional Officer

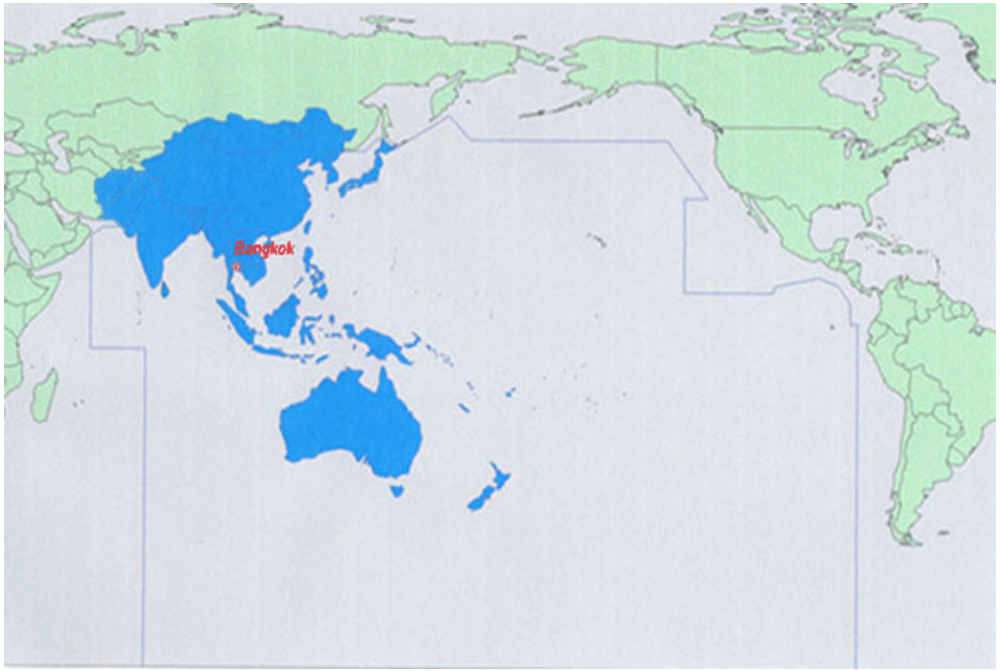
Air Traffic Management/Aeronautical Information Management

ICAO Asia and Pacific Regional Office

Operational Data Link Seminar

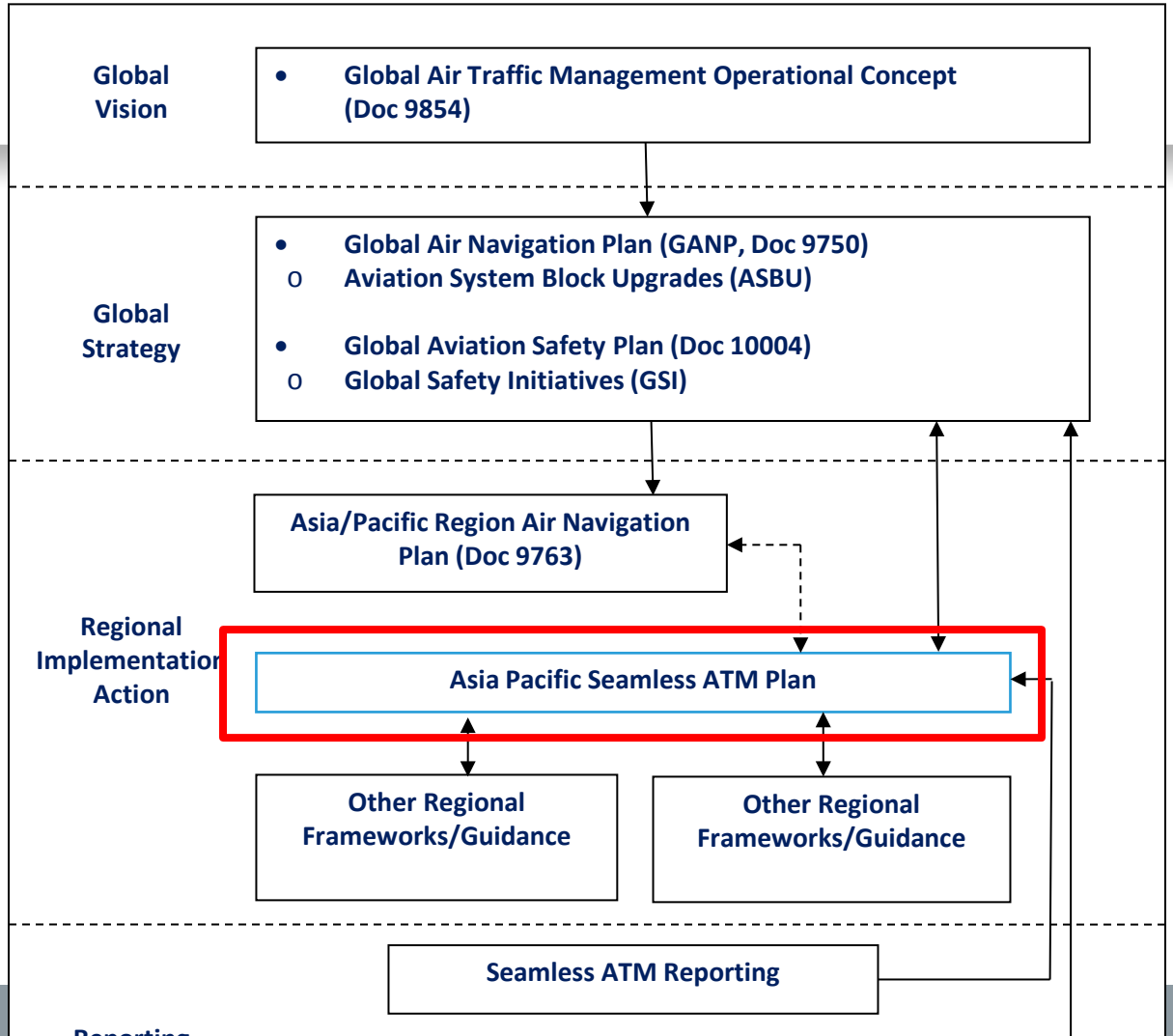
Bangkok, Thailand, 2 May 2016

- APAC Region
  - Largest Region
    - Geographically
    - Passengers
    - Movements
  - Vast areas outside ground-based surveillance & communications coverage
  - Oceanic airspaces

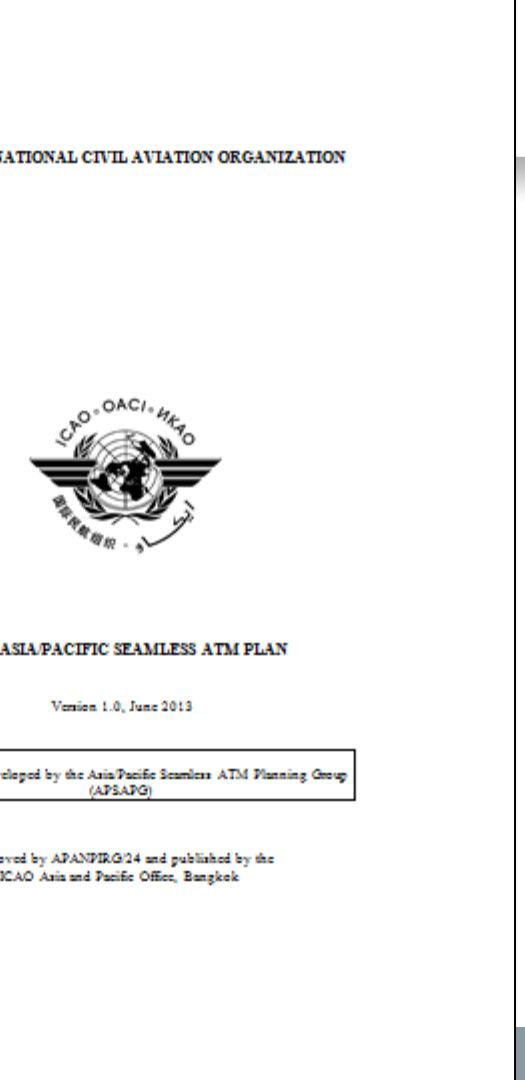


Regional Plans and Expectations

Asia/Pacific Seamless ATM Plan



- Asia/Pacific Seamless ATM Plan



INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA/PACIFIC SEAMLESS ATM PLAN

Version 1.0, June 2013

This Plan was developed by the Asia/Pacific Seamless ATM Planning Group (APSAPG)

Approved by APANPIRG/24 and published by the ICAO Asia and Pacific Office, Bangkok

- Seamless ATM Plan
- 2016 Update
- 10 Regional Priorities (APANPIRG/25 2014)
  - Trajectory-Based Operations – Data Link En-Route
    - ASBU Module B0-TBA
    - Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separation.
    - Target Date (Seamless ATM Plan Phase 1) – 12 November 2015

- Seamless ATM Plan

- Defines Category ‘R’ Airspace
  - *remote en-route airspace within Air Traffic Services (ATS) communications and surveillance coverage dependent on a third-party Communication Service Provider (CSP)*

- Seamless ATM Plan Objectives
- 42 performance expectations (Seamless Plan Elements)
  - Phase I November 2015
  - Phase II November ~~2018~~ 2019 (Plan update during 2016)
    - Aligned with ASBU Block 0 timeline
- Objectives arranged in *Performance Improvement Plan* phases
  - Preferred Aerodrome/Airspace and Route Specifications (PARS) Phases I and II
  - Preferred ATM Service Level (PASL) Phases I and II

- Seamless ATM Plan Objectives
- Phase I

ATS routes should be established in accordance with the following PBN specifications:

- Category R airspace – **RNP 4**, **RNP 10** (RNAV 10) (other acceptable navigation specifications – RNP 2 oceanic)

- # Seamless ATM Plan Objectives
- ## Phase I

ATM systems, including communication and ATS surveillance systems and the performance of those systems, should support the capabilities of PBN navigation specifications and ATC separation standards applicable within the airspace concerned.

Note: guidance on the performance of ATS communication and surveillance systems is available in the Global Operational Data-link Document.

- Seamless ATM Plan Objectives
- Phase II

All en-route controlled airspace should be designated as being exclusive PBN airspace with mandatory carriage of GNSS utilising RNP navigation specifications, except for State aircraft. Such implementation mandates should be harmonised with adjacent airspace. ATS routes should be established in accordance with the following PBN specification:

- Category R and S airspace – RNP 2.

- FANS Interoperability Teams (FITs)

- Support data link:
  - Implementation
  - Post implementation monitoring
    - Problem reporting and analysis (Central Reporting Agency – CRA)
    - Performance analysis and reporting
    - Knowledge sharing
  - Support State compliance with Annex 11 para 2.27.5

FANS Interoperability Teams (FITs)

- *2.27.5 Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted. When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.*

- FANS Interoperability Teams (FITs)

- 3 FITs in APAC Region:

  - Informal Pacific ATC Coordination Group (IPACG)
    - North Pacific Ocean States

    - https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/ato_intl/ipacg/

- FANS Interoperability Teams (FITs)

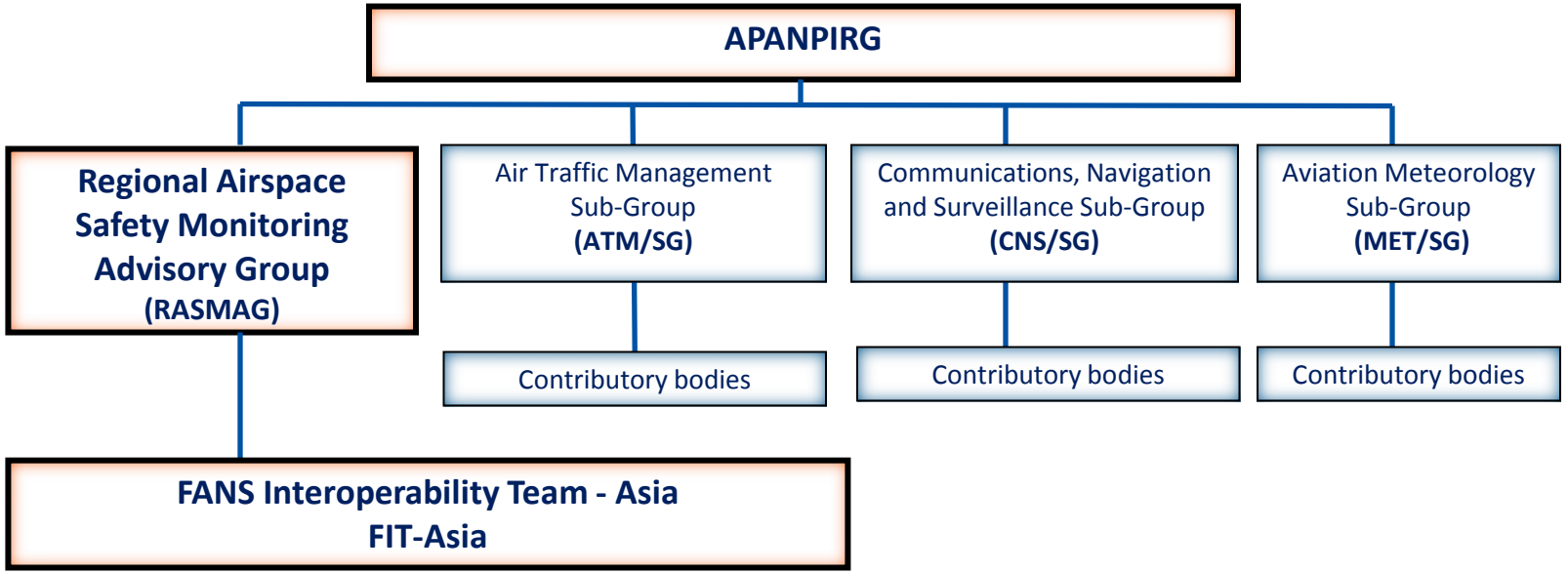
- 3 FITs in APAC Region:

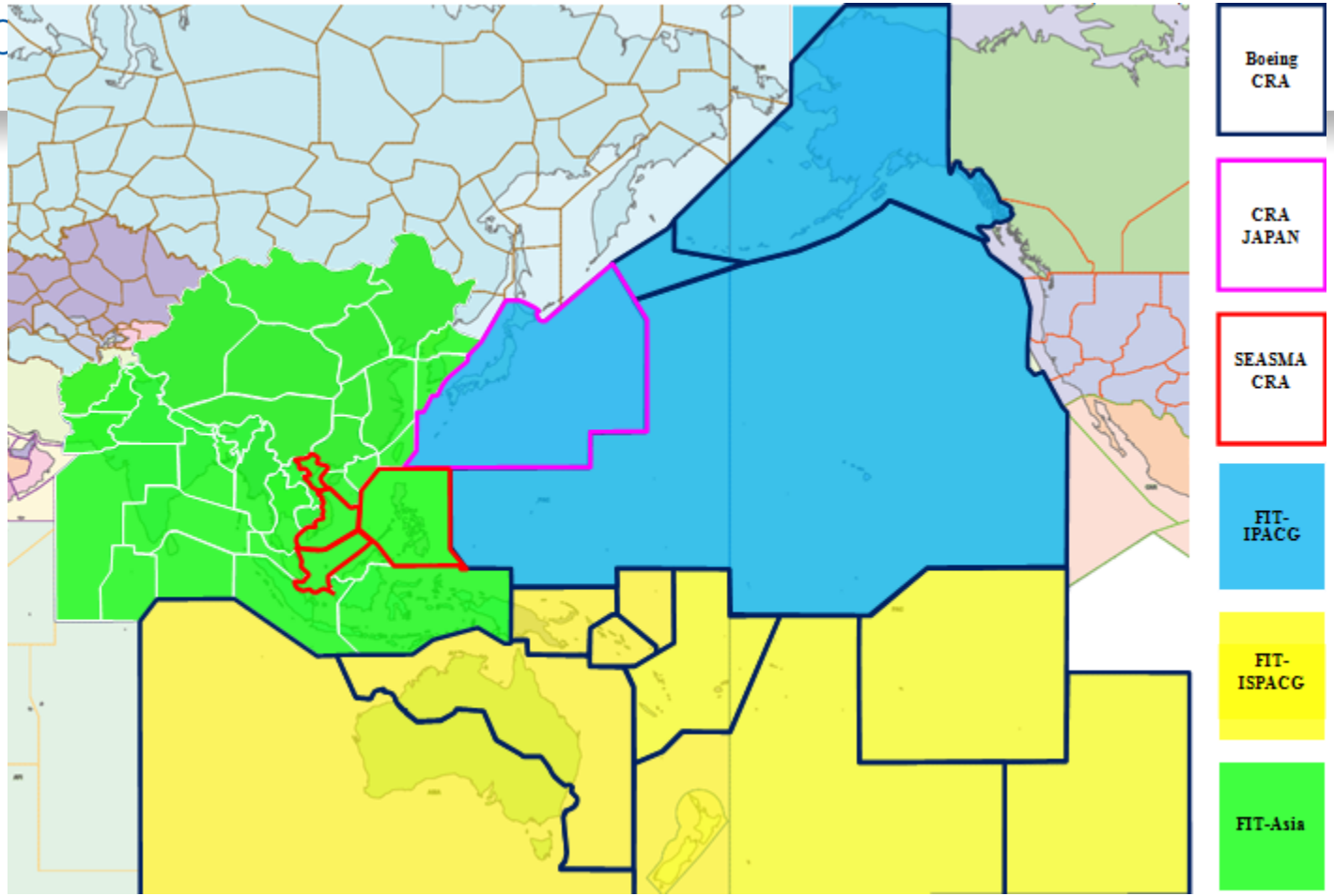
  - Informal South Pacific ATS Coordination Group (IPACG)
    - South Pacific Ocean States

    - http://www.ispacg-cra.com/

- FANS Interoperability Teams (FITs)

- FIT-Asia:
  - All States outside IPACG and ISPACG
  - ICAO Regional Body
  - Reports to the Regional Airspace Safety Monitoring Advisory Group (RASMAG)
  - Reports available on APAC Regional Office website
  - http://www.icao.int/APAC/Meetings/Pages/default.aspx


APANPIRG
Regional Airspace Safety Monitoring Advisory Group (RASMAG)
Air Traffic Management Sub-Group (ATM/SG)
Communications, Navigation and Surveillance Sub-Group (CNS/SG)
Aviation Meteorology Sub-Group (MET/SG)
Contributory bodies
Contributory bodies
Contributory bodies
FANS Interoperability Team - Asia FIT-Asia


Boeing CRA
CRA JAPAN
SEASMA CRA
FIT-IPACG
FIT-ISPACG
FIT-Asia

- FIT-Asia

- CRA service provided by ISPACG CRA
  - Through ISPACG CRA website
  - G-PAT tool available for performance analysis

- Developed performance reporting template

  http://www.icao.int/_layouts/download.aspx?SourceUrl=/APAC/Documents/edocs/Data Link Performance Data Reporting Template.doc

International Civil Aviation Organization

The XX^nd/rd/th Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/XX)

[e.g. Bangkok, Thailand, dd – dd Mmmmm YYYY]

Agenda Item 3: Review of ADS/CPDLC Operations

DATA LINK PERFORMANCE REPORT FOR (STATE/ORGANIZATION)

(Presented by NAME OF STATE/ORGANIZATION)

SUMMARY

This paper presents data link performance data for YYYY for the following FIR/s:

- FIR 1
- FIR 2
- etc……

This paper relates to –

Strategic Objectives:

A: Safety – Enhance global civil aviation safety

~~*B: Security – Enhance global civil aviation security*~~ MAY NOT BE RELEVANT

C: Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment

Global Plan Initiatives: DELETE ALL THAT ARE NOT APPLICABLE

GPI-2 Reduced vertical separation minima
GPI-8 Collaborative airspace design and management
GPI-9 Situational awareness
GPI-16 Decision support systems and alerting systems
GPI-17 Data link applications
GPI-21 Navigation systems
GPI-22 Communication infrastructure
GPI-22 Communication infrastructure

1. INTRODUCTION

1.1 TEXT

2. DISCUSSION

XXXX FIR CPDLC Actual Communications Performance (ACP)

2.1 INCLUDE AN EXECUTIVE SUMMARY FOR EACH PERFORMANCE COMPONENT REPORTED

2.2 **Table 1** summarizes overall CPDLC Actual Communications Performance (ACP) for messages sent within the XXXX FIR. **Figure 1** presents the ACP measurement by media type (Satellite, VHF and the combined total of both) for the period XXX 20XX to XXX 20XX.

XXXX FIR CPDLC ACP				
Messages		%> 180 sec (Target 95%)	%> 210 sec (Target 99.9%)	Remarks
Satellite	XX	XX	XX	
VHF	XX	XX	XX	-
Total	XX	XX	XX	

Table 1: XX FIR CPDLC ACP per Media Type

INSERT ACP GRAPH
Figure 1: xx FIR ACP by Data Link Media Type

XXXX FIR ADS-C Downlink Latency

2.3 INCLUDE AN EXECUTIVE SUMMARY FOR EACH PERFORMANCE COMPONENT REPORTED

2.4 **Table 2** summarizes ADS-C Downlink Latency for messages sent within the XXXX FIR. **Figure 2** presents the ADS-C Downlink Latency per media type (Satellite, VHF, and the combined total of both) for the period XXX 20XX to XXX 20XX.

XXXX FIR ADS-C Downlink Latency				
Messages		%> XXX sec (Target XX%)	%> XXX sec (Target XX%)	Remarks
Satellite	XX	XX	XX	
VHF	XX	XX	XX	-
Total	XX	XX	XX	

Table 2: XX FIR CPDLC ACTP (VHF) per Month

INSERT ADS-C Downlink Latency GRAPH
Figure 2: xx FIR ADS-C Downlink Latency

- **Conclusion APANPIRG/26/25 – ANS Deficiencies Relating to Data Link Performance Monitoring and Analysis**
- That, an Air Navigation Deficiency should be raised against non-implementation of the provisions of Annex 11 Paragraph 2.27.5 when any FIT-Asia administration has implemented operational ADS-C/CPDLC services and:
  - has not made arrangements for the reporting and analysis of data link problems to a competent CRA as identified by the Regional Airspace Safety Monitoring Advisory Group (RASMAG); or
  - does not report data link problems to the CRA; or
  - does not provide data link problem analysis reports to a recognized FANS Interoperability/Implementation Team (FIT); or
  - does not provide data-link performance analysis reports to a recognized FIT.

- FIT-Asia

  Data link status table

  (2015)

Administration	Data Link Implementation Status			ADS-C/ CPDLC Seamless Expectation (Nov 2015)	FIT-Asia CRA Registration	Problem Reports to FIT-Asia CRA	ADS/CDPLC Operational Performance Reported to FIT-Asia/4
	ADS-C	CPDLC	AIDC				
Afghanistan				TBA			
Bangladesh				TBA			
Bhutan				TBA			
Brunei Darussalam				NO			
Cambodia				TBA			
China	X	X		YES	YES		YES
Hong Kong China				TBA			
Macao China				NO			
India	X	X		YES	YES	YES	YES
Indonesia	X	X		YES	YES		
DPR Korea				TBA			
Republic of Korea				TBA			
Lao PDR				TBA			
Malaysia	X	X		YES	YES		
Myanmar	X	X		YES	YES		
Maldives	X	X		YES	YES		
Mongolia				NO			
Nepal				TBA			
Pakistan				TBA			
Philippines				YES	SEASMA*		
Sri Lanka	X	X		YES			
Singapore	X	X		YES	SEASMA*	YES	YES
Thailand				NO			
Viet Nam	X	X		YES	SEASMA*		

* *The South East Asia Safety Monitoring Agency (SEASMA) provides CRA service for Philippines, Singapore and Viet Nam. Philippines has not yet implemented data-link services. Singapore provides performance reports for the Singapore FIR to FIT-Asia. Current SEASMA CRA arrangements expire September 2015.*

ICAO


North American Central American and Caribbean (NACC) Office Mexico City
South American (SAM) Office Lima
ICAO Headquarters Montréal
Western and Central African (WACAF) Office Dakar
European and North Atlantic (EUR/NAT) Office Paris
Middle East (MID) Office Cairo
Eastern and Southern African (ESAF) Office Nairobi
Asia and Pacific (APAC) Sub-office Beijing
Asia and Pacific (APAC) Office Bangkok
THANK YOU