

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**



**REPORT OF THE  
DATA LINK SEMINAR  
AND  
5<sup>th</sup> MEETING OF THE FANS INTEROPERABILITY TEAM-ASIA  
(FIT-ASIA/5)**

BANGKOK, THAILAND, 02 - 06 MAY 2016

The views expressed in this Report should be taken as those of the Meeting and not the Organization

Approved by the Meeting  
and published by the ICAO Asia and Pacific Office, Bangkok

Data Link Seminar and FIT-Asia/5  
Table of Contents

---

**CONTENTS**

INTRODUCTION.....	iii
Meetings.....	iii
Attendance .....	ii
Opening of the Seminar and Meeting.....	iii
Documentation and Working Language.....	iii
Draft Conclusions, Draft Decisions and Decisions of FIT-Asia – Definition.....	iv
List of Decisions and Draft Conclusions/Decisions .....	iv
DATA LINK SEMINAR .....	5
REPORT ON AGENDA ITEMS – FIT-Asia/5 .....	1
Agenda Item 1: Adoption of Agenda .....	1
Agenda Item 2: Central Reporting Agency Report.....	1
Agenda Item 3: Review of ADS/CPDLC Operations.....	3
Agenda Item 4: Performance-Based Communications and Surveillance – Operational Data Link Seminar Outcomes .....	9
Agenda Item 5: Data Link Guidance Material.....	10
Agenda Item 6: FIT-Asia Task List.....	11
Agenda Item 7: Any Other Business .....	11
Agenda Item 8: Date and Venue of the Next Meeting .....	11
Closing of the Meeting.....	11

Data Link Seminar and FIT-Asia/5  
Table of Contents

---

**APPENDICES TO THE REPORT OF THE DATALINK SEMINAR AND FIT-ASIA/5**

Appendix A:	List of Participants .....	A-1
Appendix B:	List of Papers .....	B-1
Appendix X:	FIT-Asia Administrations CRA Status .....	X-1
Appendix X:	FIT-Asia Task List.....	X-1
Appendix X:	Data Link Deficiencies.....	X-1
Appendix X:	Data Link Deficiencies.....	X-1

## **INTRODUCTION**

### **Meetings**

1.1 The Data Link Seminar and the 5<sup>th</sup> Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/5) were held from 2 to 6 May 2016 at the Koitate Wing of the ICAO Asia/Pacific Regional Office, Bangkok, Thailand.

1.2 The Data Link Seminar, conducted to assist States in developing their understanding of ICAO Performance-based Communications and Surveillance standards and recommended practices, was conducted from 2 to 4 May 2016. FIT-Asia/5 was held on 5 and 6 May 2016.

### **Attendance**

2.1 A total of 41 participants from Cambodia, China, Indonesia Bangladesh, China, India, Indonesia, Japan, Maldives, New Zealand, Philippines, Singapore, Thailand, United States, IATA, ICAO and industry attended either or both the Seminar and the FIT-Asia/5 meeting. The list of participants is at **Appendix A** to this report.

### **Officers and Secretariat**

3.1 Mr Tom Kraft, Chief Scientist and Technical Advisor for Aeronautical Communications, Federal Aviation Administration, USA, and Mr. Paul Radford, Oceanic Systems Manager, Airways New Zealand, moderated the Data Link Seminar.

3.2 Dr. Paisit Herabat, Expert, Director Level, Aeronautical Radio of Thailand, chaired the FIT-Asia/5 meeting. Mr Shane Sumner, Regional Officer ATM/AIM, was Secretary of both the Data Link Seminar and the FIT-Asia/5 meeting.

### **Opening of the Seminar and Meeting**

4.1 Mr Arun Mishra, Regional Director of ICAO Asia and Pacific Office, opened the Operational Data Link Seminar.

4.2 Dr. Paisit Herabat welcomed participants to the FIT-Asia/5 meeting.

### **Documentation and Working Language**

5.1 The working language of the seminar and meeting and the language for all documentation was English.

5.2 Twenty presentations were made to the seminar.

5.3 A total of eight working papers (WPs), three information papers (IPs), three presentations and one flimsy were presented to FIT-Asia/5. The list of papers, presentations and flimsies is shown at **Appendix B** to this report.

## **Draft Conclusions, Draft Decisions and Decisions of FIT-Asia – Definition**

6.1 FIT-Asia recorded its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

- a) **Draft Conclusions** deal with matters that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO in accordance with established procedures;
- b) **Draft Decisions** deal with the matters of concern only to APANPIRG and its contributory bodies; and
- c) **Decisions** of FIT-Asia that relate solely to matters dealing with the internal working arrangements of FIT-Asia.

## **List of Decisions and Draft Conclusions/Decisions**

7.1 List of Draft Conclusions

### **Draft Conclusion FIT-Asia/5-1: PBCS Operator Requirements**

That, States are urged to take appropriate measures to develop, establish, implement and promulgate, through advisory circular or other relevant State instruments, necessary policies and procedures to enable operators conducting flights in airspace where separations are dependent on Performance-Based Communication and Surveillance (PBCS) to start using required communication performance (RCP) / required surveillance performance (RSP) indicators in the flight plan as soon as possible. This should take into account:

- a) time for the operator to comply with the States' policies; and
- b) the need for the State to distribute data from PBCS monitoring programs, as necessary.

### **Draft Conclusion FIT-Asia/5-2: State Implementation of ICAO Provisions for PBCS**

That,

States that apply or plan to apply 30 NM and/or 50 NM longitudinal separation minima and/or 23 NM lateral separation minimum are urged to implement the ATM system capability to process and use ICAO PBCS flight plan indicators to determine aircraft eligibility for performance-based separation by not later than 29 March 2018; and

Common implementation dates are applied by States using RCP/RSP indicators to establish performance-based separation in adjacent airspace, supported by joint submission of Proposals for Amendment (PfA) to ICAO Doc 7030 – Regional Supplementary Procedures.

**Draft Conclusion FIT-Asia/5-3: Asia/Pacific Region PBCS Transition Strategy**

That, the Asia/Pacific Region PBCS Transition Strategy be endorsed, and posted on the Asia/Pacific Regional Office website.

.....

## DATA LINK SEMINAR

### Opening of the Seminar

1.1 The Operational Data Link Seminar was officially opened by Mr. Arun Mishra, Regional Director, ICAO Asia and Pacific Regions.

1.2 In his opening address, Mr. Mishra reflected on data link applications as key enablers of increased capacity, efficiency and safety, and the Region's expectations of data link implementation communicated in the performance objectives Asia/Pacific Seamless Plan.

1.3 Mr. Mishra informed participants that the seminar would not only provide information on existing data link applications and related ICAO standards and recommended practices (SARPS), but also on those SARPS and related publications that would become applicable in November 2016, including performance-based communications and surveillance (PBCS) specifications requiring the attention of all States that had either implemented data link or were expected to do so under the Seamless ATM Plan.

1.4 Mr. Mishra invited participants to take fullest advantage of the seminar and the presence of Operational Data Link Specific Working Group (OPLINK WG) members.

### Seminar Presentations and Outcomes

1.5 18 presentations were made to the seminar including:

- Asia/Pacific Regional Data Link Planning and Implementation (ICAO);
- Overview of Data Link and ICAO Provisions on Data Link Implementation (ICAO);
- Data Link Implementation (Singapore);
- Preparation and Implementation – Operator and State (USA);
- Introduction to PBCS and its Application in Advanced ATM Operations (New Zealand);
- Preparation for PBCS – ANSP and Operator (USA);
- Flight Plan RSP and RCP Codes (USA);
- Post-Implementation Monitoring (New Zealand);
- Data Link Monitoring – EMA (Japan);
- North Atlantic Region PBCS Transition Strategy (USA);
- Sub-Regional and National PBCS Transition Strategy (Japan);
- PBCS Analysis Data in the Fukuoka FIR (Japan);
- On-line PBCS Analysis Tool (New Zealand);
- ATS Data Link Deployment – Aircraft Manufacturer's Perspective (Boeing);
- Challenges and Issues for PBCS Implementation in the APAC Region (Japan);
- Modifying ATC Automation Systems for RSP/RCP Indicators (Japan);
- Modifying the New Zealand Oceanic ATM System for PBCS (New Zealand); and
- Operational Data Link Seminar Outcomes (Seminar Moderators and Secretary).

1.6 Outcomes from the seminar were presented to the FIT-Asia/5 meeting under FIT-Asia/5 WP06, Flimsy 01 and Presentation SP02, and resulted in a number of actions detailed in the FIT-Asia/5 meeting report.

## REPORT ON AGENDA ITEMS – FIT-Asia/5

### Agenda Item 1: Adoption of Agenda

1.1 The provisional agenda (WP/01), updated to include new Agenda Item 4 – *Performance-Based Communications and Surveillance/Operational Data Link Seminar Outcomes*, was adopted by the meeting. It was proposed that an agenda item on Performance-Based Communications and Surveillance (PBCS) should be included in FIT-Asia meetings for at least the next 2 years to cover the expected period of implementation of the new PBCS requirements.

### Agenda Item 2: Central Reporting Agency Report

#### FIT-Asia CRA Arrangements, and Problem and Performance Reporting. (WP/02)

2.1 The Secretariat provided information following up on and reviewing the outcomes of FIT-Asia/4 and State engagement with the FIT. The meeting was reminded of the inclusion in the Asia/Pacific Seamless ATM Plan of performance expectations requiring the implementation of ADS-C/CPDLC, and the inclusion of *Trajectory-Based Operations – Data Link En-Route* among the ten Regional Priorities. The meeting was further reminded of the Annex 11 standard requiring that safety related changes to the ATS system are subject to a safety assessment demonstrating that an acceptable level of safety was met, and post-implementation monitoring to ensure the defined level of safety continued to be met.

2.2 The meeting also reviewed APANPIRG *Conclusion 24/24*, requesting that States register on the FIT-Asia website and report problems to the CRA, and *Conclusion 26/25*, defining the circumstances under which an APANPIRG Air Navigation Deficiency would be raised against failure of States to engage in problem reporting and the reporting of problem and performance analyses to a recognized FIT<sup>1</sup>.

2.3 The FIT-Asia Data Link Status Table (**Appendix C** to the report) lists all FIT-Asia administrations and their:

- a) data link service status;
- b) Asia/Pacific Seamless ATM Plan performance expectation to implement ADS-C/CPDLC (where known);
- c) FIT-Asia CRA registration status;
- d) Record of submission of problem reports to the FIT-Asia CRA since FIT-Asia/4; and
- e) Record of provision of ADS-C/CPDLC performance data analysis to FIT-Asia.

---

<sup>1</sup> The Asia/Pacific Regional Airspace Safety Monitoring Advisory Group (RASMAG) was responsible for updating and distributing the Regional list of competent airspace safety monitoring organizations for use by States requiring airspace safety monitoring services, including CRA.



2.4 The meeting agreed that the FIT-Asia Data Link Status Table should be further developed to include information on the data link status of the entire APAC Region including non-FIT-Asia States.

2.5 8 FIT-Asia administrations are known to be providing ADS-C/CPDLC services. Only 3 of these administrations had submitted problem reports to a recognized CRA. Only 3 FIT-Asia administrations that provided operational ADS-C/CPDLC services submitted performance data analyses to FIT-Asia/5.

2.6 The South East Asia Safety Monitoring Agency (SEASMA) provided CRA services to 3 FIT-Asia States (Philippines, Singapore and Viet Nam). Problem reports were submitted by Singapore. Philippines had also registered on the FIT-Asia CRA website, and had been submitting problem reports to that service.

2.7 Singapore advised that the process of gaining approval for continuation of the SEASMA service beyond September 2016 was underway and updated information would be provided to APANPIRG/27.

2.8 The meeting was reminded that RASMAG was the regional body that authorized monitoring organizations to provide a CRA service. Organizations or States considering developing a CRA service needed to take into account the RASMAG policy to restrict the proliferation of safety monitoring services, and the considerable technical capability that was needed to perform CRA.

2.9 The possible future requirement for safety monitoring of data link performance reports under PBCS, and whether this may potentially be included in an expanded role for En-route Monitoring Agencies (EMAs), was discussed. The meeting agreed that the matter should be referred to RASMAG for consideration.

#### FIT-Asia Problem Report Briefing (SP/01)

2.10 FIT-Asia Central Reporting Agency (CRA, provided by Boeing CRA) presented information on problem reports received through the Informal South Pacific ATS Coordination Group (ISPACG) CRA website, which also provided the FIT-Asia CRA facility. The website was hosted by New Zealand.

2.11 It was noted that Philippines had registered on the website and had been routinely submitting problem reports.

2.12 The following issues arising from the analysis of problem reports were highlighted:

- In cases where States were conducting trial ADS-C/CPDLC operations during limited time periods, neighbouring States should ensure that data link transfers are not attempted outside the trial periods;
- Failure of data link service providers (DSP) to internetwork messages, to ensure delivery to ANSPs using the alternate DSP;
- The need for aircraft-recorded data to support further investigation of the “ACK-n-Toss” issue, whereby aircraft were downlinking acknowledgement messages in response to uplinks, but then discarding the uplink.

- The significance of position coordinate information which was currently disregarded by most ANSPs when included in AFN logon downlinks, but may be considered by some ANSPs as a criteria for acceptance or rejection of the downlink under future requirements.

2.13 A back-up table of known software issues for the information of Aircraft Operators was included in the presentation.

### **Agenda Item 3: Review of ADS/CPDLC Operations**

#### Progress on Improving Problem Reporting Mechanism in China (WP/03)

3.1 China provided an update on their progress in improving the problem reporting of CPDLC and ADS-C.

3.2 CPDLC and ADS-C services were provided on ATS route L888 in western China. The route navigation specification was RNP 4. The longitudinal separation minimum applied on the route was 10 minutes.

3.3 China had established a small team to conduct routine monitoring of data link performance for the FIRs transited by L888 (Urumqi, Lanzhou, Chengdu and Kunming). China had registered on the ISPACG website and provided feedback on some reported problems to FIT-Asia. It had been difficult to raise the attention of operators and regional ATC units to the importance of problem reporting.

3.4 To address an APANPIRG ANS deficiency raised in 2015 relating to problem reporting, China, actions had been taken to:

- Investigate the operational status of L888; and
- Update the national point-of-contact (POC) for data link performance monitoring and provision of feedback to FIT-Asia meetings for problem reports on the ISPACG website;

3.5 In **FIT-Asia/5 WP/03 Attachment A** China provided an action plan to address the establishment of a data link problem reporting mechanism. The meeting noted the significant effort being made by China to develop their performance monitoring and analysis processes.

3.6 The meeting further discussed how a competent CRA service could be established by a State. FIT-Asia CRA (Boeing CRA) agreed to develop some brief guidance outlining how a CRA may be established in cooperation between a State and a competent CRA as currently identified by RASMAG.

#### Feedback on Open Problem Reports on L888 Route Data Link Performance in 2015 (WP/04)

3.7 China provided feedback on problem reports examined by FIT-Asia CRA relating to data link performance of aircraft operating on ATS route L888 during 2015. The problem reports had been submitted by aircraft operators, and technical analysis of the reports provided by Boeing CRA on the FIT-Asia CRA website.

3.8 The problems were subsequently determined by China to have been caused by local ATM system and/or procedural issues.

3.9 In response to a query, the administrator of the ISPACG CRA and FIT-Asia CRA website (New Zealand) informed the meeting that feedback to the CRA on performance problems could be provided through the website. The meeting was reminded of the importance of establishing and updating State points-of-contact for the coordination of CRA technical analysis.

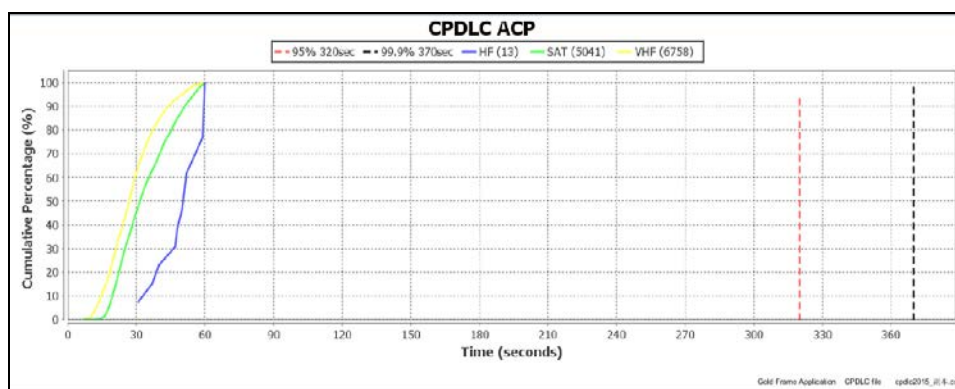
Data Link Performance Report for China – L888 Route (WP/05)

3.10 China presented the data link performance report for 2015 for the Urumqi, Lanzhou, Chengdu and Kunming FIRs. Data Link services were provided to aircraft operating in these FIRs along ATS route L888. As the longitudinal separation minimum in use on L888 was 10 minutes, China analysed data link performance against the Required Surveillance Performance 400 (RSP400) and Required Communication Performance 400 (RCP400) criteria.

3.11 **Table 1** and **Figure 1** present overall CPDLC Actual Communications Performance (ACP) per data link media type for Urumqi FIR. This performance was also observed in the ACP per operator, and in the ACP per media type for Urumqi FIR.

<b>Urumqi FIR CPDLC ACP</b>				
<b>Messages</b>		<b>% &lt; 320 sec (Target 95%)</b>	<b>% &lt; 370 sec (Target 99.9%)</b>	<b>Remarks</b>
Satellite	5,041	100.00%	100.00%	-
VHF	6,758	100.00%	100.00%	-
HF	13	100.00%	100.00%	-
Total	11,812	100.00%	100.00%	-

**Table 1:** Urumqi FIR (ZWWW) CPDLC ACP per Media Type

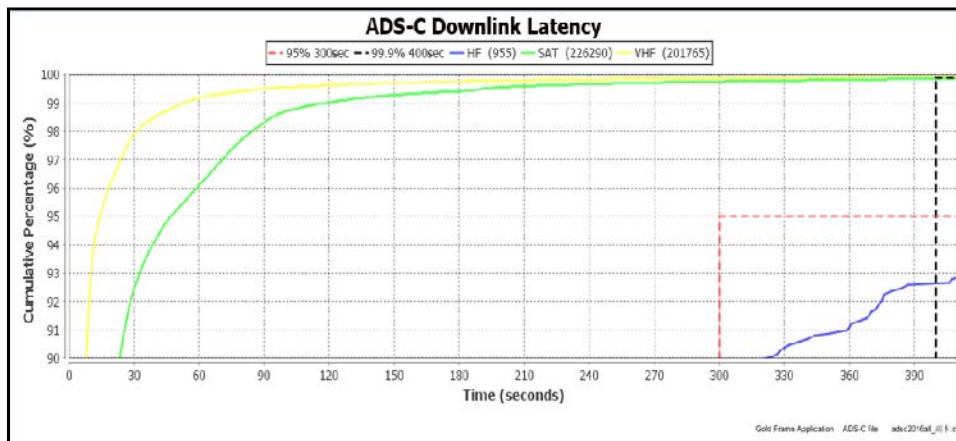


**Figure 1:** Urumqi FIR ACP per Media Type

3.12 ADS-C Downlink Latency for the Urumqi FIR is provided in **Table 2** and **Figure 2**. It was noted that downlink latency for messages sent by satellite, and VHF data link met the 95% criteria, and fell just below the 99.9% criteria. HF data link latency fell below both the 95% and 99.9% criteria.

Urumqi FIR ADS-C Downlink Latency				
Messages		% < 300 sec (Target 95%)	% < 400 sec (Target 99.9%)	Remarks
Satellite	226,290	99.76%	99.85%	-
VHF	201,765	99.87%	99.93%	-
HF	955	89.11%	92.64%	-
Total	429,010	99.79%	99.87%	-

**Table 2:** Urumqi FIR ADS-C Downlink Latency per Media Type



**Figure 2:** Urumqi FIR ADS-C Downlink Latency

3.13 **FIT-Asia/5 WP/05 Attachment A** provided further detailed analysis, and **Attachment B** provided statistical data on CPDLC and ADS-C messages for the period January 2015 to December 2015.

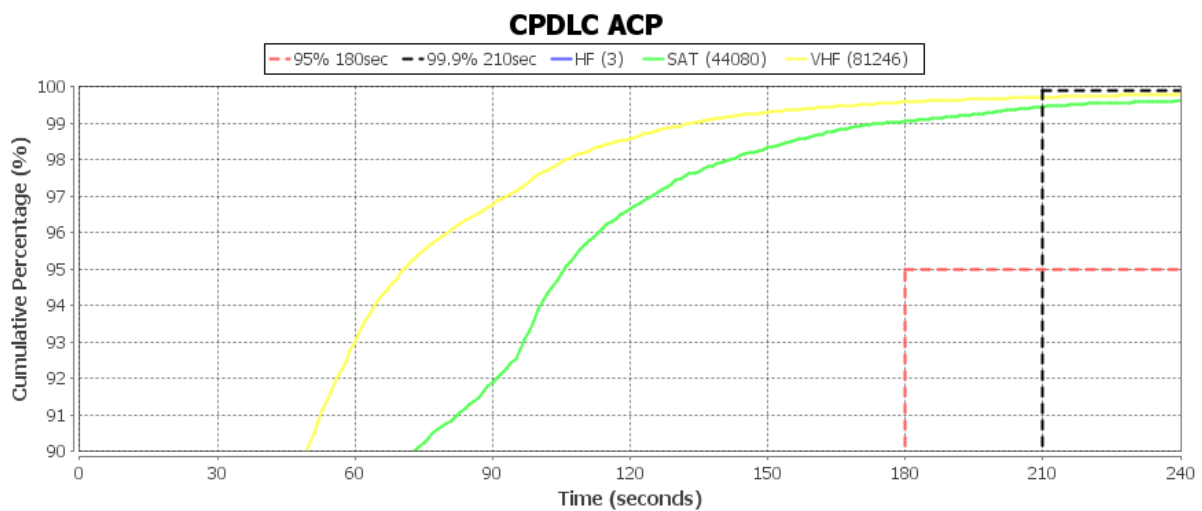
Data Link Performance Report for India (IP/02)

3.14 India provided performance data for the ADS-C/CPDLC data link ground station in the Chennai FIR for the period from February to December 2015. Of the 4 data link ground systems operational in India, it was possible to extract data only from the Chennai ground system.

3.15 **Table 3** and **Figure 3** present the overall CPDLC ACP by media type for the analysis period.

CHENNAI FIR CPDLC ACP				
Messages		% < 180 sec (Target 95%)	% < 210 sec (Target 99.9%)	Remarks
Satellite	44080	99.06%	99.46%	
VHF	81246	99.58%	99.71%	
HF	3	75.71%	80.48%	
ALL	125329	99.40%	99.62%	

**Table 3:** Chennai FIR CPDLC ACP per media type



Gold Frame Application CPDLC file CPDLC\_REPORT\_FEB\_DEC\_2015.csv

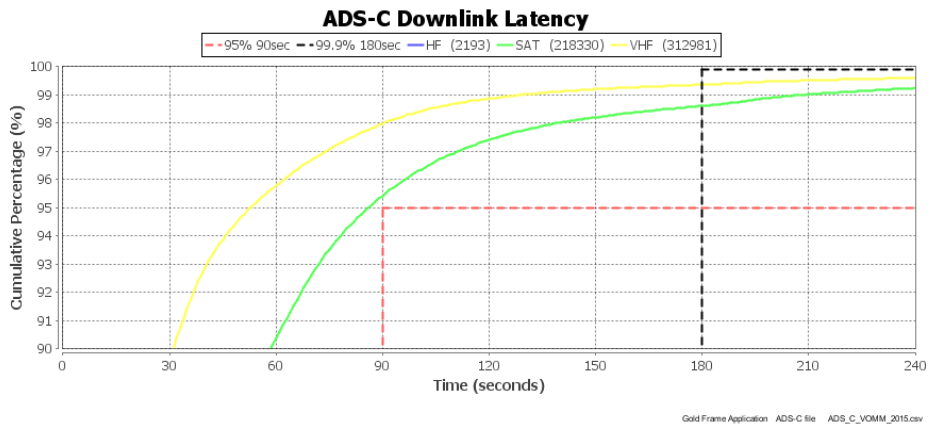
**Figure 3:** Chennai FIR ACP by Data Link Media Type

3.16 **Table 4** and **Figure 4** present ADS-C Downlink Latency for messages sent within the Chennai FIR per media type for the analysis period.

CHENNAI FIR ADS-C Downlink Latency				
Messages		% < 90 sec (Target 95%)	% < 180 sec (Target 99.9%)	Remarks
Satellite	218330	95.41%	98.60%	
VHF	312981	97.98%	99.36%	
HF	2193	66.99%	84.72%	
Total	533504	96.80%	98.99%	

**Table 4:** Chennai FIR ADS-C Downlink Latency per media type

FIT-Asia/5  
Report of the Meeting



**Figure 4:** Chennai FIR ADS-C Downlink Latency per Media

3.17 Further data link performance analysis was provided in **FIT-Asia/5 IP/02 Attachment A.**

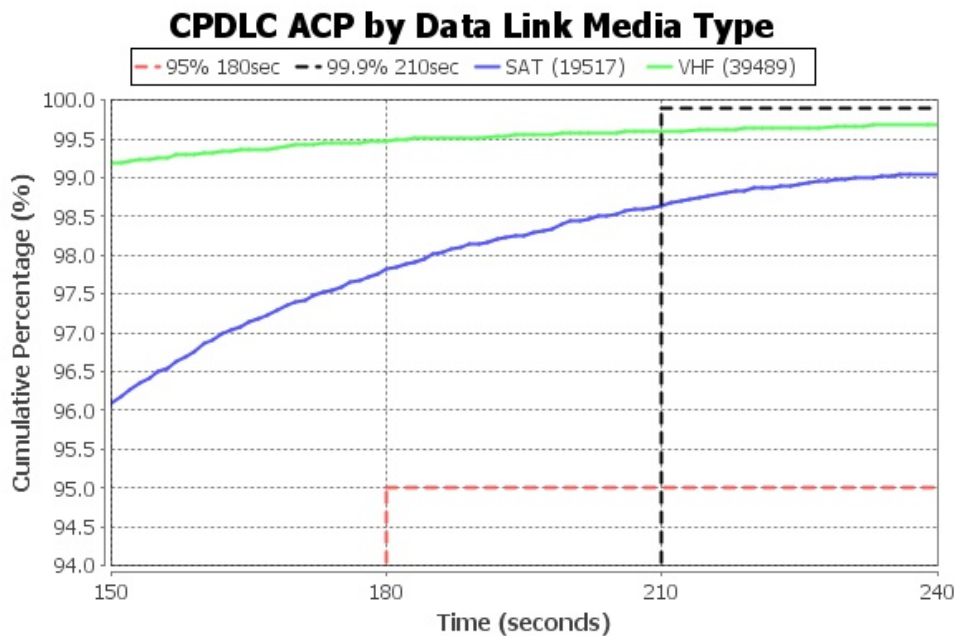
Data Link Performance Report for Singapore FIR 2015 (IP/03)

3.18 Singapore presented data link performance data for the Singapore FIR for 2015.

3.19 **Table 5** and **Figure 5** summarize overall CPDLC ACP by media type for the period from January to December 2015. The ACP for messages sent via Satellite and VHF met the 95 percent criterion but marginally fell below the 99.9 percent criterion.

<b>WSJC FIR CPDLC ACP by Data Link Media Type</b>			
<b>Messages</b>		<b>% &gt; 180 sec (Target 95%)</b>	<b>% &gt; 210 sec (Target 99.9%)</b>
Satellite	19,517	97.82	98.64
VHF	39,489	99.48	99.60
Total	59,006	98.93	99.28

**Table 5:** WSJC FIR CPDLC ACP by Data Link Media Type



**Figure 5:** WSJC FIR CPDLC ACP by Data Link Media Type

3.20 **Table 6** summarizes ADS-C downlink latency per media type for the analysis period. The downlink latency met the 95% criterion but fell marginally below the 99.99% criterion.

<b>WSJC FIR ADS-C Downlink Latency</b>			
<b>Messages</b>		<b>% &gt; 90 sec</b>	<b>% &gt; 180 sec</b>
		<b>(Target 95%)</b>	<b>(Target 99.9%)</b>
Satellite	24,544	96.40%	99.36%
VHF	45,799	99.40%	99.80%
Total	70,343	98.36%	99.65%

**Table 6:** WSJC FIR ADS-C Downlink Latency by Data Link Media Type

3.21 Further detailed analysis was provided to the meeting.

3.22 In response to a query on the response to performance data continually falling marginally below the 99.9% criterion, the meeting was reminded of the FIT-Asia/4 discussion of the operational significance of this criterion, and the following Conclusion:

***Conclusion APANPIRG/26/27 – Data Link Performance Guidelines***

*That, FIT-Asia States are urged to:*

- a) Monitor data link performance against the RCP240 and RSP180 criteria specified in Appendix B of the Global Operational Data Link Document (GOLD); and*
- b) apply the guidelines specified in the GOLD Appendix D to determine whether fleet performance (the aggregate fleet of all data link aircraft operating in the airspace concerned, except only where it related to analysis of individual operator performance) either:*
  - i. meets the 99.9% performance level; or*

- ii. *requires submission of CRA problem reports and/or investigation that will attempt to determine the cause of the degradation.*

*Note: GOLD Version 2.0 Appendix D Paragraph D.2.4.7.5.2 refers.*

#### **Agenda Item 4: Performance-Based Communications and Surveillance – Operational Data Link Seminar Outcomes**

##### Operational Data Link Seminar Outcomes (WP/06)

4.1 The Secretariat presented the outcomes of the Operational Data Link Seminar. The outcomes were presented in FIT-Asia/5 SP02 – *Outcomes from the Operational Data Link Seminar*. Flimsy 2 provided proposed action items and Draft Conclusions/Draft Decisions, mapped to the outcomes listed in SP02.

4.2 To facilitate standardized tracking, recording and reporting of PBCS planning and implementation status, the meeting agreed to utilize the PBCS Planning Chart appended at **Appendix D** to the report.

4.3 The meeting agreed to recommend to APANPIRG/27, through RASMAG/21, that a Regional Transition Strategy should be based on Option 3 of the following:

Option 1: Stop applying performance-based separation minima from the applicability date of the new provisions, until PBCS was fully implemented.

*Note: Under this option the use of RCP / RSP flight plan designators by ANSPs beginning November 2016 would, in effect, stop the application of existing performance-based horizontal separation minima if many operators were not yet eligible to file RCP / RSP indicators in FPL.*

Option 2: Consider the implemented performance-based separation minima to have “trial” status.

Option 3: Continue with the current operational implementation of performance-based separation minima under certain conditions.

*Conditions: Recognizing that performance-based separations are currently applied by a number of States, and that monitoring, analysis and rectification of CPDLC and ADS-C performance and problems should be conducted under existing provisions of the ICAO Doc. 9869 – PBCS Manual and Doc 10037 Global Operational Data Link Document (GOLD)*

4.4 **Appendix E** to this report lists the outcomes considered and agreed by the meeting, in the form of a list of action items and the following Draft Conclusions:



### **Draft Conclusion FIT-Asia/5-1: PBCS Operator Requirements**

That, States are urged to take appropriate measures to develop, establish, ~~and~~ implement, and promulgate, through advisory circular or other relevant State instrument, necessary policies and procedures to enable operators conducting flights in airspace where separations are dependent on performance-based communication and surveillance (PBCS) to start using required communication performance (RCP) / required surveillance performance (RSP) indicators in the flight plan as soon as possible. This should take into account:

- c) time for the operator to comply with the States' policies; and
- d) the need for the State to distribute data from PBCS monitoring programs, as necessary.

### **Draft Conclusion FIT-Asia/5-2: State Implementation of ICAO Provisions for PBCS**

That,

States that apply or plan to apply 30 NM and/or 50 NM longitudinal separation minima and/or 23 NM lateral separation minimum are urged to implement the ATM system capability to process and use ICAO PBCS flight plan indicators to determine aircraft eligibility for performance-based separation by not later than 29 March 2018; and

Common implementation dates are applied by States using RCP/RSP indicators to establish performance-based separation in adjacent airspace, supported by joint submission of Proposals for Amendment (PfA) to ICAO Doc 7030 – Regional Supplementary Procedures.

### **Draft Conclusion FIT-Asia/5-3: Asia/Pacific Region PBCS Transition Strategy**

That, the Asia/Pacific Region PBCS Transition Strategy be endorsed, and posted on the Asia/Pacific Regional Office website.

4.5 The meeting requested that, due to the timing of the APANPIRG/27 meeting being only 2 months before the applicability of the new RCP/RSP provisions, ICAO Asia/Pacific Regional Office circulate a State letter highlighting the outcomes from FIT-Asia/5 and the Draft Conclusions that would be proposed to APANPIRG/27.

4.6 Action items listed in **Appendix E** were considered under FIT-Asia/5 WP/06 (Agenda Item 5).

### **Agenda Item 5: Data Link Guidance Material**

5.1 There were no papers submitted under this agenda item.

**Agenda Item 6: FIT-Asia Task List**

FIT-Asia Task List (WP/07)

6.1 The meeting reviewed the FIT-Asia task list, closing or completing 3 tasks and raising 11 new tasks. 7 outstanding or ongoing tasks remained open. The task list as updated by the meeting is provided at **Appendix F** to this report.

**Agenda Item 7: Any Other Business**

Demonstration of Handoff Processes (SP03)

7.1 Boeing CRA provided the meeting with a short video presentation on the FANS Automatic handoff process.

Air Navigation Service Deficiencies Relating to Data Link Performance Monitoring and Analysis (WP/08)

7.2 No new Deficiencies were raised, and no Deficiencies were deleted from the list.

7.3 The existing Deficiency listed for Sri Lanka was modified to remove “not registered with competent CRA”. The existing Deficiency for Viet Nam was amended to include “Problem Reports not provided to CRA”.

7.4 The meeting agreed to the amendments to the Deficiency List at **Appendix G** to the report

**Agenda Item 8: Date and Venue of the Next Meeting**

8.1 The next FIT-Asia meeting would be held at a time and venue to be advised.

**Closing of the Meeting**

9.1 In closing the Meeting, the Chairman thanked participants for their support and contributions for the duration of the meeting.

-----

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

---

**List of Participants**

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
1.	<b>CAMBODIA (2)</b>		
	1. Mr. Tan Sophondarith	Deputy Director of ANS Department State Secretariat of Civil Aviation (SSCA) 62 Norodom Blvd. Phnom Penh Cambodia	Tel: +855-92-700 200 Fax: +855-23224 259 Email: tansophondarith@gmail.com
	2. Mr. Roeun Vanna	Deputy Chief of ATS Office State Secretariat of Civil Aviation (SSCA) 62 Norodom Blvd. Phnom Penh Cambodia	Tel: +855-12-525 678 Fax: +855-23224 259 Email: roeunvanna.atc@gmail.com
2.	<b>CHINA (4)</b>		
	3. Mr. Liu Liang	Engineer Air Traffic Management Bureau of CAAC Civil Aviation Administration of China No. 12 Dong Sanhuan Rd. Middle Chaoyang District, Beijing China	Tel: +86-10-8778 6825 Fax: +86-10-8778 6810 E-mail: liuliang@atmb.net.cn
	4. Ms. Gao Hong Lei	Engineer Air Traffic Management Bureau of CAAC Civil Aviation Administration of China No. 12 Dong Sanhuan Rd. Middle Chaoyang District, Beijing China	Tel: +86-10-8778 6917 Fax: +86-10-8778 6910 E-mail: gaohonglei@atmb.net.cn

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
5.	Mr. Shen Yan	Principal Staff Member East China Regional, Air Traffic Management Bureau of CAAC Civil Aviation Administration of China Room 811, No. 300, Ying Bin Er Rd. Chang Ning District, Shanghai China	Tel: +86-21-2232 1252 Fax: +86-21-2232 1258 E-mail: shenyan_hd@caac.gov.cn
6.	Ms. Zhao Jun	Technical Manager Aviation Data Communication Corporation Air Traffic Management Bureau Civil Aviation Administration of China 14 th floor, Bai Yan Building No. 238 Bei Si Huan Zhong Lu Hai Dian District Beijing 100191 China	Tel: +86-10-8232 8200 Fax: +86-10-8232 5552 E-mail: <a href="mailto:zhaoj@adcc.com.cn">zhaoj@adcc.com.cn</a> rmachina@rmachina.cn
3.	<b>INDONESIA (3)</b>		
7.	Mr. Arian Nurahman	Air Navigation Inspector DGCA Indonesia JL. Medan Merdeka Barat No.8 Jakarta 10110 Indonesia	Tel: +62-856-9541 4428 Fax: +62-213-350 7569 Email: arian.nurahman@gmail.com
8.	Mr. Rudy Kuntadi	Aerodata Network Senior Specialist Airnav Indonesia Jl. Ir. H. Juanda, No. 1, Neglasari Tangerang, Indonesia	Tel: +62-812-1214 1900 Fax: +62-21-5591 5100 Email: r.kuntadi@airnavindonesia.co.id
9.	Mr. Eka Doni Prasetya	Communication Network Specialist Airnav Indonesia Jl. Ir. H. Juanda, No. 1, Neglasari Tangerang, Indonesia	Tel: +62-364-797 021 Fax: +62-21-5591 5100 Email: eka.doni@airnavindonesia.co.id

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
4.	<b>JAPAN (3)</b>		
	10. Mr. Natsuki Ibe	Special Assistant to the Director Japan Civil Aviation Bureau 2-1-3 Kusumigaseki, Chiyoda-ku Tokyo, Japan	Tel: +81-3-5253-8739 Fax: +81-3-5253-1664 Email: ibe-n24hy@mlit.go.jp
	11. Mr. Hajime Aoto	Systems development, evolution and contingency management officer Japan Civil Aviation Bureau 2-2, Kuko, Ikeda-shi, Osaka Japan	Tel: +81-6-4865-9163 Fax: +81-6-6855-6295 Email: <a href="mailto:aoto-h074i@mlit.go.jp">aoto-h074i@mlit.go.jp</a>
	12. Mr. Hongo Nobuo	Air Navigation Service Engineer Japan Civil Aviation Bureau 1-12, Namiki, Tokorozama, Sairama Japan	Tel: +81-4-2991-5551 Fax: +81-4-2991-5556 Email: hongou-n9746@mlit.go.jp
5.	<b>MALDIVES (1)</b>		
	13. Mr. Ibrahim Thoha	General Manager, ATM Maldives Airport Company Ltd Ibrahim Nasir Internationa Airport Hulhule Maldives	Tel: +960 333 1711 Fax: +960-330-9905 Email: thoha@macl.aero
6.	<b>NEW ZEALAND (1)</b>		
	14. Mr. Paul Radford	Oceanic Systems Manager Airways New Zealand PO Box 53093 Auckland Airport Auckland 2150 New Zealand	Tel: +64-21-334 806 Fax: E-mail: paul.radford@airways.co.nz
7.	<b>PHILIPPINES (1)</b>		

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
	15. Mr. Ferdinand A. Tienzo	Air Traffic Management Officer V Civil Aviation Authority of the Philippines Pasay City 1300 Philippines	Tel: +63-2-879 9160 Fax: +63-2-879 9160 E-mail: tienzoda@yahoo.com
8.	<b>SINGAPORE (2)</b>		
	16. Mr. Kwek Chin Lin	Head of ATM Operations Systems Civil Aviation Authority Singapore Singapore Changi Airport P.O. Box 1 Singapore	Tel: +65-9646 6810 Fax: +65-6441 0221 Email: kwek_chin_lin@caas.gov.sg
	17. Mr. Simon Kuek Lool Ping	Air Traffic Control Manager Civil Aviation Authority Singapore Singapore Changi Airport P.O. Box 1 Singapore	Tel: +65-6541 2436 Fax: +65-6441 0221 Email: simon_kuek@caas.gov.sg
9.	<b>THAILAND (11)</b>		
	18. Mr. Apiwat Chanrueang	Air Navigation Services Standards Department Civil Aviation Authority of Thailand 72 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: Fax: Email: apiwat.c@aviation.go.th
	19. Mr. Chaleam Sriwantana	Air Navigation Services Standards Department Civil Aviation Authority of Thailand 72 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-89-421 2689 Fax: +66-2-287 0320 ext 2824 Email: <a href="mailto:master_hifi@yahoo.com">master_hifi@yahoo.com</a> Masterhifi@msn.com

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
20.	Ms. Renuka Kunsakda	Information and Communication Technology Department Civil Aviation Authority of Thailand 72 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-86-550 5987 Fax: +66-2-287 0320 ext 2085 Email: renuka.k@caat.or.th
21.	Mr. Paisit Herabat	Expert, Director Level Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-2-285 9191 Fax: Email: paisit.hr@aerOTHai.co.th
22.	Mrs. Montha D' Almeida	Services Standards Manager Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-94-497 1996 Fax: +66-2-287 8346 Email: montha.da@aerOTHai.co.th
23.	Mr. Koson Loyliw	Strategic Planning Manager (Engineering) Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-2-287 8637 Fax: Email: koson.lo@aerOTHai.co.th
24.	Mr. Chaichana Kujareanpaisal	Air Traffic Engineering Manager Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-86-973 8887 Fax: Email: chaichana.ku@aerOTHai.co.th

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
25.	Mr. Dudsadee Sungthong	Air Traffic Management Network Manager Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: Fax: Email: dudsadee.su@aeorthai.co.th
26.	Mr. Chainan Chaisompong	Air Traffic Engineering Manager Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-2-287 8391 Fax: +66-2-287 8189 Email: chainan.ch@aerorthai.co.th
27.	Mr. Mana Ladthawanidphan	Executive Air Traffic Systems Engineer Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: Fax: Email: mana.la@aerorthai.co.th
28.	Mr. Sutham Sujaritthammakun	Executive Air Traffic Systems Engineer Aeronautical Radio of Thailand (AEROTHAI) 102 Ngamduplee, Tungmahamek Bangkok 10120, Thailand.	Tel: +66-85-328 7228 Fax: Email: sutham.su@aerorthai.co.th
10.	<b>UNITED STATES (1)</b>		
29.	Mr. Tom Kraft	Chief Scientist and Technical Advisor for Aeronautical Communications Aviation Safety, Aircraft Certification Service FAA Northwest Mountain Regional Office Federal Aviation Administration 1601 Lind Avenue, S.W. Renton, WA 98057	Tel: +1-202-369 2168 Fax: Email: tom.kraft@faa.gov
11.	<b>IATA (6)</b>		



Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
30.	Mr. David Rollo	Assistant Director Safety, Operations & Infrastructure International Air Transport Association 111 Somerset Road #14-05 Triple One Somerset Singapore 238164	Tel: +65-6-499 2251 Fax: +65-6-233 9286 E-mail: rollod@iata.org
31.	Mr. Owen Dell	Manager, International Operations IATA/Cathay Pacific International Affairs Department, 9/F Central Tower, Cathay City, Hong Kong International Airport, Lantau Hong Kong	Tel: +852 2747 8829 Fax: +852 2141 3818 E-mail: owen_dell@cathaypacific.com
32.	Mr. Prachaya Niemloy (Seminar only)	Manager, Flight Dispatch Services IATA/Thai Airways International Ltd (PCL) BKKOW, Operation Center Building A2 4 <sup>th</sup> Floor, 333, Moo 1, Nong Prue Samutprakarn 10540 Thailand	Tel: +66-2-2137 1732 Fax: +66-2-2137 1762 E-mail: prachaya.n@thaiairways.com
33.	Mr. Pong-in Pipatpaibul	IATA/Thai Airways International 89 Vibhavadi Rangsit Rd. Jutuchak Bangkok, Thailand	Tel: +66-2-545 2811 Fax: E-mail: pong-in.p@thaiairways.com
34.	Mr. Nobimichi Akagi	Staff Director IATA/Japan Airlines 3-6-8 Haneda Airport Ota-ku Tokyo 144-0041 Japan	Tel: +81-3-5756-3133 Fax: +81-3-5756-3527 Email: nobumichi.akagi@jal.com

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
	35. Mr.Huruhiko Inukai	Manager IATA 3-3-2 Haneda Airport Ota-ku, Tokyo Japan	Tel: +81-3-6700-5011 Fax: +81-3-6700-5038 Email: h.nukai@ana.co.jp
12.	<b>BOEING (3)</b>		
	36. Mr. Brad Cornell	Associate Technical Fellow - Flight Deck The Boeing Company 12015 Purple Pennant Rd. Lake Stevens WA 98258 USA	Tel: +1-425-2805603 Email: bradley.d.cornell@boeing.com
	37. Mr. Dung Nguyen	Senior System Engineer Boeing Commercial Airplanes P.O. Box 3707 Seattle, WA 98123 USA	Tel: +1-425237-5811 Email: dung.q.nguyen@boeing.com
	38. Ms. Rochelle Perera	Datalink System Engineer The Boeing Company 3003 West Casino Road Everett, WA 98204 USA	Tel: +1-425-237 6306 Email: Rochelle.e.perera@boeing.com
13.	<b>ICAO (1)</b>		
	39. Mr. Shane Sumner	Regional Officer, Air Traffic Management ICAO Asia and Pacific Office 252/1 Vibhavadi Rangsit Road Chatuchak, Bangkok 10900 Thailand	Tel: 66-2-537 8189 ext. 159 Fax: 66-2-537 8199 E-mail: SSumner@ icao.int

Operational Data Link Seminar and FIT-Asia/5  
Appendix A to the Report

	<b>Name</b>	<b>Title/Organization</b>	<b>TEL/FAX/E-MAIL</b>
14.	<b>Nippon Cargo Airlines (2)</b>		
40.	Mr. Takuya Okagawa (Seminar only)	Assistant Manager Nippon Cargo Airlines NCA Line Maintenance Hangar Narita International Airport, Narita-shi, Chiba Japan	Tel: +81-476-32-9844 Email: takuya.okagawa@nca.aero
41.	Mr. Yasuo Nishiyama (Seminar only)	Manager Flight Operations Standards section Nippon Cargo Airlines NCA Line Maintenance Hangar Narita International Airport, Narita-shi, Chiba Japan	Tel: +81-476-32-9808 Fax: +81-476-32-9776 Email: yasuo.nishiyama@nca.aero

**LIST OF WORKING AND INFORMATION PAPERS**

**WORKING PAPERS**

NUMBER	AGENDA	TITLE	PRESENTED BY
WP01	1	Provisional Agenda	Secretariat
WP02	2	FIT-Asia CRA Arrangements, and Problem and Performance Reporting	Secretariat
WP03	3	Progress on Improving Problem Reporting Mechanism in China	China
WP04	3	Feedback on Open Problem Reports for L888 Route	China
WP05	3	Data Link Performance for L888 Route	China
WP06	4	Operational Data Link Seminar Outcomes	Secretariat
--	5	<i>No papers</i>	-
WP07	6	FIT-Asia Task List	Secretariat
WP08	7	ANS Deficiencies Relating to Data Link Performance Monitoring and Analysis	Secretariat

**INFORMATION PAPERS**

NUMBER	AGENDA	TITLE	PRESENTED BY
IP01	-	List of Working Papers and Information Papers	Secretariat
IP02	3	Data Link Performance Report for India	India
IP03	3	Data Link Performance Report for Singapore FIR 2015	Singapore

**PRESENTATIONS**

NUMBER	AGENDA	TITLE	PRESENTED BY
SP01	2	FIT Asia Problem Report Briefing	FIT-Asia CRA
SP02	4	Outcomes from the Operational Data Link Seminar	Secretariat

**FLIMSIES**

NUMBER	AGENDA	TITLE	PRESENTED BY
Flimsy 1	4	FIT-Asia Actions Arising from the Operational Data Link Seminar	Secretariat

.....

FIT-Asia/5  
Appendix C to the Report

Administration	Datalink Service 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
	ADS-C	CPDLC	AIDC	Others (i.e.DFIS)				
Afghanistan					TBA			
Bangladesh					TBA			
Bhutan					TBA			
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					YES			
Nepal					TBA			
Pakistan					TBA			
Philippines					YES	YES + SEASMA*	YES	
Sri Lanka	X	X			YES	YES		
Singapore	X	X			YES	SEASMA*	YES	YES
Thailand					TBA			
Viet Nam	X	X			YES	SEASMA*		
<p>* 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 2016.</p>								
<p>** To be updated during FIT-Asia/5</p>								

Current ANS Deficiency

Proposed ANS Deficiency

Deficiency for deletion

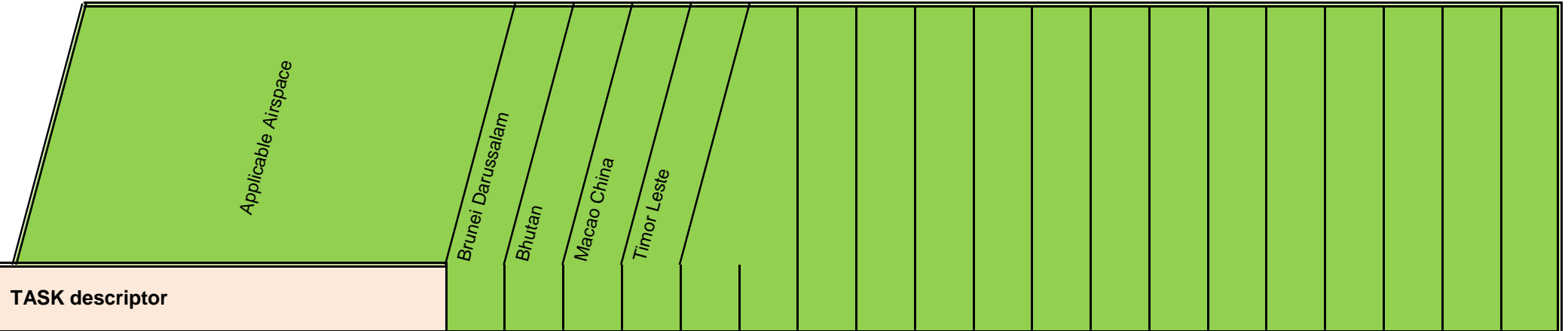
# FIT-Asia Seamless PBCS Planning Chart

State	Afghanistan	Bangladesh	Cambodia	China	Hong Kong China	India	Indonesia	DPR Korea	Republic of Korea	Lao PDR	Malaysia	Myanmar	Maldives	Mongolia	Nepal	Pakistan	Philippines	Sri Lanka	Singapore	Thailand	Viet Nam
-------	-------------	------------	----------	-------	-----------------	-------	-----------	-----------	-------------------	---------	----------	---------	----------	----------	-------	----------	-------------	-----------	-----------	----------	----------

PBCS Implementation Task List	Task Group	Task ID	TASK descriptor																					
	PBCS Implementation Task List	Group A	A-1	AIP (Prescription of an RCP/RSP specification)																				
A-2			ANSP (PBCS policies, objectives supporting safety oversight)																					
A-3			Operatpr and aircraft System- PBCS policies, objectives supporting safety oversight																					
A-4			Regional Supplementary Procedures (Doc. 7030) for PBCS operations , if applicable																					
Group B		B-1	PBCS Implementaion Plan																					
		B-2	Target dates for PBCS and relevant ATM operations																					
		B-3	RCP/RSP specifications																					
		B-4	PBCS awareness																					
Group C		C-1	Operational concepts and procedures for PBCS operations																					
		C-2	ATC automation changes to use flight plan RCP/RSP indicators																					
		C-3	ATC automation changes for PBCS monitoring																					
		C-4	Confirm initial ANSP compliance with RCP/RSP specifications																					
Group D		D-1	Aircraft operator readiness																					
Group E	E-1	PBCS monitoring - post implementation																						
Cmmunication Specifications & Interoperability Standards	Normal	RCP240	FANS1/A CPDLC																					
		RCP400	SATVOICE																					
	Alternate	RCP400	HF																					
Surveillance Specifications & Interoperability Standards	Normal	RSP180	FANS1/A ADS-C																					
		RSP400	SATVOICE																					
	Alternate	RSP400	HF																					
Navigation Specifications & Applicable ATM Operations	ADS-B																							
	RNAV/RNP	RNAV/RNP 10	50 NM Lateral Separation																					
			50 NM Longitudinal Separation																					
		RNP 4	30 NM Lateral Separation																					
			30 NM Longitudinal Separation																					
	RNP2	30NM Climb-Descend Through																						
		15 - 20 NM VHF Lateral Separation																						
8NM VHF Climb-Descend Through																								
10 MINUTE Longitudinal Separation without MNT.																								
Other ATM Operations	RVSM																							
	ADS-C CDP																							
	ADS-B ITP																							
	Tactical Lateral Offsets for Climb or Descent																							
	Tailored Arrival																							
	CDO																							
	UPR																							
	DARP	Accept																						
Initiate																								

Note: Current status of each FIR is as of 2015.

# FIT-Asia Seamless PBCS Planning Chart (Administrations without FIR/s)



Task Group	Task ID	TASK descriptor																	
PBCS Implementation Task List	Group A	A-1	AIP (Prescription of an RCP/RSP specification)																
		A-2	ANSP (PBCS policies, objectives supporting safety oversight)																
		A-3	Operatpr and aircraft System- PBCS policies, objectives supporting safety oversight																
		A-4	Regional Supplementary Procedures (Doc. 7030) for PBCS operations , if applicable																
	Group B	B-1	PBCS Implementaion Plan																
		B-2	Target dates for PBCS and relevant ATM operations																
		B-3	RCP/RSP specifications																
		B-4	PBCS awareness																
	Group C	C-1	Operational concepts and procedures for PBCS operations																
		C-2	ATC automation changes to use flight plan RCP/RSP indicators																
		C-3	ATC automation changes for PBCS monitoring																
		C-4	Confirm initial ANSP compliance with RCP/RSP specifications																
	Group D	D-1	Aircraft operator readiness																
Group E	E-1	PBCS monitoring - post implementation																	
Cmmunication Specifications & Interoperatability Standards	Normal	RCP240	FANS1/A CPDLC																
		RCP400	SATVOICE																
	Alternate	RCP400	HF																
Surveillance Specifications & Interoperatability Standards	Normal	RSP180	FANS1/A ADS-C																
		RSP400	SATVOICE																
	Alternate	RSP400	HF																
Navigation Specifications & Applicable ATM Operations			ADS-B																
	RNAV/RNP 10	50 NM Lateral Separation																	
		50 NM Longitudinal Separation																	
	RNP 4	30 NM Lateral Separation																	
		30 NM Longitudinal Separation																	
	RNP2	30NM Climb-Descend Through																	
		15 - 20 NM VHF Lateral Separation																	
		8NM VHF Climb-Descend Through																	
		10 MINUTE Longitudinal Separation without MNT.																	
Other ATM Operations			RVSM																
			ADS-C CDP																
			ADS-B ITP																
			Tactical Lateral Offsets for Climb or Descent																
			Tailored Arrival																
			CDO																
			UPR																
DARP			Accept																
			Initiate																

Note: Current status of each FIR is as of 2015.





## Responsible Agencies for PBCS Implementation - FIT-Asia

FIR	Responsible Agency & Point Of Contact			
	PBCS Monitoring Agency	En-route Monitoring Agency	State of Registry	State of Operator
Afghanistan				
Bangladesh				
Bhutan				
Cambodia				
China				
Hong Kong China				
Macao China				
India				
Indonesia				
DPR Korea				
Republic of Korea				
Lao DPR				
Malaysia				
Myanmar				
Maldives				
Mongolia				
Nepal				
Pakistan				
Philippines				
Sri Lanka				
Singapore				
Thailand				
Viet Nam				

## PBCS Implementation Plan -Checklist

Task ID	Task Descriptor	Task Detail	ICAO reference
<b>Group A tasks – State/region preparation</b>			
A-1	AIP – Prescription of an RCP/RSP specification	Prescribe the appropriate RCP/RSP specification in the AIP (or equivalent publication). If applicable, common AIP language may be based on a bilateral, multilateral or regional air navigation agreement.	PBCS Manual (Doc. 9869) Chapter 4
A-2	ANSP – PBCS policies, objectives supporting safety oversight	Identify means to apply RCP/RSP specifications and compliance criteria for initial approval and continued compliance, including: a) ATS provision requirements, and requirements for ATS unit's system and CSP/SSP service agreements, if applicable; b) flight plan requirements; and c) monitoring, alerting and reporting requirements.	PBCS Manual Chapter 5 Section 5.2.1 Section 5.2.2
A-3	Operator and aircraft system – PBCS policies, objectives supporting safety oversight	Identify means to determine aircraft operator eligibility requirements for PBCS operations, including requirements for operations, maintenance, aircraft system and CSP/SSP service agreements, if applicable: a) establish State airworthiness requirements; b) establish operational policy/procedures requirements for operational approval; c) prepare State inspectors to perform tasks for operational approval; d) develop plan to issue operational approval to national operators. Train pilots and, if applicable, dispatchers on PBCS operations; and e) develop and distribute operations manuals, pilot bulletins or other appropriate documents containing PBCS policy and/or procedures.  <i>Note.— State of the Operator identifies means for commercial air transport operations. State of Registry identifies means for general aviation operations. State of Design identifies means for design approval of the aircraft system.</i>	PBCS Manual Chapter 5 Section 5.2.1 Section 5.2.3
A-4	Regional Supplementary Procedures (Doc 7030) for PBCS operations, if applicable	On behalf of a region, a State may develop a proposed amendment to the Regional Supplementary Procedures (Doc 7030), if applicable.	PBCS Manual Chapter 4 Chapter 5
<b>Group B tasks – ANSP general project development and management</b>			
B-1	PBCS Implementation Plan	Establish PBCS implementation team and prepare a plan outlining the tasks for PBCS implementation. Include interdependencies between tasks, when each task is to be completed, lead point of contact and any coordination required.	State/region specific, this appendix serves as a guide.
B-2	Target dates for PBCS and relevant ATM operations	Identify key target dates for implementing PBCS supporting specified ATM operation(s) and the tasks identified in the plan.	State/regions
B-3	RCP/RSP specifications	Identify and confirm applicable RCP/RSP specifications that will be used for operational implementation of communication and surveillance capabilities supporting specified ATM operation(s). Existing RCP/RSP specifications may be appropriate for a new ATM operation predicated on RCP/RSP specifications (e.g. application of performance-based separation minimum), or when implementing an emerging technology to provide a communication or surveillance capability (e.g. SATVOICE) supporting an existing ATM operation. If a new RCP or RSP specification is needed, establish a task to coordinate with ICAO on the development of the appropriate RCP/RSP specifications for update to Doc 9869.	PBCS Manual Chapter 3 Appendix B Appendix C
B-4	PBCS awareness	Establish means to raise awareness on PBCS implementation in a particular region or airspace through workshops and distribution of information. Establish a planning team to work with ICAO and subject matter experts to develop relevant material.	PBCS Manual GOLD (Doc. 10037) SVOM (Doc. 10038)
<b>Group C tasks – ANSP implementation activities – ATS service provision</b>			
C-1	Operational concepts and procedures for PBCS operations	Develop operational concepts for implementation of any ATM operation predicated on an RCP/RSP specification. Consider the following: a) applicable ATM operation(s); b) relevant interoperability requirements for communication and surveillance capabilities; c) provision for PBCS operations and appropriate RCP/RSP specifications; d) operating procedures for PBCS operations; e) operator/flight/flight crew and/or ATS unit/controller contingency procedures when system degrades below that required by RCP/RSP specifications; and f) procedures for resuming specified ATM operation(s) after system is restored to an acceptable level of performance.	PBCS Manual GOLD (Doc. 10037) SVOM (Doc. 10038)
C-2	ATC automation changes to use flight plan RCP/RSP indicators	Implement changes to recognize and use flight plan RCP/RSP indicators to apply ATM operation(s) predicated on the RCP/RSP specifications only to eligible operators/aircraft, and/or adapt other system parameters, if applicable (e.g. set timer threshold values), based on different performance levels). This task should be complete prior to operational implementation of ATM operation(s) predicated on RCP/RSP specifications.	PBCS Manual Chapter 5 Section 5.4
C-3	ATC automation changes for PBCS monitoring	Implement post-implementation monitoring capability in ATC automation. This task should be completed to obtain a sufficient sample to confirm ACP and ASP comply with RCP/RSP specifications prior to implementation of specified ATM operation(s).	PBCS Manual Chapter 5 Section 5.5 Appendix D Appendix E
C-4	Confirm initial ANSP compliance with RCP/RSP specifications	Prior to operational implementation, confirm CPDLC and ADS-C comply with RCP/RSP specifications; a) measure actual performance against RCP/RSP specifications for compliance to support initial approval of ATS provision, including CSP/SSP service agreement, if applicable; b) identify any aspect of service performance that is not compliant with the RCP/RSP specifications; and c) take appropriate action to mitigate.	PBCS Manual Chapter 5 Section 5.2.2 Section 5.3.1 Section 5.3.2 Appendix D Appendix E

## PBCS Implementation Plan -Checklist

Task ID	Task Descriptor	Task Detail	ICAO reference
<b>Group D tasks – Aircraft operator, Aircraft type/system (airworthiness) eligibility</b>			
D-1	Confirm initial operator and/or aircraft type/system compliance with RCP/RSP specifications	Prior to operational approval, confirm CPDLC and ADS-C aircraft equipment and operator capabilities comply with RCP/RSP specifications:	PBCS Manual Chapter 5 Section 5.2.3 Section 5.3.2 Section 5.3.3 Section 5.3.4 Appendix D Appendix E
		a) measure actual performance against RCP/RSP specifications for compliance to support initial approval of operator, including aircraft system approval and CSP/SPP service agreement, if applicable:	
		b) identify any aspect of aircraft type/system and/or capability performance that is not compliant with the RCP/RSP specifications; and	
		c) take appropriate action to mitigate.	
<b>Group E tasks – All stakeholders – post-implementation monitoring</b>			
E-1	PBCS monitoring – post-implementation	On-going post-implementation data collection, monitoring, problem reporting and tracking, analysis and corrective action. When performance falls below specified levels, or problems are reported, operational judgment may be a consideration in determining appropriate actions.	PBCS Manual Chapter 5 Section 5.5 Appendix D Appendix E RMA Manual (Doc 9937) PBHSM Manual (Doc. xxxxx)

**APPENDIX E: FIT-ASIA ACTION ITEMS AND DRAFT CONCLUSIONS ARISING FROM THE OPERATIONAL DATA LINK SEMINAR**

Action Items

1.1 **FIT-Asia States:** Review the ICAO PBCS Provisions as communicated by ICAO State Letters SP 52/4-15/44 (and Corrigendum); and AN 13/2.5-15/45

1.2 **Secretariat:** Prepare State Letter from ICAO RD to APAC States to:

- a) Reference the HQ State Letters 15/44 and 15/55;
- b) Highlight the applicability date of ICAO provisions relating to PBCS and performance-based separation minima – 10 November 2016;
- c) Request that States review the ICAO PBCS provisions and supporting manuals;
- d) Reference the outcomes of the Seminar and FIT-Asia/5, and the intention to propose relevant Draft Conclusions to APANPIRG/27, through the appropriate APANPIRG Sub-Groups, urging States to complete the following as soon as possible:
  - i. Establish policies for aircraft operators to be eligible to file RCP/RSP indicators in the flight plan;
  - ii. Ensure operators are prepared to be eligible and their systems are updated to insert the RCP/RSP indicators in the flight plan;
  - iii. Establish and promulgate Operator Requirements through advisory circular or other relevant State instrument, noting the guidance in ICAO Doc 9869 - *PBCS Manual* to facilitate standardization of States' policies
  - iv. Be prepared to provide PBCS monitoring data to relevant parties to facilitate the making of any necessary State compliance finding for PBCS operations.
  - v. Modify their ATM systems to use RCP/RSP indicators in system processing and decision support tools for the application of performance-based separation minima.
  - vi. Coordinate on Proposal/s for Amendment (PfA) to ICAO Doc 7030 – Regional Supplementary Procedures and prescribe relevant RCP/RSP specifications in AIP.
- e) Highlight the recommendations to APANPIRG arising from the Seminar and FIT-Asia/5;
- f) Include information arising from Data Link Seminar/FIT-Asia/5 discussions on the challenges and issues that States should consider.
- g) Survey States on the current and planned implementation of performance-based separation.

1.3 **Secretariat:** to examine options for global distribution of the APAC State Letter, to ensure other States are aware of Regional plans for RCP/RSP implementation.

FIT-Asia/5  
Appendix E to the Report

1.4 **FIT-Asia:** to examine relevant meeting reports and other appropriate sources including Asia/Pacific Seamless ATM Plan State implementation reporting to supplement the information gained from the survey included in the abovementioned State Letter.

1.5 **FIT-Asia**, coordinating with and assisted by IPACG (through Japan) and ISPACG (through New Zealand) to propose/develop an APAC PBCS Transition Strategy taking into consideration:

- a) The use of RCP/RSP indicators in FPL, to complement the use of RNP indicators;
- b) States and operators are not likely to be ready to file RCP/RSP indicators by the applicability date Nov 2016;
- c) Some ANSPs may not be ready to process RCP/RSP indicators received in FPL;

*Note: All Asia/Pacific States should currently be capable of accepting without processing RCP/RSP indicators in FPL, as described in the Asia/Pacific Guidance Material for the Implementation of Amendment 1 to the 15<sup>th</sup> Edition of the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444)*

- d) Implementation of the 23 NM lateral separation minimum to replace the current 30NM minimum;
- e) Inclusion of a checklist of considerations for State readiness.

1.6 **FIT-Asia** to recommend to APANPIRG, through RASMAG, and include in the Regional Transition Strategy, Option 3 of the following:

1. Stop applying the separation minima until PBCS is fully implemented

*Note: Use of RCP / RSP flight plan designators by ANSPs beginning November 2016 would, in effect, stop the application of existing performance-based horizontal separation minima if many operators are not eligible to file RCP / RSP indicators in FPL.*

2. Consider them to be “trial” status
3. Continue with the operational implementation under certain conditions.

*Conditions: Recognizing that performance-based separations are currently applied by a number of States, and that monitoring, analysis and rectification of CPDLC and ADS-C performance and problems should be conducted under existing-provisions of the ICAO Doc. 9869 – PBCS Manual and Doc 10037 Global Operational Data Link Document (GOLD)*

1.7 **FIT-Asia** to develop, in coordination with the ICAO Operational Data Link Specific Working Group, IPACG and ISPACG:

- A draft Proposal for Amendment (PfA) to Doc 7030; and
- Proposed common language for State documents such as AIP and AIC.

1.8 **ICAO Secretariat** to coordinate as necessary with the following:

Group	Next Meeting Dates
RASMAG	14-17 June 2016
ATM Sub-Group of APANPIRG	4-8 July 2016
CNS Sub-Group of APANPIRG	11-15 July 2016
APANPIRG	7-10 September 2016
IPACG (through Japan, via correspondence, to be completed before APANPIRG)	12-16 September 2016
ISPACG (through New Zealand, via correspondence to be completed before APANPIRG)	TBA

Proposed Draft Conclusions and Decisions

1.9 PBCS Operator Requirements

**Draft Conclusion FIT-Asia/5-1: PBCS Operator Requirements**

That, States are urged to take appropriate measures to develop, establish, ~~and~~ implement, and promulgate, through advisory circular or other relevant State instrument, necessary policies and procedures to enable operators conducting flights in airspace where separations are dependent on performance-based communication and surveillance (PBCS) to start using required communication performance (RCP) / required surveillance performance (RSP) indicators in the flight plan as soon as possible. This should take into account:

- a) time for the operator to comply with the States' policies; and
- b) the need for the State to distribute data from PBCS monitoring programs, as necessary.

1.10 Common date for State/Sub-Regional implementation of the use of RCP/RSP flight plan designators by ANSPs:

**Draft Conclusion FIT-Asia/5-2: State Implementation of ICAO Provisions for PBCS**

That, States that apply or plan to apply 30 NM and/or 50 NM longitudinal separation minima and/or the 23 NM lateral separation minimum are urged to implement the ATM system capability to process and use ICAO PBCS flight plan indicators to determine aircraft eligibility for performance-based separation by not later than 29 March 2018; and

Common implementation dates are applied by States using RCP/RSP indicators to establish performance-based separation in adjacent airspace, supported by joint submission of Proposals for Amendment (PfA) to ICAO Doc 7030 – Regional Supplementary Procedures.

1.11 Regional Transition Strategy.

**Draft Conclusion ATM/SG/4-X: Asia/Pacific Region PBCS Transition Strategy**

That, the Asia/Pacific Region PBCS Transition Strategy be endorsed, and posted on the Asia/Pacific Regional Office website.

.....

FIT-Asia/5  
Appendix F to the Report

**FIT-ASIA — TASK LIST**

*(last updated 6 May 2016)*

<b>ACTION ITEM</b>	<b>DESCRIPTION</b>	<b>TIME FRAME</b>	<b>RESPONSIBLE PARTY</b>	<b>STATUS</b>	<b>REMARKS</b>
1/1	Notice to remind pilots of the importance to check that a logon was completed correctly and to periodically check to ensure the data-link connection was maintained.	FIT/2	United States to forward copy of NOTAM	Closed	
1/2	Provide an average availability outcome for ADS-C in the same manner as the CPDLC analysis.	FIT/2	Japan	Closed	Japan is not a member of FIT-Asia
1/3	Development of a template for the provision of data-link performance data, such as Actual Communications Technical Performance (ACTP), Actual Communications Performance (ACP), Pilot Operational Response Time (PORT) and surveillance latency information	FIT/2	ICAO	Closed	
2/1	Investigate the issue of identifying and validating competent CRAs, and related coverage and jurisdiction issues TO BE AMENDED PER MEETING REPORT	FIT-Asia/3	Secretariat	Closed	
2/2	Draw to the attention of airspace users the importance of reporting data-link problems and the lack of such reports, and ask that attention be paid to improved reporting.	FIT-Asia/3	IATA	Closed	
2/3	Make changes to the ISPACG CRA website to facilitate its use by FIT-Asia.	FIT-Asia/4	New Zealand	Open	FIT-Asia States can register to the website. <del>Final changes to the interface are expected to be completed July 2014.</del> <del>Final changes to the interface are expected to be completed July 2014</del> Ongoing development (FIT-Asia/5)
2/4	States to inform Regional Office of current data-link service status, and/or provide update on planned implementation	FIT-Asia/3	FIT-Asia States/Secretariat	Open	<del>Secretariat to send reminder via State Letter (FIT-Asia/3)</del>



FIT-Asia/5  
Appendix F to the Report

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
2/5	Draw to the attention of airspace users the safety implications of incorrect downlinking of BACK ON ROUTE message	FIT-Asia/3	IATA	Closed	
2/6	Remind airspace users of the requirements for correct CPDLC logon, the procedures in the event of logon rejection, and the requirement to notify affected ATSUs in the event of any amendment to information in the original flight plan	FIT-Asia/3	IATA	Closed	
3/1	Seek appropriate expert advice on the operational significance of 99.9% performance criteria, and what can be done to meet it in cases of ACP, ACTP and ADS-C Downlink Latency “just” failing to meet the standard	FIT-Asia/4	Secretariat	Completed	
3/2	Provide feedback to G-PAT technical authority/expert regarding a) data for dates more than 12 months old being combined into month 1 performance data b) lack of a G-PAT tool to de-identify the operator (currently done manually)	FIT-Asia/5	Secretariat	Open	Response to be circulated to FIT-Asia States on receipt.
3/3	Editorial review of performance reporting template (including the use of “>” where “<” should be used.	31 July 2014	Secretariat	Completed	
3/4	Register on FIT-Asia CRA Website	Ongoing	ALL FIT-Asia States/Administrations	Open	In accordance with APANPIRG Conclusion 24/24
3/5	Provide and promulgate in AIP the point of contact for airspace users to report ADS-C/CPDLC problems to the State/Air Navigation Service Provider	31 December 2014	ALL FIT-Asia States/Administrations	Closed	Draft Conclusion FIT-Asia 3/2
4/1	Provide update on SEASMA future provision of CRA service	<del>12 June 2015</del> 31 August 2016	Singapore	Open	
4/2	<del>Provide more clarity on how to use the website, by graphic description of the problem reporting process</del>		Boeing CRA	Open Closed	<del>Consider PowerPoint presentation with audio and video</del>

FIT-Asia/5  
Appendix F to the Report

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
4/3	Provide simple description of FANS automatic handoff process		Boeing CRA	Open Completed	
4/4	Provide information on which aircraft are experiencing HF ADS-C Downlink latency problems for analysis by Boeing CRA	Ongoing	China	Open	CRA to analyse why aircraft are reverting to HF in areas where good SATCOM coverage exists.
4/5	Provide list of Satellite and HF ground-stations for FIT-Asia reference	FIT-Asia/6	Boeing CRA	Open	INMARSAT GES identifiers HG HF data link ground station identifiers
4/6	Check with ISPACG CRA website administrator regarding: Retrieval of password (Indonesia) Multiple users per State (e.g. 2 x separate FIRs)		Secretariat	Open Completed	Password retrieval process available on website per normal practices. Multiple users per State permitted.
5/1	Review the ICAO PBCS Provisions as communicated by ICAO State Letters SP 52/4-15/44 (and Corrigendum) and AN 13/2.5-15/45	30 June 2016	States	Open	Date selected to align with State Letter from RO (Action Item 5/2)
5/2	State Letter from ICAO RO to APAC States	20 May 2016	Secretariat	Open	Paragraph 1.2 of Appendix E to the Report of FIT-Asia/5 refers
5/3	Examine options for global distribution of the APAC State Letter in Action Item 5/2	20 May 2016	Secretariat	Open	To inform States in other Regions of the proposed Regional Transition Strategy.
5/4	Examine relevant meeting reports and other appropriate sources to gather information on the current and planned implementation of performance-based separation.	20 May 2016	Secretariat	Open	To supplement the survey circulated with the State Letter (Action Item 5/2).
5/5	Develop a proposed APAC PBCS Transition Strategy, for consideration by ATM/SG	RASMAG/21	Secretariat	Open	Paragraph 1.5 and 1.6 of Appendix E to the Report of FIT-Asia/5 refers  With the assistance of IPACG (through Japan) ISPACG (through NZ)

FIT-Asia/5  
Appendix F to the Report

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
5/6	Develop a draft Proposal for Amendment (PfA) to Doc 7030 and proposed common language for State documents such as AIP and AIC	30 June 2016	Secretariat	Open	With the assistance of ICAO Operational Data Link Specific Working Group IPACG (through Japan) ISPACG (through NZ)
5/7	Examine the need for consequential amendments to the APAC Seamless ATM Plan	30 June 2016	Secretariat	Open	Consequential amendments arising from PBCS
5/8	Develop the FIT-Asia Data Link Status Table to include information on the data link status of the entire APAC Region including non-FIT-Asia States	FIT-Asia/6	Secretariat	Open	
5/9	Correct discrepancies between the performance reporting template provided in FIT-Asia/4 WP04 and the template provided on the APAC Regional Office Website	30 November 2016	Secretariat	Open	
5/10	Brief guidance on how a CRA may be established in cooperation between a State and a competent CRA.	FIT-Asia/6	Boeing CRA	Open	FIT-Asia/5 discussion of WP/03 (China)
5/11	Adapt PBCS Planning Chart for ICAO Asia and Pacific Regions	FIT-Asia/6	Secretariat	Open	To record RCP/RSP planning and implementation status.

FIT-Asia/5  
Appendix G to the Report  
**ATM Deficiencies List**

Identification		Deficiencies			Corrective Action			
Requirements	States/ facilities	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action**
<u>Data Link</u>								
<u>Performance</u>								
<u>Monitoring and</u>								
<u>Analysis</u>								
Requirements of Paragraph 2.27.5 of Annex 11	China	Post- implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA		China	TBD	A
	Indonesia	Post- implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA. Performance monitoring and analysis not reported to FIT.		Indonesia	TBD	A
	Malaysia	Post- implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA. Performance monitoring and analysis not reported to FIT.		Malaysia	TBD	A
	Myanmar	Post- implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA. Performance monitoring and analysis not reported to FIT.		Myanmar	TBD	A
	Maldives	Post- implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA. Performance monitoring and analysis not reported to FIT.		Maldives	TBD	A

FIT-Asia/5  
Appendix G to the Report

Identification		Deficiencies			Corrective Action			
Requirements	States/ facilities	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action**
	Sri Lanka	Post-implementation monitoring not implemented	29/5/2015	<del>Not registered with competent CRA.</del> Problem Reports not provided to CRA. Performance monitoring and analysis not reported to FIT.		Sri Lanka	TBD	A
	Viet Nam	Post-implementation monitoring not implemented	29/5/2015	Problem Reports not provided to CRA Performance monitoring and analysis not reported to FIT.		Viet Nam	TBD	A