



International Civil Aviation Organization

The Fifth Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/5)

Bangkok, Thailand, 05 – 06 May 2016

Agenda Item 2: Central Reporting Agency Reports

FIT-ASIA CRA ARRANGEMENTS, PROBLEM REPORTS, AND PERFORMANCE DATA ANALYSIS REPORTING

(Presented by the Secretariat)

SUMMARY

This paper follows up on discussions at FIT-Asia/3 and FIT-Asia/4 relating to data-link problem and performance reporting by FIT-Asia States/Administrations.

1. INTRODUCTION

1.1 The FIT-Asia Terms of Reference (TOR) require that it supports FIT-Asia participant States' compliance with ICAO Annex 11 – *Air Traffic Services* and Global Operational Data-Link Document (GOLD) requirements for data-link performance.

1.2 There is a continuing lack of data-link problem reporting among FIT-Asia States and airspace users, and few FIT-Asia States have arrangements in place for the analysis of problem reports by a competent Central Reporting Agency (CRA)¹. While the number of States registering with the FIT-Asia CRA has improved in the last 2 years, there has been little reporting of problems to the CRA, and little performance analysis reporting to FIT-Asia.

2. DISCUSSION

Asia/Pacific Regional Priorities

2.1 The 25th Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25, Kuala Lumpur, Malaysia, 8 – 11 September 2014), adopted **Conclusion APANPIRG 25/2 – APAC Regional Air Navigation Priorities and Targets**, endorsing ten regional priorities and targets including the implementation of data-link (**Table 1**), in line with the performance objectives of the Asia/Pacific Seamless ATM Plan.

2.2 The Asia/Pacific Seamless ATM Plan, Adopted by APANPIRG/24 in June 2013, includes the following performance expectation with expected implementation by November 2015 and requiring the use of ADS-C and CPDLC:

¹ The Asia/Pacific Regional Airspace Safety Monitoring Advisory Group (RASMAG) is 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.

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

- Category R² airspace – **RNP 4, RNP 10** (RNAV 10) (other acceptable navigation specifications – RNP 2 oceanic)

Note 1: RNP 2 is expected to be utilised before Phase 2, when the RNP 2 instrument procedure design, ATC separation standards and operational approval are in place.

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

Priority	ASBU Module or Seamless Element	Targets	Target Date
Trajectory-Based Operations-Data Link En-Route	B0-TBO	Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.	12 November 2015

Table 1: Regional Priority and Target – ADS-C and CPDLC

Requirements for Data-Link Performance Monitoring and Problem Reporting

2.3 The FIT-Asia TOR require, *inter-alia*, that it conducts the following activities to support FIT-Asia participant States' compliance with ICAO Annex 11 – *Air Traffic Services* requirements and Global Operational Data-Link Document (GOLD) guidance for data-link performance:

- supporting the implementation and operational benefits of AIDC, CPDLC and ADS;
- overseeing system configuration and the end-to-end monitoring process of datalink systems to ensure they are implemented and continue to meet performance, safety, and interoperability requirements within the Asian Region;
- establishing a problem reporting system;
- reviewing de-identified problem reports, identify trends and determining appropriate resolution;
- monitoring the progress of problem resolution;
- preparing summaries of problems encountered and their operational implications;
- determining and validating system performance requirements;
- establishing a performance monitoring system; and
- assessing system performance based on information from the CRA;

² Category R airspace is defined in the Seamless ATM Plan as *remote en-route airspace within Air Traffic Services (ATS) communications and surveillance coverage dependent on a third-party Communication Service Provider (CSP)*

2.4 Monitoring, reporting and analysis of data-link performance and problems is essential for the achievement and maintenance of system performance required for the application of performance based separation standards. The pending introduction of ICAO standards and recommended Practices (SARPS) for Performance-Based Communications and Surveillance (PBCS), applicable from November 2016, will further demand that States fully engage in programs of data link problem reporting, and performance monitoring and analysis.

2.5 In order to conduct these activities, arrangements for the reporting and analysis of data-link problems must be made between FIT-Asia administrations and a competent CRA. Annex 11 states:

2.27 Safety management

Note.— Annex 19 includes the safety management provisions applicable to ATS providers. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859) and associated procedures are contained in the PANS-ATM (Doc 4444).

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.

Note.— When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessment may rely on operational judgement.

2.6 Clearly the implementation of ADS-C and CPDLC are significant safety related changes, given their use in ATS surveillance and Direct Controller – Pilot Communications (DCPC) communications and the PANS/ATM requirement for their use to support certain separation standards. In the event that Administrations implement or have implemented data-link services without a competent CRA service and a robust program of post-implementation performance monitoring, the service does not comply with the standard. In these cases APANPIRG ANS Deficiencies will be raised.

2.7 The Informal South Pacific ATS Coordinating Group/FANS Implementation Team (ISPACG/FIT) is recognized by RASMAG as a competent CRA, and provides a CRA service (Boeing CRA) for FIT/Asia States.

2.8 The following Conclusion, drafted by FIT-Asia/2 (Bangkok, Thailand, 26 – 27 May 2014) was agreed by APANPIRG/24 in June 2013:

Conclusion 24/24: ADS/C and CPDLC Problem Reporting and Analysis

That, FIT-Asia States are requested to:

- *register on the FIT-Asia website (<http://www.ispacg-cra.com>), and report their registration to the ICAO Asia/Pacific Regional Office by 31 December 2013;*
- *report problems relating to Automatic Dependent Surveillance-Contract (ADS-C) and Controller Pilot Data-Link Communications (CPDLC) services to the Central Reporting Agency (CRA) for analysis, utilizing the FIT-Asia website; and*
- *ensure the CRA analysis is reported to FIT-Asia.*

2.9 FIT-Asia is comprised of the 23 Asia/Pacific Region administrations that are not included in any other sub-Regional FIT.

2.10 As at 2 May 2016 there were 11 FIT-Asia administrations either providing ADS-C/CPDLC services, or known to be expected to do so by November 2015 under the performance objectives of the Seamless ATM Plan. 6 FIT-Asia administrations are registered for FIT-Asia CRA. 3 States are registered for CRA through the South East Asia Safety Monitoring Agency (SEASMA), with their CRA service uncertain beyond September 2015.

2.11 **Table 1** summarizes FIT-Asia administrations that have either implemented ADS-C/CPDLC, or are known to be expected to do so under the Asia/Pacific Seamless ATM Plan, and their FIT-Asia CRA registration status.

Administration	Data-Link (ADS-C/CPDLC) Service Status	Seamless ATM Expectation (Nov 2015)	FIT-Asia CRA Registration
China	Implemented	YES	YES
India	Implemented	YES	YES
Indonesia	Implemented	YES	YES
Malaysia	Implemented	YES	YES
Myanmar	Implemented	YES	YES
Maldives	Implemented	YES	YES
Philippines		YES	YES + SEASMA*
Singapore	Implemented	YES	SEASMA*
Sri Lanka	Implemented	YES	YES
Viet Nam	Implemented	YES	SEASMA*
* The South East Asia Safety Monitoring Agency (SEASMA) provides CRA service for Philippines, Singapore and Viet Nam. Current SEAMA CRA arrangements expire September 2015.			

Table 1: FIT-Asia ADS-C/CPDLC Implementation and CRA Registration Status.

2.12 APANPIRG/26, held in September 2015, adopted the following Conclusion:

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:

- a) *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*
- b) *does not report data link problems to the CRA; or*
- c) *does not provide data link problem analysis reports to a recognized FANS Interoperability/Implementation Team (FIT); or*
- d) *does not provide data-link performance analysis reports to a recognized FIT.*

2.13 The FIT-Asia Data Link Status Table (**Attachment A**) 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.

2.14 8 FIT-Asia administrations are known to be providing ADS-C/CPDLC services. Only 2 of these administrations are known to have submitted problem reports to FIT-Asia CRA.

2.15 Only 2 FIT-Asia administrations that provide operational ADS-C/CPDLC services have submitted performance data analyses to FIT-Asia/4.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) update the information in **Attachment A**;
- c) clarify the future FIT CRA registration, problem reporting and performance reporting arrangements for SEASMA States; and
- d) discuss any other relevant matters as appropriate.

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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/4**
	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
Thailand					YES			
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 2015.</p> <p>** To be updated during FIT-Asia/5</p>								
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; background-color: #FFD700; padding: 2px 10px;">Current ANS Deficiency</div> <div style="border: 1px solid black; background-color: #FFFF00; padding: 2px 10px;">Proposed ANS Deficiency</div> <div style="border: 1px solid black; background-color: #ADD8E6; padding: 2px 10px;">Deficiency for deletion</div> </div>								