



International Civil Aviation Organization

**The Fourth Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/4)**

Bangkok, Thailand, 25-26 May 2015

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**Agenda Item 4: Data Link Guidance Material**

**REVISED DATA LINK PERFORMANCE REPORTING TEMPLATE AND GUIDANCE MATERIAL**

(Presented by the Secretariat)

**SUMMARY**

This paper presents a revised version of the Asia/Pacific Region Data Link Performance Reporting Template, including editorial amendments and brief guidance material.

**1. INTRODUCTION**

1.1 The Asia/Pacific Region Data Link Performance Reporting Template, developed by FIT-Asia/2, was found to be in need of further editorial and structural amendment. There is also a need for some brief guidance for the use of the template.

1.2 The revised template and guidance are provided at **Attachment A**.

**2. DISCUSSION**

Revised Template

2.1 The revised template includes corrections of a number of errors of content and format. It has been restructured, particularly in its *Attachment A – Additional Analysis* section, to present information in a more logical sequence. The changes are summarized as follows:

- Removal of yellow-highlights to reduce visual clutter, replaced in most cases by either [CONTENT] or [XXXX] to indicate where the State should add textual information;
- The Working Paper section now includes provision for summary analysis of:
  - CPDLC Actual Communications Performance (ACP) for the entire analysis period, per data link media type (Satellite, VHF and HF);
  - CPDLC Actual Communications Technical Performance (ACTP) for the entire analysis period, per data link media type;
  - CPDLC ACP per Operator (de-identified) for the entire analysis period; and
  - ADS-C Latency for the entire analysis period, per data link media type.

- The *Attachment A – Additional Analysis* section provides for more detailed analysis of each of the above performance domains in a more logical sequence:
  - CPDLC ACP per month – Satellite;
  - CPDLC ACP per month – VHF;
  - CPDLC ACP per month – HF;
  - CPDLC ACTP per month – Satellite;
  - CPDLC ACTP per month – VHF;
  - CPDLC ACTP per month – HF;
  - CPDLC ACTP per Operator;
  - CPDLC Pilot Operational Response Time (PORT) per Operator;
  - ADS-C Downlink Latency per Month – Satellite;
  - ADS-C Downlink Latency per Month – VHF;
  - ADS-C Downlink Latency per Month - HF

2.2 Basic guidance material for completion of the template includes:

- Reference and a link to the *Global Operational Data-Link Guidance Document (GOLD)*;
- The GOLD Performance Analysis Tool (GPAT);
- The statement that all FIT-Asia States should register on the FIT-Asia CRA website, and report all data-link problems detected through performance analysis or other reports
- Reference and a link to the *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia Pacific Region (Version 4.0 – February 2011)*
- Information relating to the timeliness of submission of problem reports to the Central Reporting Agency (CRA)

2.3 The meeting is invited to consider the following Draft Decision:

**Draft Decision FIT-Asia/4-X: Data Link Performance Reporting Template and Guidance**

That, the revised Data Link Performance Reporting Template and Guidance at Attachment A replaces the Data Link Performance Reporting Template on the ICAO Asia/Pacific Regional Office website.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss and amend where necessary the revised Performance Data Reporting Template and Guidance;
- c) agree to the Draft Decision; and
- d) discuss any other matters as appropriate.

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International Civil Aviation Organization

The [XX<sup>nd</sup>/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 [XXXX, XXXX, XXXX.....FIR/s] for the period [Mmm YYYY to Mmm YYYY]

- FIR 1
- FIR 2
- etc.....

**1. INTRODUCTION**

1.1 TEXT

**2. DISCUSSION**

[XXXX] FIR CPDLC Actual Communications Performance (ACP)

2.1 [EXECUTIVE SUMMARY]

2.2 **Table 1** and **Figure 1** present overall CPDLC Actual Communications Performance (ACP) for messages sent within the [XXXX] FIR by media type (Satellite, VHF, HF, and the combined total), for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX]FIR CPDLC ACP</b>				
<b>Messages</b>		<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
Satellite	XX	XX	XX	
VHF	XX	XX	XX	
HF	XX	XX	XX	
Total	XX	XX	XX	

**Table 1:** [XXXX] FIR CPDLC ACP per Media Type

[INSERT ACP GRAPH]

**Figure 1:** [XXXX] FIR ACP by Data Link Media Type

[XXXX] FIR CPDLC Actual Communications Technical Performance (ACTP)

2.1 [EXECUTIVE SUMMARY].

2.2 **Table 2** and **Figure 2** present overall CPDLC Actual Communications Technical Performance (ACTP) for messages sent within the [XXXX] FIR by media type (Satellite, VHF and the combined total of both), for the period [Mmm YYYY to Mmm YYYY].

XXXX FIR CPDLC ACTP				
Messages		% < XXX sec (Target XX%)	% < XXX sec (Target XX%)	Remarks
Satellite	XX	XX	XX	
VHF	XX	XX	XX	
HF	XX	XX	XX	
Total	XX	XX	XX	

**Table 2:** XX FIR CPDLC ACTP

[INSERT ACTP GRAPH]

**Figure 2:** [XXXX] FIR ACTP by Data Link Media Type

[XXXX] FIR CPDLC Actual Communications Performance (ACP) per Operator (de-identified)

2.3 [EXECUTIVE SUMMARY]

2.4 **Table 3** and **Figure 3** present CPDLC Actual Communications Performance per Operator (de-identified) for messages sent within the [XXXX] FIR, for the period [Mmm YYYY to Mmm YYYY].

[XXXX] FIR CPDLC ACP per Operator				
Operator (de-identified)	Messages	% < XXX sec (Target XX%)	% < XXX sec (Target XX%)	Remarks
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table 3:** [XXXX] FIR CPDLC ACP per Operator

[INSERT CPDLC ACP PER OPERATOR GRAPH]

**Figure 3:** [XXXX] FIR CPLC ACP per Operator

[XXXX] FIR ADS-C Downlink Latency

2.5 [EXECUTIVE SUMMARY]

2.6 **Table 4** and **Figure 4** present ADS-C Downlink Latency for messages sent within the [XXXX] FIR per media type (Satellite, VHF, HF, and the combined total), for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR ADS-C Downlink Latency</b>				
<b>Messages</b>		<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
Satellite	XX	XX	XX	
VHF	XX	XX	XX	
HF	XX	XX	XX	
Total	XX	XX	XX	

**Table 4:** [XXXX] FIR CPDLC ACTP (VHF) per Media Type

[INSERT ADS-C DOWNLINK LATENCY GRAPH]

**Figure 4:** xx FIR ADS-C Downlink Latency

[HEADING *description as necessary*]

2.7 [TEXT]

[ADD HERE ANY ITEM FROM ATTACHMENT (DISCUSSION, TABLE AND GRAPH) REQUIRING PARTICULAR ATTENTION BY THE MEETING, e.g. significant performance problems, service interruptions, etc.]

[HEADING *e.g Summary or other description as necessary*]

2.8 [TEXT]

2.9 Further data link performance analysis is provided in **Attachment A**.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to: AMEND AS APPROPRIATE

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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**ATTACHMENT A – ADDITIONAL ANALYSIS**

**1. CPDLC ACTUAL COMMUNICATIONS PERFORMANCE (ACP)**

[XXXX] FIR CPDLC Actual Communications Performance (ACP) per Month - Satellite

1.1 [EXECUTIVE SUMMARY]

1.2 **Table X** and **Figure X** present CPDLC ACP per month for messages sent within the [XXXX] FIR by Satellite data link, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR CPDLC ACP per Month - Satellite</b>				
Month	Messages	% < XXX sec (Target XX%)	% < XXX sec (Target XX%)	Remarks
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR CPDLC ACP per Month - Satellite

[INSERT ACP PER MONTH – SATELLITE GRAPH]

**Figure X:** [XXXX] FIR ACP per Month - Satellite

[XXXX] FIR CPDLC Actual Communications Performance (ACP) per Month - VHF

1.3 [EXECUTIVE SUMMARY]

1.4 **Table X** and **Figure X** present CPDLC ACP (VHF) per month for messages sent within the [XXXX] FIR by VHF data link, for the period [Mmm YYYY to Mmm YYYY].

<b>XXXX FIR CPDLC ACP per Month - VHF</b>				
Month	Messages	% < XXX sec (Target XX%)	% < XXX sec (Target XX%)	Remarks
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR CPDLC ACP per Month - VHF

[INSERT XXXX ACP PER MONTH – VHF GRAPH]

**Figure X:** [XXXX] FIR ACP per Month - VHF

[XXXX] FIR CPDLC Actual Communications Performance (ACP) per Month - HF

1.5 [EXECUTIVE SUMMARY].

1.6 **Table X** and **Figure X** present CPDLC ACP measurements per month for messages sent within the [XXXX] FIR by HF data link, for the period [Mmm YYYY to Mmm YYYY].

<b>XXXX FIR CPDLC ACP per Month - HF</b>				
Month	Messages	% < XXX sec (Target XX%)	% < XXX sec (Target XX%)	Remarks
XXX	XX	XX	XX	
XXX	XX	XX	XX	-
XXX	XX	XX	XX	

**Table X:** [XXXX] FIR CPDLC ACP per Month - HF

[INSERT CPDLC ACP (HF) PER MONTH GRAPH]

**Figure X:** [XXXX] FIR CPDLC ACP per Month – HF

**2. CPDLC ACTUAL COMMUNICATIONS TECHNICAL PERFORMANCE (ACTP)**

[XXXX] FIR CPDLC Actual Communications Technical Performance (ACTP) per Month – Satellite

2.3 [EXECUTIVE SUMMARY].

2.4 **Table X** and **Figure X** present CPDLC ACTP per month for messages sent within the [XXXX] FIR by Satellite, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR CPDLC ACTP - Satellite</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR CPDLC ACTP per Month - Satellite

[INSERT ACTP PER MONTH – SATELLITE GRAPH]

**Figure X:** xx FIR ACTP per Month - Satellite

[XXXX] FIR CPDLC Actual Communications Technical Performance (ACTP) per Month - VHF

2.5 [EXECUTIVE SUMMARY]

2.6 **Table X** and **Figure X** present CPDLC ACTP per month for messages sent within the [XXXX] FIR by VHF data link, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR CPDLC ACTP (VHF)</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR CPDLC ACTP (VHF) per Month

[INSERT ACTP (VHF) PER MONTH - VHF GRAPH]

**Figure X:** [XXXX] FIR CPDLC ACTP (VHF) per Month

[XXXX] FIR CPDLC Actual Communications Technical Performance (ACTP) per Month - HF

2.7 [EXECUTIVE SUMMARY]

2.8 **Table X** and **Figure X** present CPDLC ACTP per month for messages sent within the [XXXX] FIR by HF data link, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR CPDLC ACTP (HF)</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR CPDLC ACTP (HF) per Month



[INSERT ACTP (HF) PER MONTH GRAPH]

**Figure X:** [XXXX] FIR CPDLC ACTP (HF) per Month

### **3. CPDLC COMMUNICATIONS PERFORMANCE PER OPERATOR**

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[XXXX] FIR CPDLC Actual Communications Technical Performance (ACTP) per Operator (de-identified)

3.1 [EXECUTIVE SUMMARY]

3.2 **Table X** and **Figure X** present CPDLC Actual Communications Technical Performance per Operator (de-identified) for messages sent within the [XXXX] FIR, for the period [Mmm YYYY to Mmm YYYY]..

<b>[XXXX] FIR CPDLC ACTP per Operator</b>				
<b>Operator (de-identified)</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	-
XXX	XX	XX	XX	

**Table X:** [XXXX] FIR CPDLC ACTP per Operator

[INSERT CPDLC ACTP PER OPERATOR GRAPH]

**Figure X:** [XXXX] FIR CPLC ACP per Operator

XXXX FIR CPDLC Pilot Operational Response Time (PORT) per Operator (de-identified)

3.3 [EXECUTIVE SUMMARY]

3.4 **Table X** and **Figure X** present CPDLC Pilot Operational Response Time per Operator for messages sent within the [XXXX] FIR, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR CPDLC PORT per Operator</b>				
<b>Operator (de-identified)</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	-
XXX	XX	XX	XX	

**Table X:** [XXXX] FIR CPDLC PORT per Operator

[INSERT CPDLC PORT PER OPERATOR GRAPH]

**Figure X:** [XXXX] FIR CPLC PORT per Operator

**4. ADS-C DOWNLINK LATENCY**

[XXXX] FIR ADS-C Downlink Latency per Month - Satellite

4.1 [EXECUTIVE SUMMARY]

4.2 **Table X** and **Figure X** present ADS-C Downlink Latency per month for messages sent within the [XXXX] FIR by Satellite data link, for the period [Mmm YYYY to Mmm YYYY].

<b>XXXX FIR ADS-C Downlink Latency - Satellite</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR ADS-C Downlink Latency per Month - Satellite

[INSERT ADS-C DOWNLINK LATENCY PER MONTH – SATELLITE GRAPH]

**Figure X:** xx FIR ADS-C Downlink Latency (Satellite) per Month

[XXXX] FIR ADS-C Downlink Latency per Month - VHF

4.3 [EXECUTIVE SUMMARY]

4.4 **Table X** AND **Figure X** present ADS-C Downlink Latency per month for messages sent within the [XXXX] FIR by VHF data link, for the period . **Figure X** presents the ADS-C Downlink Latency (VHF) measurement per month for the period [Mmm YYYY to Mmm YYYY]..

<b>[XXXX] FIR ADS-C Downlink Latency - VHF</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	
XXX	XX	XX	XX	

**Table X:** XX FIR ADS-C Downlink Latency per Month - VHF

[INSERT ADS-C DOWNLINK LATENCY (VHF) PER MONTH GRAPH]

**Figure X:** xx FIR ADS-C Downlink Latency (VHF) per Month

XXXX FIR ADS-C Downlink Latency per Month - HF

4.5 **Table X** and **Figure X** present ADS-C Downlink Latency per month for messages sent within the [XXXX] FIR by HF data link, for the period [Mmm YYYY to Mmm YYYY].

<b>[XXXX] FIR ADS-C Downlink Latency per Month - HF</b>				
<b>Month</b>	<b>Messages</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>% &lt; XXX sec (Target XX%)</b>	<b>Remarks</b>
XXX	XX	XX	XX	
XXX	XX	XX	XX	-
XXX	XX	XX	XX	

**Table X:** [XXXX] FIR ADS-C Downlink Latency per Month - HF

[INSERT CPDLC ACP (HF) PER MONTH GRAPH]

**Figure X:** [XXXX] FIR ADS-C Downlink Latency per Month - HF

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## Guidance for the Completion of the Data Link Performance Data Reporting Template

### 1. Performance Data

Appendix D of the *Global Operational Data-Link Guidance Document* (GOLD) details performance data and data formats for post-implementation monitoring.

Guidance is provided on:

- how to obtain the required data points from FANS 1/A, ACARS and ATN B1 messages;
- the calculation of:
  - actual communication performance (ACP);
  - Actual communication technical performance;
  - Pilot operational response time (PORT); and
  - Actual surveillance performance.

Examples of the type of analysis that can be carried out at an ANSP level are also included.

GOLD is available through the ICAO Secure Portal, and on the ICAO Asia/Pacific Regional Office website at [http://www.icao.int/APAC/Documents/edocs/GOLD\\_2Edition.pdf](http://www.icao.int/APAC/Documents/edocs/GOLD_2Edition.pdf).

### 2. G-PAT

The GOLD Performance Analysis Tool (G-PAT) may be used for the analysis of data collected in accordance with GOLD guidelines. G-PAT, is available on the ICAO GOLD secure website, or may be obtained through direct enquiry by any State or ANSP to the Informal South Pacific ATS Coordinating Group (ISPACG, <http://www.ispacg-cra.com>)

### 3. CRA Registration and Problem Reporting

All FIT-Asia Administrations should should register on the FIT-Asia CRA website at <http://www.ispacg-cra.com>.

All data link problems detected through performance analysis or other sources, such as ATS or aircraft operator reports, should be reported through the FIT-Asia CRA, and subsequently reported to FIT-Asia meetings.

Data Link Service Providers only retain information for 90 days. It is strongly recommended that problem reports are submitted to FIT-Asia CRA within 60 days of occurrence

### 4. Establishment of an Implementation/Interoperability Team and CRA

Information on the establishment and operation of an implementation/interoperability team and CRA including roles, terms of reference, functions and resource requirements can be found in the *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia Pacific Region (Version 4.0 – February 2011)*, available on the ICAO Asia/Pacific Regional Office website at:

[http://www.icao.int/APAC/Documents/edocs/GuidanceMaterial\\_EndToEnd\\_ver4.pdf](http://www.icao.int/APAC/Documents/edocs/GuidanceMaterial_EndToEnd_ver4.pdf).