



International Civil Aviation Organization

ICAO

**Twelfth Meeting of the FANS Interoperability Team – Asia
(FIT-Asia/12)**

Video Teleconference, 25 – 28 July 2022

Flimsy 1: PBCS performance reporting

1. ICAO APAC eDocuments

1.1 Data Link-related regional documents are available at the ICAO APAC eDocuments website, <https://www.icao.int/APAC/Pages/eDocs.aspx>, including PBCS Action List for ANSPs and Data Link Performance Report Template-ANSP to FIT.

1.2 A conclusion on PBCS Action List for ANSPs was adopted by RASMAG/23 as below.

Conclusion RASMAG/23-2: PBCS Action List for ANSPs

That, the PBCS Action List for Air Navigation Service Providers (ANSPs) provided at **Appendix C to the Report** be uploaded to the the ICAO Asia/Pacific website to provide guidance in the steps for analysis and reporting of PBCS performance problems.

1. ANSP action items

- 1.1 Register on CRA website at www.fans-cra.com.
- 1.2 Establish means to extract FANS1A analysis data for CPDLC and ADS-C using guidance provided in ICAO Doc 9869 PBCS Manual Appendix D.
- 1.3 Filter extracted data FANS1A analysis data for CPDLC and ADS-C using guidance in PBCS Manual Appendix D.
- 1.4 Establish means to perform analysis of CPDLC RCP and ADS-C RSP at a suitable interval (usually monthly, but specific interval will be determined by local factors such as volume of data).
- 1.5 Investigate any performance degradation identified during monthly analysis.
- 1.6 Report non-compliance with RCP/RSP specifications to CRA.
- 1.7 Support CRA non-compliance investigations.
- 1.8 Report any aircraft that are filing as PBCS qualified but showing non-compliance with RCP and RSP 95% normal operating criteria to your state CAA and RMA.
- 1.9 Withdraw the use of performance-based separation minima requiring PBCS where aircraft data link performance is not compliant with RCP and RSP 95% operating criteria.
- 1.10 Implement an analysis of service availability to determine the impact of reported unplanned outages in your airspace (usually annually).

- 1.11 Implement local procedures and training to ensure operational staff log FANS1/A problems identified during operations to enable subsequent investigation.
- 1.12 Implement local investigation process for reported FANS1/A problems.
- 1.13 Implement CRA website reporting of confirmed FANS1/A problems.
- 1.14 If implementing PBCS, sign up to Global PBCS Charter on CRA website.

2. ANSP Reports to FIT-Asia

- 2.1 Compile PBCS RCP and RSP performance report for the year from January to December, per regional reporting guidelines, using the template provided on the Asia/Pacific Regional Office website.
- 2.2 Compile report on system availability observed in your FIR and comment on operational impact of observed outages.
- 2.3 Ensure report is compiled and available by 31 March each year. to allow adequate time for RASMAG report to be compiled.

3. FIT-Asia Reports to RASMAG

- 3.1 Nominated ANSP compile draft RASMAG report from individual FIR reports for review at each year's FIT-Asia meeting.

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- 1.3 A conclusion on Data Link Performance Analysis Reporting Templates was adopted by RASMAG/23 as below.

Conclusion RASMAG/23-3: Data Link Performance Analysis Reporting Templates

That, recognizing the need to make data link performance information available to States, Regional Monitoring Agencies, and aircraft operators in multiple ICAO Regions, and the consequent need to standardize the presentation format of information:

1. The Data Link Performance Analysis Reporting Templates provided in **Appendix D to the Report** be uploaded to the ICAO Asia/Pacific website, together with examples of completed reports, for use in reporting to FIT-Asia;
2. FIT-Asia States that have yet to commence providing data link performance reports to the FIT do so using the new templates exclusively; and
3. States that currently provide data link performance reports to FIT-Asia commence using the new templates at the earliest opportunity, and in any event by not later than FIT-Asia/10 in 2020.

RASMAG/23 Appendix D to the Report							ANSP REPORTING TO FIT			
FIR	[FIR Name]									
Criteria	RSP180									
Period	Jan-June YYYY				July-December YYYY					
Colour Key	Message Counts	95%	99.90%	Message Counts	95%	99.90%				
Meets Criteria		% <= 90sec	% <= 180sec		% <= 90sec	% <= 180sec				
99.0%-99.84%										
Under Criteria										
By Media Type										
SATCOM										
VHF										
HF										
ALL										
By Remote Ground Station (RGS) Ground Earth Station (GES)										
Designator	Type	(only RGS/GES with message counts >100 recorded)								

Figure 1: Data Link Performance Analysis Reporting Templates

1.4 Other FIT(s) use slightly different template.

- After the decimal point

Table D-6. ASP, ACTP, ACP and PORT by operator – tabular format

Operator	ADS-C				CPDLC						
	Count of ADS-C	% of total ADS-C	ASP 95%	ASP 99.9%	Count of CPDLC	% of total CPDLC	ACTP 95%	ACTP 99.9%	ACP 95%	ACP 99.9%	PORT 95%
R	141 591	12.3%	98.2%	99.4%	2 712	7.0%	99.3%	99.4%	98.5%	98.8%	95.9%
AA	113 648	9.9%	99.2%	99.8%	5 309	13.7%	99.9%	99.9%	99.5%	99.6%	97.9%
L	85 874	7.5%	98.0%	99.3%	2 490	6.4%	99.4%	99.6%	98.6%	98.8%	95.0%

Figure 2: Doc 9869 PBCS Manual Table D-6

Table D-8. Example RCP local PBCS monitoring report

PBCS monitoring report – RCP							
ANSP/CTA →	ANSP1/CTA1	Period →	1 January to 30 June 2014 (6 months)				
Specification →	RCP 240	Application →	CPDLC				
Colour key		Transaction counts (WILCO received)	95% RCP 240 benchmark		99.9% RCP 240 benchmark		
Meets criteria →			ACP	ACTP	ACP	ACTP	PORT
Under criteria but above 99.0% →			<=180 sec	<=120 sec	<=210 sec	<=150 sec	<=60 sec
Under criteria →		End-to-end	Network	End-to-end	Network	Pilot response	
Media type (100 messages or more)							
SATCOM		35 123	98.90%	99.53%	99.28%	99.67%	
VHF		3 422	99.15%	99.80%	99.27%	99.85%	
HF		13					

Figure 3: Doc 9869 PBCS Manual Table D-8

Table D-9. Example RSP local PBCS monitoring report				
PBCS monitoring report — RSP				
ANSP/CTA →	ANSP1/CTA1	Period →	1 January to 30 June 2014 (6 months)	
Specification →	RSP 180	Application →	ADS-C	
Colour key	Report counts	95% RSP 180 benchmark	99.9% RSP 180 benchmark	
Meets criteria →		ASP	ASP	
Under criteria but above 99.0% →		<=90 sec	<=180 sec	
Under criteria →		End-to-end	End-to-end	
Media type (100 messages or more)				
SATCOM	893 064	97.98%	99.27%	
VHF	251 619	98.98%	99.54%	
HF	4 013	92.30%	94.49%	

Figure 4: Doc 9869 PBCS Manual Table D-9

ACTUAL SURVEILLANCE PERFORMANCE						
Region	IPACG					
Performance Criteria	RSP180					
Time Period	2021 January-June			2021 July-December		
Colour key ■ Meets criteria ■ 99.0%-99.9% ■ Under criteria	Message Counts	Criteria		Message Counts	Criteria	
		95%	99.90%		95%	99.90%
		% < = 90sec	% < = 180sec		% < = 90sec	% < = 180sec
Aggregate (all media types)						
PAZA	1196520	98.89%	99.70%	1217086	98.72%	99.62%
RJJ	1514208	98.30%	99.64%	1781319	98.39%	99.62%

Figure 5: IPACG (JCAB)

State of Registry	Data Source (FIR)	Operator	Aircraft Type	ADS-C downlink Message Counts	95% RSP 180 benchmark ASP <=90 sec	99.9% RSP 180 benchmark ASP <= 180 sec	CPDLC Transaction Counts	95% RCP 240 benchmark ACP <= 180 sec	99.9% RCP 240 benchmark ACP <=210 sec
AUSTRALIA	Oakland	ASY	C17	2106	99.4%	99.5%	0		
AUSTRALIA	Oakland	ASY	C30	5	100.0%	100.0%	4	100.0%	100.0%
AUSTRALIA	Oakland	ASY	E47X	179	99.4%	100.0%	10	100.0%	100.0%
AUSTRALIA	Auckland	JST	B788	909	98.2%	100.0%	2	100.0%	100.0%
AUSTRALIA	Oakland	JST	B788	1409	99.7%	100.0%	89	100.0%	100.0%
AUSTRALIA	Auckland	QFA	A332	3544	99.3%	99.6%	31	96.8%	100.0%
AUSTRALIA	Nadi	QFA	A332	2109	99.1%	99.5%	43	97.7%	100.0%
AUSTRALIA	Oakland	QFA	A332	4095	99.3%	99.4%	243	100.0%	100.0%
AUSTRALIA	Auckland	QFA	A333	3087	99.3%	99.6%	30	100.0%	100.0%
AUSTRALIA	Nadi	QFA	A333	750	99.9%	100.0%	14	100.0%	100.0%
AUSTRALIA	Oakland	QFA	A333	7000	99.4%	99.6%	440	99.8%	99.8%
AUSTRALIA	Anchorage	QFA	B744	270	98.2%	99.6%	16	100.0%	100.0%
AUSTRALIA	Nadi	QFA	B744	919	98.7%	99.4%	37	100.0%	100.0%
AUSTRALIA	Oakland	QFA	B744	2321	98.1%	99.7%	139	98.6%	98.6%

Figure 6: CRA website (PAC)

- Rounding up/down

Actual data	FIT-Asia	IPACG	CRA (PAC)
98.94%	98.94%	98.94%	98.9%

98.95%	98.95%	98.95%	99.0%
99.00%	99.00%	99.00%	99.0%
99.84%	99.84%	99.84%	99.8%
99.85%	99.85%	99.85%	99.9%
99.90%	99.90%	99.90%	99.9%

Table 1: Rounding up/down

- Colour coding

Actual data	FIT-Asia	IPACG	CRA (PAC)
98.94%	98.94%	98.94%	98.9%
98.95%	98.95%	98.95%	99.0%
99.00%	99.00%	99.00%	99.0%
99.84%	99.84%	99.84%	99.8%
99.85%	99.85%	99.85%	99.9%
99.90%	99.90%	99.90%	99.9%

Table 2: Colour coding

1.5 The importance of having a common template for Data Link performance reporting among FIT(s) in the Asia Pacific region needs to be considered.

1.6 The Operational Data Link Working Group (OPDLWG) under Communication Panel will discuss a harmonized method, and the new version of Doc 9869 PBCS Manual will be available to include it in 2023-2024.

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