



International Civil Aviation Organization

The 11th Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/11)

Video Teleconference, 23 – 27 August 2021

Agenda Item 6: Data Link-related ANS Deficiencies

DATA LINK PERFORMANCE MONITORING AND ANALYSIS FOR KOLKATA FIR

(Presented by AIRPORTS AUTHORITY OF INDIA)

SUMMARY

This paper presents the results of the Data Link performance monitoring conducted for the Kolkata FIR, upon upgradation of the Kolkata ATM System, for the period **17th June to 26th July 2021**, measured against the CPDLC RCP240 and ADS-C RSP180 specifications




1. INTRODUCTION

1.1 Airports Authority of India was successful in commencing post implementation performance monitoring and analysis for the Kolkata FIR from middle of July 2021. BOBASMA conducted a preliminary exercise using data extracted from the Kolkata data link ground system for a period of 40 days from 17th June to 26th July 2021. The Data Link system performance was measured against the CPDLC RCP240 and ADS-C RSP180 specifications as per guidelines contained in DOC9869.

2. DISCUSSION

ADS-C RSP180

2.1 **Table 1** summarizes overall ADS-C performance per media type, Remote Ground Station (RGS) and Ground Earth Station (GES) for downlinks sent within the VECF FIR during the 40 day period.

FIR		VECF	
Criteria		RSP180	
Period		June-17 TO JULY 26 2021	
Colour Key  Meets Criteria  99.0%-99.84%  Under Criteria	Message Counts	95%	99.90%
		% <= 90sec	% <= 180sec
By Media Type			
SATCOM	36528	98.75%	99.62%
VHF	300667	99.58%	99.73%
HF	38	48.50%	62.02%
ALL	67233	99.10%	99.65%
By Remote Ground Station (RGS) Ground Earth Station (GES)			
Designator	Type	(only RGS/GES with message counts)	




		>100 recorded)		
APK1	SAT	18888	99.13%	99.72%
APK2	SAT	1493	95.24%	97.73%
EUA1	SAT	2478	98.63%	99.61%
EUA2	SAT	223	95.96%	99.02%
IG1	SAT	185	97.84%	99.30%
IGW1	SAT	376	98.46%	99.73%
XXA	SAT	8900	98.84%	99.85%
XXF	SAT	1292	98.48%	99.79%
XXI	SAT	741	99.42%	99.97%
XXP	SAT	1952	97.85%	99.18%
AMD1	VHF	597	100.00%	100.00%
ASB1	VHF	135	99.62%	100.00%
AUH	VHF	153	99.88%	100.00%
AUH7	VHF	138	100.00%	100.00%
BOM	VHF	285	100.00%	100.00%
BOM2	VHF	150	100.00%	100.00%
CCU	VHF	6226	99.78%	99.88%
DAC1	VHF	5692	99.61%	99.74%
DEL	VHF	289	99.35%	99.51%
DEL1	VHF	179	99.23%	99.52%
DEL2	VHF	228	99.11%	99.38%
DEL7	VHF	449	100.00%	100.00%
DXB	VHF	123	100.00%	100.00%
DXB7	VHF	118	100.00%	100.00%
GAU1	VHF	149	99.45%	99.70%
GYD1	VHF	265	100.00%	100.00%
IMF1	VHF	710	99.66%	99.72%
IST8	VHF	103	100.00%	100.00%
IXZ1	VHF	331	98.83%	98.90%
KMG	VHF	102	100.00%	100.00%
KTM1	VHF	148	98.76%	99.01%
KXX1	VHF	162	100.00%	100.00%
LKO1	VHF	1683	99.19%	99.53%
MCT1	VHF	162	100.00%	100.00%
MCT7	VHF	374	100.00%	100.00%
MDL	VHF	190	97.92%	98.19%
MHD1	VHF	321	100.00%	100.00%
MUX1	VHF	745	99.99%	100.00%
NAG1	VHF	3650	99.74%	99.88%
RGN	VHF	116	97.46%	97.65%

RGN1	VHF	409	98.49%	98.82%
TMJ1	VHF	337	99.44%	99.49%

Table 1: VECF FIR ADS-C Downlink Latency per Media Type, RGS and GES

VECF FIR ADS-C RSP180 Performance – Aircraft Operator/Type

2.2 **Table 2** summarizes overall ADS-C performance per Aircraft Operator/Type for downlinks sent within the VECF FIR during 2021, during the 40 day period.

FIR	VECF		
Criteria	RSP180		
Period	JUN 17 TO JULY 26, 2021		
Colour Key  Meets Criteria  99.0%-99.84%  Under Criteria	Message Counts	95% % <= 90sec	99.90% % <= 180sec
By Aircraft Operator / Type (only message counts >100 recorded)			
AAR/A359	107	100.00%	100.00%
ABD/B744	118	98.34%	98.89%
ABW/B748	360	97.00%	97.95%
AFL/B77W	174	98.05%	98.72%
AFR/B77W	721	99.67%	99.87%
AFR/B789	150	99.52%	100.00%
AIC/B788	250	100.00%	100.00%
AUA/B772	198	97.44%	99.59%
AZG/B748	170	99.92%	100.00%
BAW/B77W	924	99.35%	100.00%
BAW/B789	641	99.76%	100.00%
BOX/B77L	993	98.97%	99.28%
CAL/A359	431	99.80%	99.95%
CAL/B744	463	98.57%	98.91%
CCA/A333	233	99.60%	99.75%
CEB/A333	179	100.00%	100.00%
CLX/B744	316	97.85%	98.80%
CLX/B748	847	99.38%	99.66%
CPA/A333	227	97.80%	100.00%
CPA/B744	421	96.67%	98.87%
CPA/B748	127	98.95%	100.00%
CPA/B77W	352	95.95%	98.31%
CSC/A332	410	99.09%	99.52%
CSS/B744	133	99.93%	100.00%
DLH/A359	561	100.00%	100.00%
ETD/B77L	1355	99.85%	99.98%
ETD/B77W	1484	99.46%	99.64%

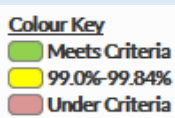
ETD/B789	1006	99.85%	100.00%
ETD/B78X	572	99.43%	100.00%
ETH/A359	187	100.00%	100.00%
ETH/B77L	670	98.81%	99.68%
ETH/B77W	653	99.39%	100.00%
ETH/B789	261	98.53%	100.00%
EVA/B77W	458	99.79%	100.00%
EVA/B78X	402	99.94%	100.00%
FDX/B77L	540	98.10%	99.65%
FIN/A359	830	99.78%	100.00%
GFA/B789	850	99.88%	100.00%
GTI/B744	151	99.34%	99.78%
HKC/A332	472	99.79%	99.87%
HVN/A359	469	99.83%	100.00%
JAL/B788	109	100.00%	100.00%
KAC/B77W	572	99.77%	99.90%
KAL/B77L	146	99.49%	100.00%
KAL/B789	180	99.65%	100.00%
KLM/B77W	1467	99.58%	100.00%
KLM/B789	1133	100.00%	100.00%
KQA/B788	209	100.00%	100.00%
MAS/A333	417	98.46%	99.74%
MAS/A359	356	100.00%	100.00%
MAS/B738	108	100.00%	100.00%
MSR/A332	323	97.51%	98.10%
OMA/A333	515	100.00%	100.00%
PAL/A333	932	99.78%	100.00%
QFA/B789	193	100.00%	100.00%
QTR/A333	169	96.79%	98.69%
QTR/A359	1465	98.40%	99.38%
QTR/B748	380	99.31%	99.56%
QTR/B77L	3838	99.32%	99.83%
QTR/B77W	3900	97.72%	98.96%
QTR/B788	841	98.98%	99.35%
QTR/B789	195	95.93%	96.85%
RJA/B788	154	98.55%	99.21%
SIA/A359	5963	99.94%	99.97%
SIA/B744	151	95.54%	97.02%
SIA/B77W	804	98.51%	99.90%
SIA/B78X	507	99.21%	100.00%
SOO/B77L	288	99.31%	99.95%

SVA/B744	179	98.94%	99.52%
SVA/B77L	155	100.00%	100.00%
SVA/B77W	256	99.80%	100.00%
SVA/B78X	264	99.63%	99.71%
SWR/B77W	407	100.00%	100.00%
TAX/A333	427	100.00%	100.00%
TGW/B788	279	99.62%	100.00%
THA/A359	498	99.40%	99.45%
THA/B77W	344	99.22%	100.00%
THY/A332	369	100.00%	100.00%
THY/A333	1475	99.02%	99.40%
THY/A359	1320	99.70%	99.86%
THY/B744	559	99.20%	99.71%
THY/B77L	574	99.85%	100.00%
THY/B77W	2474	99.63%	99.92%
THY/B789	338	98.59%	100.00%
UAE/A388	114	100.00%	100.00%
UAE/B77L	2416	99.05%	99.70%
UAE/B77W	4950	98.55%	99.75%
UPS/B744	489	98.82%	99.55%
UPS/B748	676	98.40%	98.75%
VJT/GLEX	128	97.69%	99.09%

Table 2: VECF FIR ADS-C Downlink Latency per Aircraft Operator/Type

VECF FIR CPDLC RCP240 Performance – Media Type, RGS and GES

2.3 **Tables 3** summarize overall CPDLC performance per Media Type, RGS and GES for messages sent within the VECF FIR during the 40 day period.

FIR	VECF				
Criteria	RCP240				
Period	JUNE 17 TO JULY 26, 2021				
	Message Counts	95% benchmark		99.9% Benchmark	
		ACP % <= 180sec	ACTP % <= 120sec	ACP % <= 210sec	ACTP % <= 150sec
By Media Type					
SATCOM	4210	99.30%	99.31%	99.44%	99.50%
VHF	995	99.71%	99.92%	99.74%	99.93%

HF						
ALL		5205	99.38%	99.42%	99.49%	99.58%
By Remote Ground Station (RGS) Ground Earth Station (GES)						
Designator	Type	(RGS/GES with message counts >100)				
APK1	SAT	2531	99.43%	99.57%	99.62%	99.69%
APK2	SAT	164	98.96%	98.11%	99.15%	99.20%
EUA1	SAT	115	98.45%	97.52%	99.28%	97.98%
XXA	SAT	1074	99.95%	99.75%	100.00%	99.91%
XXP	SAT	236	99.95%	99.17%	98.13%	99.34%
CCU	VHF	379	99.95%	100.00%	99.61%	100.00%
DAC1	VHF	365	99.95%	99.79%	99.77%	99.83%

Table 3: VECF FIR CPDLC Performance Latency per per Media Type, RGS and GES

VECF FIR CPDLC RCP240 Performance – Aircraft Operator/Type

2.4 **Tables 4** summarize overall CPDLC performance per Aircraft Operator/Type for messages sent within the VECF FIR during the 40 day period.

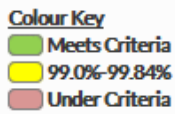
FIR		VECF				
Criteria		RCP240				
Period		JUNE 17 TO JULY 26, 2021				
	Message Counts	95% benchmark		99.9% Benchmark		95%
		ACP	ACTP	ACP	ACTP	PORT
		% <= 180sec	% <= 120sec	% <= 210sec	% <= 150sec	% < 60secs
By Aircraft Operator / Type (only message counts >100 recorded)						
BOX/B77L	125	100.00%	100.00%	100.00%	100.00%	100.00%
ETD/B77W	173	100.00%	100.00%	100.00%	100.00%	99.63%
ETD/B789	123	100.00%	100.00%	100.00%	100.00%	100.00%
ETD/B78X	105	100.00%	100.00%	100.00%	100.00%	100.00%
PAL/A333	124	100.00%	100.00%	100.00%	100.00%	97.90%
QTR/A359	111	95.90%	96.61%	96.53%	97.13%	96.76%
QTR/B77L	227	99.97%	99.96%	100.00%	100.00%	99.60%
QTR/B77W	431	98.70%	98.92%	99.11%	99.26%	97.82%
SIA/A359	455	100.00%	100.00%	100.00%	100.00%	98.78%
THY/B77W	209	100.00%	99.88%	100.00%	100.00%	98.86%
UAE/B77W	593	100.00%	99.88%	100.00%	100.00%	98.72%

Table 4A: VECF FIR CPDLC Performance Latency per Aircraft Operator/Type

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

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

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