



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**THE SIXTEENTH MEETING OF THE NAFISAT SUPERVISORY BOARD
(NAFISAT-SVB/16) (VIRTUAL,)**

Agenda Item 7 (a) - Operation, maintenance and performance of the NAFISAT Network

(Presented by ATNS)

SUMMARY

This paper summarizes the operation, maintenance and performance of the NAFISAT network.

Reference: Report

FRC Call Records

Interconnectivity between adjacent Networks

Network Availability

AFTN cct Availability

ATS/DS cct Availability

Yearly comparative availability

AMHS implementation

1 INTRODUCTION:

1.1 This report presents the operational performance and maintenance of the NAFISAT network for the period April 2021 to March 2022. The report covers the availability of all services provided by the network, and these are measured against the agreed SLAs. Furthermore, the robustness of the maintenance strategy implemented by ATNS is reflected in the summary of trends observed throughout the reporting period and the statistics of incident reports received through the ATNS Fault Reporting Centre (FRC). The FRC is located at the Johannesburg ACC and provides a 24 hr remote service for reporting and resolution of faults. The summary of the calls (reported incidents) is also given for the period April 2021 to March 2022.

2 Discussion

2.1 The successful maintenance of the VSAT network would not be possible without the continuous commitment and assistance of the NAFISAT member States and their personnel. The worldwide pandemic posed challenges to the Network and the skills obtained by all States' participants at the ATA training proved to be fruitful in order to ensure that the reported faults were dealt with timeously.

2.2 Travel restrictions and COVID protocols at the Different States restricted the movement of ATNS personnel to do site visits. This function was performed by the local Staff during the respective lockdowns. Remote preventative activities were scheduled and coordinated between ATNS and Staff to keep the terminals operating and restored where failures were detected. Travel restrictions have however been lifted and ATNS Technical staff are now conducting preventative maintenance by visiting the sites based on a preventative maintenance schedule.

2.3 It should be noted that assistance is constantly required with the issuance of LOI's, VISAS, some customs processes and site access permits required by some authorities. These factors remain a risk to quick on-site response and availability of spares.

2.1 NAFISAT FRC faults reported (Apr 2021 to March 2022)

Total: FRC = 120

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
FRC	8	12	10	13	19	12	4	12	9	8	4	9	120
Corrective	3	7	3	6	7	7	0	8	7	6	4	3	61
Preventative	1	2	0	0	2	0	0	0	0	0	0	0	5
External	4	3	7	7	10	5	4	4	2	2	0	6	54

Corrective – 61
Preventative –05
External – 54

2.2 Yearly comparative FRC reported call totals

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	156	200	159	171	103	115	152	107	120

2.3 Trends

- 2.3.1 RF Switches and RFT's remain as failure trends. ATNS put mitigation strategies in place to deal with these failures.
- 2.3.2 Currently the failures are dealt with through the normal fault and spares management process.
- 2.3.3 Should any new developments or trends arise, ATNS will follow the necessary processes to maintain the network to the previous and current standard.
- 2.3.4 ATNS is in discussions with the OEM to put stricter SLA in place for tighter turnaround times.

2.4 Interoperability

- 2.4.1 Seamless operations, interoperability and interconnectivity between VSAT networks in the AFI Region remains crucial and ATNS remains committed to implement the best practices as recommended by ICAO. The NAFISAT and NAFISAT networks are fully integrated to ensure continuation of seamless operation by being fully interconnected and interoperable on level 1.
- 2.4.2 At present interconnectivity between AFISNET and NAFISAT is achieved on level 3 through baseband equipment and not on the satellite level 1.
- 2.4.3 ATNS and ASECNA have agreed to the platform for the links. The links will continue to be achieved through the DATUM 500L series. The multiplexers are now changed to the NETPERFORMER FAD.

2.4.4 Below an indication of the progress on the transition of services to the NETPERFORMER.

Nairobi	Service	Destination	Operational Status	Comments
	AFTN/AMHS	Brazzaville	Link Ready	Busy with AMHS setup

Khartoum	Service	Destination	Operational Status	Comments
	ATSd	Brazzaville	Serviceable	
	ATSd	Ndjamena	Serviceable	
	AFTN/AMHS	Ndjamena	Link is Ready	Busy with AMHS setup

Addis Ababa	Service	Destination	Operational Status	Comments
	AFTN/AMHS	Niamey	U/S	AMSS U/S no channels serviceable in ADDIS

Tripoli	Service	Destination	Operational Status	Comments
	ATSd	Niamey	U/S	Site is OFF
	ATSd	Ndjamena	U/S	Site is OFF
	AFTN/AMHS	Niamey	U/S	Site is OFF
	AFTN/AMHS	Ndjamena	U/S	Site is OFF

2.4.5 The availability of these links and services are recorded as follows:

Network		2021/2022
Khartoum/Niamey		99,93
Khartoum/N'Djamena		99,93
Addis/Niamey		99,93
Nairobi/Brazzaville		99,93
Khartoum/Brazzaville		99,93
Tripoli/Niamey		0
Tripoli/N'Djamena		0

Note 1: Due to the terminal being off in Libya, the availability is heavily affected. The achieved availability of the links; i.e. level 1 and 2 are within specification above 99.9%

ATS		2021/2022
Niamey/Addis		N/A
Niamey/Tripoli		0
N'Djamena/Khartoum		99,93
N'Djamena/Nairobi		N/A
N'Djamena/Tripoli		0
Brazzaville/Nairobi		N/A
Brazzaville/Khartoum		99,93

Note 2: The availability of the voice circuits are acceptable operating on average above 99%

AFTN		2021/2022
Niamey/Addis		99,93
Niamey/Tripoli		0
N'Djamena/Khartoum		50
N'Djamena/Nairobi		0
N'Djamena/Tripoli		0
Brazzaville/Nairobi		0

Note 3. The availability of the AFTN services were deteriorating and are operating below acceptable levels.

The availability of the AFTN services were deteriorating and were operating below acceptable levels at 33%. As can be seen the services were reaching breakdown level. After migrating to the new NETPERFORMER, we can already see better figures reported.

2.5 Implementation of AMHS service on the NAFISAT network

2.5.1 AMHS service implementation is currently as per below;

NAFISAT						
	Site 1 / HP SW		Site 2 / HP SW		Active Yes /No	REMARKS
AMHS	Jeddah	172,16,105,254	Cairo	172,16,97,254	Y	NATting done by both sites
	Jeddah	172,16,105,254	Addis	172,16,99,254	Planned	
	Jeddah	172,16,105,254	JHB	172,16,160,254	Planned	
AMHS	Jeddah	172,16,105,254	Khartoum	172,16,106,254	Y	NATting done only by Jeddah /12jul 21
	Addis	172,16,99,254	JHB	172,16,160,254	Planned	ip route-staticundo
AMHS	Nairobi	172,16,100,254	JHB	172,16,160,254	Y	implemented
	Nairobi	172,16,100,254	DarEsSalaam	172,16,77,254	Test	8 March 2022 setup network
AMHS	Entebbe	172.16.107.254	Nairobi	172.16.100.254	y	working, Enetbbe will adz working / 8 dec 20
	Nairobi	172,16,100,254	Mogadishu	172,16,102,254	Test/plan	Setup and Testing with Matthew / redundancy IP issue
AMHS	Nairobi	172,16,100,254	Plaicance	172,16,71,254	Y	Site set, will adz ready to test / 24/6/21

3 Performance of the Network

3.1 Data was collated from April 2021 to March 2022 and is presented to the meeting for information.

3.2 Network availability (April2021 to March2022)

NETWORK AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
99.93	100	100	100	99.99	99.99	100	99.99	100	100	100	100

Average =99.99%

3.3 MMC AVAILABILITY (April2021 to March 2022)

MMC AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
99.93	100	100	100	100	100	100	100	100	100	100	100

Average = 99.99%

3.4 AFTN circuit availability (April2021 to March2022)

AFTN CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
86.05	86.07	68.78	68.68	68.67	65.50	65.52	65.39	65.52	62.07	62.07	62.07

Average = 68.87%

3.5 ATS/DS circuit availability (April2021 to March2022)

ATS/DS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
88.93	88.98	75.67	75.68	75.67	78.36	78.38	78.36	78.34	78.34	78.38	78.38

Average =79.46%

3.6 AMHS circuit availability (April 2021 to March 2022)

AMHS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
9.99	13.33	13.33	16.55	16.66	20	20	20	19.98	20	20	26.60

Average = 18.04%

3.7 Data collected on Services (April 2021 to March 2022)

Number of voice calls recorded since April 2021 to March 2022 = 206 335

Number of Bytes transmitted since April 2021 to March 2022 = 11 330 886 885

3.8 Yearly comparative availabilities

Yearly Network availability

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Average	99,97	99,93	99,97	99,98	99,97	99,97	99,97	99,96	99,99

Average = 99.97%

Yearly AFTN availability

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Average	96,58	97,41	97,62	98,91	98,41	98,43	87,26	86,06	68,87

Average = 92.17%

Yearly ATS/DS availability

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Average	97,37	97,68	96,56	99,2	99,15	98,36	89,82	88,97	79,46

Average = 94.06%

4 Distribution of statistics

- 4.1 Distribution of statistics is done on a monthly basis.
- 4.2 Statistics are published monthly on the ATNS website for State Members to view. Member states receive an e-mail alert that the statistics are available on the website.
- 4.3 ATNS continuous to provide the level 4 statistics as required from ICAO on a monthly basis.

5 ACTION TO BE TAKEN BY THE MEETING

- 5.1 The meeting is invited to take note of the above information. More information on specifics will be made available upon request.
- 5.2 States are requested to continue submitting the statistics recorded on the level 4 template to ATNS for the completion of the document to be sent to ICAO.
- 5.3 Relevant States are requested to assist in timeously supplying Letters of Invitation and all States are requested to assist in resolving difficulties experienced at the respective customs for the clearing and releasing of equipment and spares as well as the facilitation to access the site during maintenance.
- 5.4 States are encouraged to implement AMHS services as per the ICAO block Upgrades and the network proposed design.
- 5.5 States are reminded to follow the fault reporting procedure and report all NAFISAT network faults to the ATNS FRC on +27 11 928 6477 or frc@atns.co.za and to copy to the Manager Technical Support ruip@atns.co.za
