INTERNATIONAL CIVIL AVIATION ORGANIZATION
EASTERN AND SOUTHERN AFRICAN (ESAF) OFFICE

THIRTEENTH MEETING OF THE NAFISAT SUPERVISORY BOARD
(NAFISAT-SVB/13)
(DAR-ES-SALAAM, TANZANIA, 7 – 8 NOVEMBER 2018)

Agenda Item x.x 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
Four level report to ICAO

1 Introduction:

1.1 This report presents the operational performance and maintenance of the NAFISAT network for the period April 2017 to March 2018. 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) are also given for the period April 2017 to March 2018.

2 Discussion

2.1 The successful maintenance of the VSAT network would not be possible without the continuous commitment and assistance of the relevant States. In order to ensure that the competency and skills level of all role players are improved and maintained, the ATNS

Training Academy was upgraded and new training material developed based on the new ND Satcom SkyWAN IDU7000 modem and NetPerformer Frame Relay Access Device (FAD).

2.2 Training of technical personnel from the network member states was completed in 2017 as part of the upgrade project to ensure continued reliable operation of the network. Additional (refresher) training can be arranged with ATNS Business Development. The training raises the skills levels of the local technical staff and shortens the outage times.

2.3 Timely on-site response by ATNS maintenance personnel is key to the resolution of critical faults/failures. It should be noted that issuance of LOI's, VISAS and some customs processes in some authorities remain a risk to quick on-site response

2.1 **NAFISAT FRC faults reported (Apr 2017 to March 2018)**

Total: FRC = 103

	Apr	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Total**
FRC	9	11	12	12	6	6	3	9	11	5	8	11	103
Corrective	6	5	8	8	4	3	2	8	9	4	5	5	67
Preventative	0	0	0	2	0	0	0	0	0	0	0	2	4
External	3	6	4	2	2	3	1	1	2	1	3	4	32

Corrective – 67
Preventative – 4
External – 32

2.2 **Yearly comparative FRC reported call totals**

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	65	72	81	109	156	200	159	171	103

2.3 Trends

2.3.1 The PBU period reached its end and the following trends have been identified:

2.3.1.1 During the stabilisation period, failures of the quad FXS audio cards on the MEMOTEC Net Performer units were detected. This has been taken up with the supplier.

2.3.1.2 Failures of the RFT's and RF switches are a concern and focus has been placed to establish the cause and future measures to stabilise these failures

2.3.2 Mitigation:

2.3.2.1 ATNS replenished the quad FXS audio spare cards. Failures on these cards stabilised.

2.3.2.2 RFT's have been sent to the OEM and a report is awaited. There are adequate spares in store and the removed 20W RFT's can be used as a direct replacement.

2.4 Upgrade

Two stations have not been upgraded on the NAFISAT network which has an impact on the optimization of the spectrum.

The spectrum optimization has been prepared and is ready to be implemented on the network. It is planned to be implemented at the end of November 2018.

2.5 Interoperability

2.5.1 Seamless operations, interoperability and interconnectivity between VSAT networks in the AFI Region remains crucial and ATNS remains committed to the best practices. At present co-operation between ASECNA, Ghana ANSP and ATNS ensures interoperability of the networks.

2.5.2 The NAFISAT and SADC VSAT2 networks are fully integrated and interoperable and also provide continued connectivity with AFISNET as provision was made for the retention of the current technical interface solution with the AFISNET network.

2.5.3 The retention and reconfiguring of the MEMOTEC CX series devices from the NAFISAT and SADC VSAT2 networks will serve as capacity to maintain the existing links with the AFISNET Network and insure interoperability between the networks.

2.5.4 ATNS presented a working paper during the SNMC/25 in December 2017, highlighting the status of the NAFISAT and SADC VSAT2 networks upgrade as well as the importance of the interconnectivity between the AFI Regional networks. The

obsolescence of the equipment, as previously identified as a risk, has been brought to the attention of the SNMC. It was presented that the technical committee dealing with the modernization and re-engineering of the AFISNET to consider the interconnections to the SADC VSAT2 and NAFISAT networks.

2.5.5 ATNS is still experiencing challenges with some of the connections, particularly in respect of N'Djamena and Brazzaville circuits.

2.5.6 ATNS and ASECNA met in February 2018, where it was agreed to replace all MEMOTEC CX series equipment with the MEMOTEC Net performer. The target date to be last quarter of 2018.

	Availability	Services
NAFISAT - SADC VSAT2 interconnectivity	99.98	99.97
NAFISAT - AFISNET interconnectivity	97.79	97.31

3 Performance of the Network

3.1 Data was collated from April 2017 to March 2018 and is presented to the meeting for information.

(PRESENTATION)

3.2 Network availability

NETWORK AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
100	100	99.99	99.98	100	100	99.99	99.99	99.88	99.88	99.92	99.99

Average = 99.97%

3.3 AFTN circuit availability

AFTN CIRCUIT AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.84	99.94	94.47	91	37	99.99	99.98	99.93	99.64	99.79	99.70	96.23

Average = 98.41%

3.4 ATS/DS circuit availability

ATS/DS CIRCUIT AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.98	99.95	95.66	98.08	100	99.99	99.97	99.93	99.60	99.82	99.70	97.14

Average =99.15 %

3.5 **Data collected on Services**

	May 2017 to Mar 2018			
NAFISAT	**Voice - Number of calls**	**Voice - Successful calls (%)**	**Voice - Number of blocked calls**	**AFTN - Transmitted bytes**
ADDIS ABABA	338197	48,67084	40	422825203
ASMARA	268	29,31256	0	20867964
CAIRO	10632	86,5449	2	1297611720
DJIBOUTI	8630	87,52792	4	3998167
ENTEBBE	33725	84,87951	60	16910395
ENTEBBE MMC	0	0	0	0
JEDDAH	0	0	0	0
KHARTOUM	26557	87,11892	2	2445712716
MOGADISHU	117	9,01961	0	9167189
NAIROBI	85385	84,54143	127	2110939400
SANAA	0	0	0	0
TRIPOLI	1011	77,30196	0	202756134
VICTORIA	18685	78,2073	4	11927487
	523207			6542716375

Number of voice calls recorded since May 2017 to March 2018 = 523207
Number of Bytes transmitted since May 2017 to March 2018 = 6542716375

	May 2017 to Mar 2018			
NAFISAT	**Voice - Number of calls**	**Voice - Successful calls (%)**	**Voice - Number of blocked calls**	**AFTN - Transmitted bytes**
ADDIS ABABA	333934	0,5241	0	245715510
ASMARA	0	0	0	0
CAIRO	5906	46,3844	52	761947590
DJIBOUTI	6889	46,9959	3	2411122
ENTEBBE	20720	48,11864	31	10631556
ENTEBBE MMC	0	0	0	0
JEDDAH	0	0	0	0
KHARTOUM	13728	48,18594	25	526086410
MOGADISHU	15012	46,76339	10	19960592
NAIROBI	46110	48,36805	38	1285835500
SANAA	0	0	0	0
TRIPOLI	636	46,49556	4	22973317
VICTORIA	12307	48,83168	7	6911441
	455242			2882473038

Number of voice calls recorded since April 2018 to July 2018 = 455242
Number of Bytes transmitted since April 2018 to July 2018 = 2882473038

3.6 **Yearly comparative availabilities**

Yearly Network availability

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	99,99	99,99	99,98	99,94	99,97	99,93	99,97	99,98	99.97

Average = 99.97%

Yearly AFTN availability

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	99,48	99,33	99,86	99,69	96,58	97,41	97,62	98,91	98.41

Average =98.61%

Yearly ATS/DS availability

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average	99,94	99,96	99,83	99,75	97,37	97,68	96,56	99,2	99.15

Average = 98.79%

4 Four level reporting structure as proposed by ICAO

4.1 ATNS provides the level 4 statistics as required from ICAO on a monthly basis. This is a comprehensive document where space segment, IDU, ODU and end user equipment statistics are collected.

4.2 Level four statistics templates for ATS/DS and AFTN services were distributed to all NAFISAT member States. ATNS would like to express gratitude to the States that are submitting those statistics on a regular basis. Feedback with regards to end user outages remains a challenge.

5 Distribution of statistics

5.1 Distribution of statistics is done on a monthly basis.

5.2 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.

6 ACTION TO BE TAKEN BY THE MEETING

6.1 The meeting is invited to take note of the above information. More information on specifics will be made available upon request.

6.2 States are requested to submit the statistics recorded on the template to ATNS for the completion of the document to be sent to ICAO.

6.3 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.

6.4 States are reminded to report all NAFISAT network faults to the ATNS FRC as captured in the fault reporting procedure on +27 11 928 6477 or frc@atns.co.za and to copy to the Manager ruip@atns.co.za.