



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

### TWELFTH MEETING OF THE NAFISAT SUPERVISORY BOARD (MAHE, SEYCHELLES, 20-21 SEPTEMBER 2017)

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#### Agenda Item 7 - Operation, maintenance and performance of 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

Four level report to ICAO

Yearly comparative availability

#### 1. Introduction: Operation and maintenance of the Network

1.1 The ATNS Fault Reporting Center continues to provide a 24 hr service. The summary of the calls are given for the period April 2016 to March 2017.

#### 2. Discussion

2.1 Continuous training, commitment and assistance from member States contributes to the successful maintenance of the system. The training raises the skills levels of the local technical staff and shortens the outage times.

2.2 First round of training on the upgraded system should be completed and all member States should have availed staff to be trained. Training schedule and coordination for training can be arranged through the respective business managers.

**2.3 NAFISAT FRC faults reported (Apr 2016 to March 2017)**

**Total: FRC = 171**

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
FRC	13	12	19	22	15	14	14	11	13	13	12	13	171
Corrective	10	8	15	17	9	8	9	7	7	12	8	8	118
Preventative	0	0	0	0	0	3	2	3	0	0	1	1	10
External	3	4	4	5	6	3	3	1	6	1	3	4	43

Corrective – 118

Preventative – 10

External – 43

**2.4 Yearly comparative FRC reported call totals**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	90	65	72	81	109	156	200	159	171

2.5 The critical units replenished and capacity increased in the stores proved to mitigate long outages during the extension period of the network. All these units have been replaced during this upgrade.

- Multiplexers
- RFT units
- IDUs

2.6 Failures of the following non critical units stabilised:

- RF switches
- UPS

The UPS units were replaced where applicable. All RF switches were also replaced during the upgrade.

**2.7 Trends**

During the stabilisation period a trend in the failures of the quad FXS audio cards on the MEMOTEC Net Performer units was detected. This has been taken up with the supplier and a report is due in due course.

ATNS has already ordered 10 additional quad FXS audio spare cards to mitigate the shortage during the investigation period.

## 2.8 Upgrade

All terminals with the exception of Jeddah and Sanaá have been upgraded.

**This has some implications that need to be addressed and will be discussed in a different paper.**

In short :

Both Master and Master backup stations need to be maintained.

All stations linked to those terminals need to be maintained.

The current spares are obsolete and maintaining the SLA related to the services on the terminals may not be achievable.

The risk of completely having these terminals disconnected from the network will become a reality as spares could be depleted.

This will also have an impact on the optimization of the spectrum and the supply of ATN services on the upgraded network.

## 2.9 Interoperability

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 and ATNS ensures interoperability of the networks. The specification and design of the NAFISAT and SADC2 network provide continued connectivity with AFISNET and provision was made for the retention of the current technical interface solution with the AFISNET network.

The retention and reconfiguring of these MEMOTEC equipment units will serve as capacity to maintain the existing links with the AFISNET Network and insure connectivity from the NAFISAT Network.

- 2.10 ATNS is still experiencing challenges with some of the connections, particularly in respect of the N'Djamena, Niamey and Brazzaville circuits. The obsolescence of the equipment is however becoming a risk and this has been brought to the attention of ASECNA. ASECNA has indicated that all AFISNET MEMOTEC equipment will be replaced by NetPerformer devices. The current Satellite access method will also be investigated.

	Availability
NAFISAT - SADC interconnectivity	99.98%
NAFISAT - AFISNET interconnectivity	97.17%

- 2.11 The obtaining of LOI's, issuing of VISAS and customs processes remain a risk.

**3. Performance of the Network**

3.1 Data was collated from April 2016 to March 2017 and is presented to the meeting for information.

**PRESENTATION**

3.2 Network availability

<b>NETWORK AVAILABILITY</b>											
<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
100	100	100	99.75	100	99.95	99.98	99.96	99.88	99.98	99.75	99.98

**Average = 99.94%**

3.3 AFTN circuit availability

<b>AFTN CIRCUIT AVAILABILITY</b>											
<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
100	99.99	89.75	98.45	99.99	99.93	99.96	99.91	99.99	99.89	99.20	99.94

**Average = 98.92%**

3.4 ATS/DS circuit availability

<b>ATS/DS CIRCUIT AVAILABILITY</b>											
<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
99.98	100	92.05	99.47	99.98	99.93	99.94	99.94	99.76	99.59	99.59	99.92

**Average = 99.20%**

3.5 Yearly comparative availabilities

Yearly Network availability

<b>Year</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>Average</b>	99,93	99,99	99,99	99,98	99,94	99,97	99,93	99,97	99,36

**Average = 99.90%**

Yearly AFTN availability

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Average	97,8	99,48	99,33	99,86	99,69	96,58	97,41	97,62	98,91

**Average = 98.52%**

Yearly ATS/DS availability

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Average	98,41	99,94	99,96	99,83	99,75	97,37	97,68	96,56	99,2

**Average = 98.74%**

**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. Below is an extract of this document:

ES/NO Level	
Addis-Ababa	10
Asmara	10.9
Cairo	11.6
Djibouti	8.3
Entebbe	10.5
Jeddah	10.3
Khartoum	12
MMC	12.9
Mogadishu	11.2
Nairobi	10.9
Sana'a	11.3
Tripoli	12.6
Victoria	10.6

TX Level dBm	
Addis-Ababa	36
Asmara	35
Cairo	39
Djibouti	35
Entebbe	36
Jeddah	35
Khartoum	39
MMC	34
Mogadishu	34
Nairobi	35
Sana'a	36
Tripoli	35
Victoria	34

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

4.3 Currently the statistics for NAFISAT are recorded and extracted on the ATNS MMS against the four levels and level 4 stats submissions from States are captured and included in the report.

**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 States are requested to assist in timeously supplying Letters Of Invitation and also 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](mailto:frc@atns.co.za) and to copy to the Manager [ruip@atns.co.za](mailto:ruip@atns.co.za).

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