



ICAO

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

**SADC SUPERVISORY BOARD MEETING
(Virtual Meeting 12 -13 July 2021)**

Agenda Item 2: Operation, maintenance and performance of the SADC Network
(Presented by ATNS)

SUMMARY

This paper summarizes the operation, maintenance and performance of the SADC VSAT2 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 SADC VSAT2 network for the period April 2019 to March 2021. 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 2019 to March 2021.

2 Discussion

- 2.1 The successful maintenance of the VSAT network would not be possible without the continuous commitment and assistance of the SADC 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 Timely on-site response by ATNS personnel remains vital to the successful maintenance of the Network. 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 was scheduled and coordinated between ATNS and Staff to keep the terminals operating and restored where failures were detected.
- 2.3 With the lifting of travel bans and ease of COVID restrictions ATNS personnel are able to travel to some sites which were identified during the latest remote preventative maintenance activities, bringing those terminals to full redundant operations.
- 2.4 It should be noted that now, more than before assistance is 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.
- 2.5 SADC FRC faults reported (Apr 2019 to March 2020)

Total: FRC = 179

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
FRC	10	13	9	13	16	22	27	18	10	20	14	7	179
Corrective	6	5	6	5	10	13	20	15	8	14	13	6	121
Preventative	0	0	1	1	0	4	5	0	0	0	0	0	11
External	4	8	2	7	6	5	2	3	2	6	1	1	47

Corrective – 121
Preventative – 11
External – 47

- 2.6 SADC FRC faults reported (Apr 2020 to March 2021)

Total: FRC = 118

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
FRC	8	6	11	9	8	16	11	7	14	11	4	13	118
Corrective	5	5	9	7	6	10	8	4	5	5	4	5	73
Preventative	0	0	0	0	0	0	0	0	0	0	0	5	5
External	3	1	2	2	2	6	3	3	9	6	0	5	40

Corrective – 73
Preventative – 5
External – 40

2.7 **Yearly comparative FRC reported call totals**

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	136	210	248	162	128	148	163	172	118

2.8 **Trends**

- 2.8.1 RF Switches, FPS's and RFT's were recorded as trend failures. ATNS identified the same trends towards the end of the term of the previous contract before upgrade was concluded.
- 2.8.2 Currently the failures are dealt with through the normal fault and spares management process.
- 2.8.3 Should any new developments or trends arise, ATNS will follow the necessary processes to maintain the network to the previous and current standard.

2.9 **Interoperability**

- 2.9.1 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 SADC VSAT2 networks are fully integrated to ensure continuation of seamless operation by being fully interconnected and interoperable on level 1.
- 2.9.2 At present interconnectivity between AFISNET and SADC is achieved on level 3 through baseband equipment. These connections have been problematic for a while now and reached a point where some of the services have failed. These are AFTN services to Brazzaville.
- 2.9.3 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 and configuration for these FAD units have been agreed upon. Implementation is underway where the stations connecting to AFISNET will install cabling and configuration to enable connectivity to the DATUM modems. Implementation and transition of services will then be coordinated between the affected State and ASECNA.
- 2.9.4 The availability of these links and services are recorded as follows:

		Network	AFTN	ATS/DS
Luanda/Accra		100,00%	98,5	99,99
Luanda/Abidjan		100,00%		98,5
Luanda/Brazzaville		100,00%	98,5	90,87
Luanda/Dakar		100,00%		99,96
Kinshasa/Brazzaville		99,97%	98,5	98,5

AVE 99,99% 98,50 97,56

The achieved availability of the links; i.e. level 1 and 2 are within specification above 99.9%

The availability of the voice circuits is 97.56%

The availability of the AFTN services are deteriorating and are operating below acceptable levels at 98.5%

2.10 Implementation of AMHS service on the SADC network

2.10.1 As previously discussed the network implemented IP services and the AMHS service implementation is currently as per below;

SADC	Site 1 / HP SW	Site 2 / HP SW	Active Yes /No	REMARKS
	Lusaka	JHB	Y	
	Kinshasa	JHB	Active IP	10.43.40.207 AFTN IP / SERV 10,43,40,40
	Entebbe	JHB	Y	
	Manizni	JHB	Y	
	Lilongwe	JHB	Test	
	Gaborone	JHB	Y	
	Windhoek WX	JHB	Test	Erros IWXXM service
	Windhoek CAD	JHB	Y	CAD Backup line VSAT temp GW 10.11.75.65
	Windhoek CAD	JHB	Y	Cad backuo 8Dec 2020 solution
	Plaicance	JHB	Configured	Site will adz ready, covid
	Mogadishu	Johannesburg	Test	suplier conf issue, will adz ready

3 Performance of the Network

3.1 Data was collated from April 2019 to March 2021 and is presented to the meeting for information.

(PRESENTATION)

3.2 Network availability (April 2019 to March 2020)

NETWORK AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
99.99	99.97	99.99	99.98	100	99.84	99.94	100	99.99	99.98	99.98	99.98

Average = 99.97%

3.3 Network availability (April 2020 to March 2021)

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

Average = 99.98%

3.4 MMC AVAILABILITY (April 2019 to March 2020)

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

Average = 100%

3.5 MMC AVAILABILITY (April 2020 to March 2021)

MMC AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
100	100	100	100	99.93	99.91	100	100	100	100	99.98	100

Average = 99.99%

3.6 AFTN circuit availability (April 2019 to March 2020)

AFTN CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
99.99	99.77	99.96	99.96	99.97	99.88	99.75	99.87	99.90	99.56	99.91	99.98

Average = 99.50%

3.7 AFTN circuit availability (April 2020 to March 2021)

AFTN CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
98.83	97.17	97.82	100	99.98	99.72	99.99	99.91	99.94	99.78	99.91	99.98

Average = 99.42%

3.8 ATS/DS circuit availability (April 2019 to March 2020)

ATS/DS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
99.98	99.91	99.99	99.98	99.99	99.73	99.92	99.52	99.75	99.92	99.91	99.94

Average = 99.87%

3.9 ATS/DS circuit availability (April 2020 to March 2021)

ATS/DS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
97.80	94.66	95.95	99.98	99.99	99.80	99.98	99.96	99.96	99.95	100	99.99

Average = 99.00%

3.10 AMHS circuit availability (April2019 to March2020)

AMHS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
8,33	8,32	8,33	8,33	12,50	12,50	12,49	12,50	12,50	12,49	16.67	16.66

Average = 11.80%

3.11 AMHS circuit availability (April2020 to March2021)

AMHS CIRCUIT AVAILABILITY											
Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
16.66	16.67	16.67	16.67	16.67	16.67	16.67	16.66	16.66	16.57	16.67	16.67

Average = 16.66%

3.12 Data collected on Services (April 2019 to March 2020)

Number of voice calls recorded since April 2019 to March 2020 = 536 983

Number of Bytes transmitted since April 2019 to March 2020 = 6,246,531,255

3.13 Data collected on Services (April 2020 to March 2021)

Number of voice calls recorded since April 2020 to March 2021 = 91 876

Number of Bytes transmitted since April 2020 to March 2021 = 351,755,162

3.14 Yearly comparative availabilities

Yearly Network availability

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average	99.94	99.9	99.93	99.97	99.95	99.88	99.93	99.97	99.98

Average = 99.94%

Yearly AFTN availability

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average	99.92	99.84	99.9	99.96	99.93	99.75	98.5	99.50	99.42

Average = 99.64%

Yearly ATS/DS availability

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average	99.87	99.79	99.9	99.94	99.91	99.66	98.4	99.87	99.00

Average = 99.59%

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 submit 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 SADC 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