INTERNATIONAL CIVIL AVIATION ORGANIZATION
NINTH MEETING OF THE NAFISAT SUPERVISORY COMMITTEE
(NAIROBI, KENYA, 18-20 MARCH 2014)

Agenda Item 8.a: Operation, maintenance and performance of Network

(Presented by ATNS)

SUMMARY
This paper summarizes the operation, maintenance and performance of the NAFISAT network.
Reference: Report -   FRC call record -   Interconnectivity between other Networks -   Network availability -   AFTN circuit availability -   ATS/DS circuit availability -   Four level reporting structure

1   INTRODUCTION: Operation and maintenance of the Network

1.1   The ATNS Fault Reporting Center continues to provide a 24 hrs service. The summary of the calls are given for the period of April 2013 to February 2014

2   Discussion

2.1   The successful maintenance of the system is achieved through the continuous commitment and assistance of the relevant States. The ongoing training of Engineers on the VSAT system and equipment has proven to be successful in raising the skill level of the participating technical and engineering members in the NAFISAT region. The interaction of ATNS staff and these trained Engineers had positive and beneficial results in terms of minimizing the corrective maintenance trips.

2.2   **Occurrences reported to FRC**:

Total: FRC   = 137

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
FRC	10	12	12	11	10	17	6	16	13	14	16	0	137
Corrective	5	10	8	9	5	8	2	8	5	6	8		74
Preventative	1	1	0	1	2	2	0	1	1	1	0		10
No Fault	3	0	1	1	1	4	3	5	4	1	3		26
External	1	1	3	0	2	3	1	2	3	6	5		27

Corrective   – 74
Preventative   – 10
No Fault found – 26
External   – 27

2.3   ATNS noted an increase in the occurrences reported to FRC and more specifically related to RFT, IDU and MEMOTEC failures.

2.4   Trend of failure of the following units has increased.
>   RFT units
>   RF switches
>   UPS
>   Multiplexer and IDU resets.

2.5   An agreement with the OEM has been reached to increase the capacity of the spares and the turnaround time of repairs to ensure the continuation of availability of the identified spares as well as meeting the Network service Level Availability.

2.6   The obtaining of LOI's and VISAS has improved and difficulties were dealt with on an individual basis with the relevant States.

2.7   The clearance of equipment and spares has received great effort and support from some States. Isolated instances were reported where it is still a lengthy process. Some States require the involvement of a local shipping agent for the clearance of equipment and results in increase of costs and also delays in having the equipment and spares cleared even if ATNS supplies a list of spares with the serial numbers prior to travel.

The involvement of Civil Aviation Authorities is crucial in the speedy process of custom clearance.

3.   Interoperability

3.1   The interoperability and interconnectivity between VSAT networks in the AFI Region is crucial. ATNS remains committed to the seamless operation of these networks. Maintenance and monitoring of interconnections are performed with the assistance of the related network managers in the region. ATNS is closely monitoring and recording the interoperability between NAFISAT, SADC VSAT II and AFISNET.

			Availability
NAFISAT - SADC interconnectivity			99.91%
NAFISAT - AFISNET interconnectivity			99.99%

4.   Performance of the Network

4.1   Data was collated from April 2013 to February 2014 and is presented to the meeting for information.

PRESENTATION

4.2   Network availability without Jeddah in equation

NETWORK AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.99	99.99	100	99.99	99.98	99.83	99.99	99.97	99.99	99.92	99.99	

Average = 99.97%

4.3   Network availability with Jeddah in equation

NETWORK AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.99	96.30	91.67	91.65	96.62	99.83	99.99	99.97	99.99	99.92	99.99	

Average = 97.81%

4.4   AFTN circuit availability

AFTN CIRCUIT AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.99	93.68	85.70	85.69	94.19	99.83	99.99	99.94	99.98	99.86	99.99	

Average = 96.26%

4.5   ATS/DS circuit availability

ATS/DS CIRCUIT AVAILABILITY											
Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
99.98	95.32	89.43	89.34	95.71	99.74	99.98	99.96	99.97	99.87	99.98	

Average = 97.21%

5.   **Four level reporting structure as proposed by ICAO**

5.1   During SNMC 20 reference was made to a performance reporting structure of VSAT networks on 4 different levels.
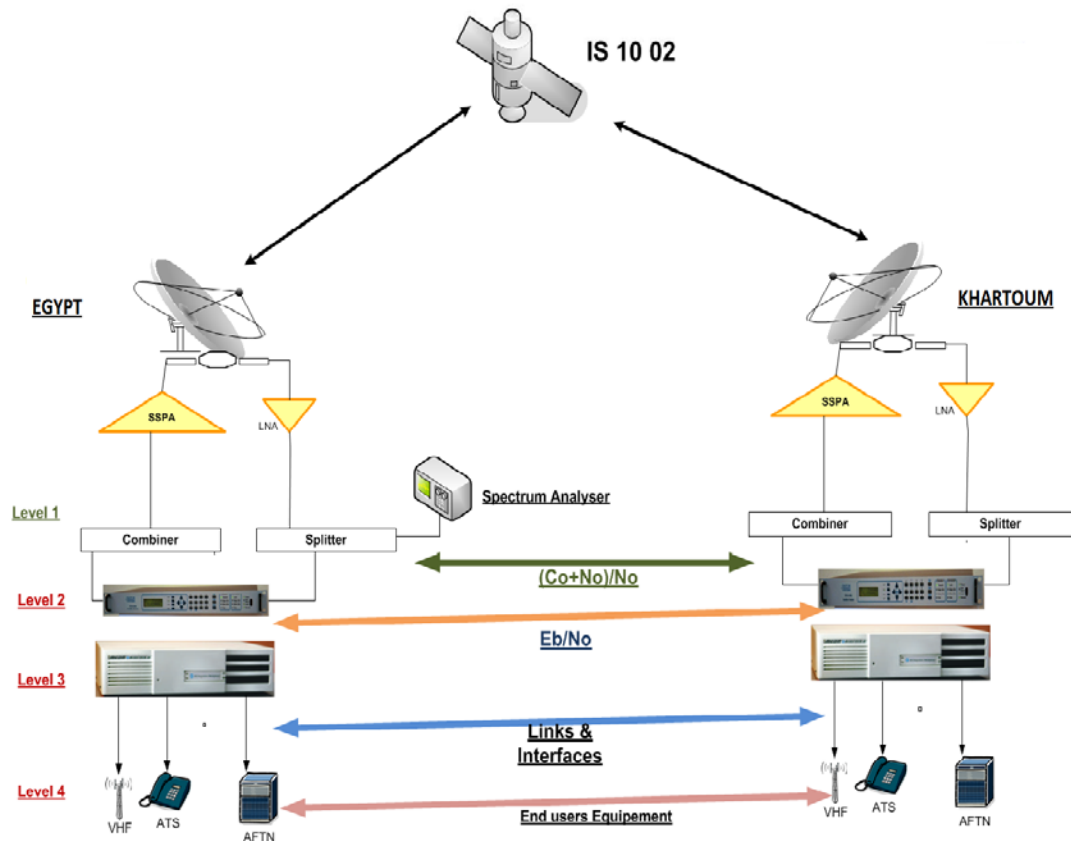
>   Level 1 captures the space segment of the network.
>   Level 2 captures the RF and related equipment.
>   Level 3 captures the multiplexer or interfaces.
>   Level 4 captures the end user equipment.

This proposed document was circulated and ATNS will comment and contribute at next ICAO meeting discussing this topic.

5.2   ATNS is currently applying all necessary systems to capture all parameters required to produce the 4 different levels of statistics. The NAFISAT system with its current configuration is not capable of producing all the parameters required and will ensure that future upgrades will have this functionality.

	Addis Ababa	Asmara	Cairo	Djibouti	Entebbe	Jeddah
TX (dBm)	40.00	40.00	45.00	42.00	37.00	34.00
Es / No	10.15	10.09	10.07	7.62	10.04	7.92

	Khartoum	MMC	Mogadishu	Nairobi	Sana'a	Tripoli	Victoria
TX (dBm)	41.00	38.00	41.00	41.00	40.00	39.00	39.00
Es / No	9.48	11.14	9.46	9.54	10.16	11.09	9.60

5.3   A template for the capturing of level 4 outages for ATS/DS and AFTN services was distributed to all States. Feedback with regards to end user outages will assist in capturing the level 4 statistics.

5.4   Currently the statistics for NAFISAT are recorded and extracted on the ATNS MMS against the 4 levels but only faults reported to ATNS FRC are recorded on level 4.

6.   **Distribution of statistics**

6.1   Distribution of statistics is done on a monthly basis.

6.2   Statistics are published on the ATNS website monthly for State Members to view.

7.   **ACTION TO BE TAKEN BY THE MEETING**

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

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

7.3   States are requested in assisting with the difficulties experienced at the respective customs for the clearing and releasing of equipment and spares.

7.4   A laminated fault reporting procedure is supplied to all stations where all contact details are indicated.

7.2   States are urged to report all NAFISAT network faults to the ATNS FRC on + 2711 9286477 or frc@atns.co.za and to copy to the Satellite manager ruip@atns.co.za.

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