



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**  
**TENTH MEETING OF THE NAFISAT SUPERVISORY COMMITTEE**  
**(SHARM EL-SHEIKH, EGYPT, 21-24 APRIL 2015)**

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**Agenda Item 9(c) NAFISAT Network Upgrade: AFISNET Interface**

*(Presented by Sudan)*

**1. Introduction**

1.1 During the events of the Tenth Meeting of NAFISAT Supervisory Committee, member states will be invited to sign the new MOU that extend the operation and utilization of the NAFISAT network till 2022.

1.2 As a result to this new agreement ATNS developed a plan to upgrade the network by replacing the satellite modem and the Multiplexer (IDU7000 & FAD).

1.3 This upgrade will enhance the reliability and availability of the network; more over ensure the implementation of the new listed ANS applications, especially the connection of the AMHS systems through IP-Base directly from the IDU7000 instead of using existing serial connections through the Multiplexers as illustrated in the upgrade proposal diagram

Unfortunately the proposed network upgrade not included the MCPC devices (Datum) combined with NDSatcom platform in states that has especial connections with non NAFISAT members because the upgrade of these devices is subject to AFISNET (ASECNA) entire network upgrade which is not yet determent.

**2. Khartoum NAFISAT Station**

2.1 Sudan position is located approximately in the middle of the NAFISAT group, this location imposed to have a communication circuits with many neighboring States even that not member in the NAFISAT group like N'djamena and Brazzaville

The services implemented are:

- ATS D/S with: Cairo , Addis , Asmara , N'Djamena , Brazzaville , Tripoli , Jeddah , Nairobi , Entebbe , and Kinshasa
- AFTN circuits with: Cairo , Tripoli , Addis , Asmara , N'Djamena , and Jeddah

The topology of the system in the Sudan is consist of

- NDSatcom platform (TDMA)
- MCPC connection with N'Djamena and Brazzaville (Datum)
- Multiplexer (Memetic)

**3. Migration from AFTN to AMHS Services**

3.1 Since 2012 SUDAN had upgraded its AFTN and migrated to the AMHS system applications, but till now the services not connected and implemented with all adjacent neighboring states because of the lack of means of communication on the IP-Base which is not applicable with the existing NAFISAT network

#### **4. Network Performance**

4.1 The performance of Khartoum station is very good with the all related NAFISAT member states circuits which are using NDSatcom platform, but the performance of the AFISNET circuits which are using the MCPC platform (N'Djamena & Brazzaville) are not so much perfect because there was a lot of problems occurred during the last period of network operation (especially in the ATS/DS) also the response for maintenance was not always good because of indirect contacts with AFISNET service provider.

#### **5. Proposed Solution for AFISNET interface (ASECNA)**

##### **Option one (existing option)**

To add MCPC device (Datum) to the NDSatcom device (IDU7000) in the NAFISAT states that has a direct connection with AFISNET states

##### **Option two (proposed by SUDAN)**

To add NDSatcom device (IDU7000) to the existing MCPC in the AFISNET states that have a direct connection with NAFISAT states (no need to add MCPC device in the NAFISAT states)

**IF option (2) technically approved SUDAN strongly supported this option and invite all related member states to support this option because of the following advantages:**

- Only NDSatcom device will be exist in the NAFISAT member states (no MCPC devices needed) this make maintenance and fault reporting much easier and under control by the network service provider (ATNS)
- Enhance the reliability and quality of the services especially the ATS/DS
- Ensure the upgrade of all NAFISAT network equipment's regardless of AFISNET network upgrade which is not yet determent
- Ensure the connection of the AMHS on IP-Base directly from the IDU7000 modem even the AFISNET network not upgraded.

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