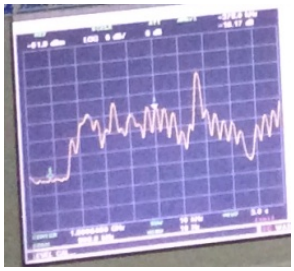
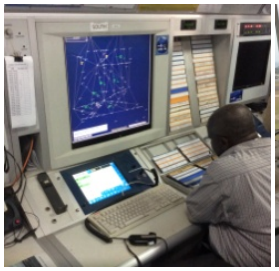
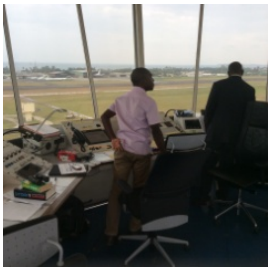
Audit Addendum

African and Indian Ocean Satellite Network

Audit Services

for the

AFISNET Network

Prepared by:

adpi

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Disclaimer

The goal of this Addendum No. 2 is to revise the roadmap of chapter 6.5 (pages 118) of the Final Audit Report, in order to define clearly the responsibilities of the different AFISNET stakeholders.

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Reference Sheet

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A	Addendum No. 2	Alain Gay	18 December 2015
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Prepared by	Alain Gay	Project Manager		17 December 2015
Checked by	Jean-Pierre Cochet	CNS/ATM Expert		18 December 2015
Approved by	Mathilde Jeanvoine	Division Manager		18 December 2015

Table of Contents

6.5 Evolution Roadmap

Stakeholder	Stage 1	Stage 2	Stage 3	Stage 4
SNMC	1 - SNMC should be the guarantor of AFISNET's evolutions according to the ASBU framework (as recommended by conclusion 8.1). 2 - SNMC should define the contingency procedures in case of AFISNET's breakdown taking into consideration all new CNS/ATM services. 3 - SNMC should conduct all necessary actions to protect the C-Band satellite (as recommended by conclusion 8.3). 4 - SNMC should supervise all evolutions of the Network. 5 - SNMC should coordinate AFISNET Maintenance Plan and Training (according to conclusions 8.10 and 8.11). 6 - SNMC should monitor the performance of the network. 7 - SNMC should create a technical and operative working team, as a ''Technological Watch Group'' to insure the consistency of the evolution of AFISNET (as recommended by conclusion 8.9). 8 - SNMC should launch the studies about the RF AFISNET traffic then about the evolution of the Network architecture (as recommended by conclusions 8.6 and 8.7). 9 - SNMC should launch study for IP Plan within AFISNET (as recommended by conclusion 8.5)	1 - SNMC should be the guarantor of AFISNET's evolutions according to the ASBU framework (as recommended by conclusion 8.1). 2 - SNMC should define the contingency procedures in case of AFISNET's breakdown taking into consideration all new CNS/ATM services. 3 - SNMC should conduct all necessary actions to protect the C-Band satellite (as recommended by conclusion 8.3). 4 - SNMC should supervise all evolutions of the Network. 5 - SNMC should coordinate AFISNET Maintenance Plan and Training (according to conclusions 8.10 and 8.11). 6 - SNMC should monitor the performance of the Network. 7 - SNMC should coordinate the States and Organizations Members for the implementation of Network architecture recommended by the Technological Watch Group. 8 - SNMC should coordinate the States and Organizations Members for the implementation of IP Plan recommended by the Technological Watch Group. 9 - SNMC should launch a study about the separation at the RF stage of the stations between CNS/ATM services and other services (as proposed in chapter 6.2.2). 10 - SNMC should launch a study for a common ''Hypervision'' system of the Network for all Members and which will be able to manage the new Network architecture (as proposed in chapter 4.4.3). 11 - SNMC should launch study to define the most appropriate Computer Managed Maintenance System (CMMS) for airport equipment and AFISNET (as proposed in chapter 4.7).	1 - SNMC should be the guarantor of AFISNET's evolutions according to the ASBU framework (as recommended by conclusion 8.1). 2 - SNMC should define the contingency procedures in case of AFISNET's breakdown taking into consideration all new CNS/ATM services. 3 - SNMC should conduct all necessary actions to protect the C-Band satellite (as recommended by conclusion 8.3). 4 - SNMC should supervise all evolutions of the Network. 5 - SNMC should coordinate AFISNET Maintenance Plan, also the CMMS implementation and the Training (according to conclusions 8.10 and 8.11). 6 - SNMC should monitor the performance of the Network. 7 - SNMC should coordinate the States and Organizations Members for the implementation of Network architecture recommended by the Technological Watch Group. 8 - SNMC should coordinate the States and Organizations Members for the separation of the CNS/ATM services from others. 9 - SNMC should coordinate the States and Organizations Members for the implementation of a common ''Hypervision'' system of the Network. 10 - SNMC should launch a study for the integration of the new CNS/ATM services within AFISNET (as recommended by conclusion 8.8): o Radar/ADS-B (as proposed in chapter 6.3.1) o AIDC (as proposed in chapter 6.3.4) o WIS (as proposed in chapter 6.3.2) o GNSS (as proposed in chapter 6.3.7)	1 - SNMC should be the guarantor of AFISNET's evolutions according to the ASBU framework (as recommended by conclusion 8.1). 2 - SNMC should define the contingency procedures in case of AFISNET's breakdown taking into consideration all new CNS/ATM services. 3 - SNMC should conduct all necessary actions to protect the C-Band satellite (as recommended by conclusion 8.3). 4 - SNMC should supervise all evolutions of the Network. 5 - SNMC should coordinate AFISNET Maintenance Plan also the CMMS implementation and the Training (according to conclusions 8.10 and 8.11). 6 - SNMC should monitor the performance of the Network. 7 - SNMC should coordinate the States and Organizations Members for the implementation of the new CNS/ATM services within AFISNET.

Table 6.5-1 Evolution of AFISNET Network roadmap

Stakeholder	Stage 1	Stage 2	Stage 3	Stage 4
Technological Watch Group	1 - Technological Watch Group should perform risk assessments for all existing CNS/ATM services of AFISNET and in priority in case of satellite failure (as recommended by conclusion 8.2). 2 - Technological Watch Group should study the RF traffic on AFISNET, design the most adequate Network architecture (topology, transmission mode, protocol, etc.) then define the corresponding equipment (antenna, amplifier, converter, modem, etc.) taking into consideration the existing Network (as recommended by conclusions 8.6 and 8.7). 3 - Technological Watch Group should define the priority for the hardware harmonization (as proposed in chapter 4.1): o Radio Frequency remote station standardization o Modem standardization o FRAD standardization o Redundancy configuration Supervision	1 - Technological Watch Group should perform risk assessments for any new service implemented on AFISNET. 2 - Technological Watch Group should define IP Plan within AFISNET for optimization (as recommended by conclusion 8.5). 3 - Technological Watch Group should study the migration of existing CNS/ATM services over IP: o AFTN to AMHS (as proposed in chapter 6.3.3) o ATS/DS (as proposed in chapter 6.3.6) o VHF (standard ED 137 as proposed in chapter 6.3.5) 4 - Technological Watch Group should study the separation between the CNS/ATM services and other services at RF stage of the stations (as proposed in chapter 4.3.1.2). 5 - Technological Watch Group should study a consistent and common ‘‘Hypervision’’ system for all Members and which will be able to manage the new Network architecture.	1 - Technological Watch Group should perform risk assessments for any new service implemented on AFISNET. 2 - Technological Watch Group should study the integration of new CNS/ATM services within AFISNET: o Radar/ADS-B (as proposed in chapter 6.3.1) o AIDC (as proposed in chapter 6.3.4) o WIS (as proposed in chapter 6.3.2) o GNSS (as proposed in chapter 6.3.7)	1 - Technological Watch Group should perform risk assessments for any new service implemented on AFISNET.

Table 6.5-1 Evolution of AFISNET Network roadmap

Stakeholder	Stage 1	Stage 2	Stage 3	Stage 4
States and Organizations Members	1 - States and Organizations Members should manage their spare parts and improve the Maintenance and Training Plants (as proposed in chapter 4.7). 2 - States and Organizations Members shall support SNMC in ITU conferences for the protection of the C-Band (as proposed by conclusion 8.3). 3 - States and Organizations Members should implement the hardware harmonization defined by the Technological Watch Group (as recommended by conclusion 8.4). 3 - States and Organizations Members should improve their supervision systems (as proposed in chapter 4.4.1): o HUBs RF devices integration, o All CNS devices integration. 4 - States and Organizations Members should perform the migration of SADIS through Internet (as proposed in chapter 6.3.2).	1 - States and Organizations Members should manage their spare parts and improve the Maintenance and Training Plants (as proposed in chapter 4.7). 2 - States and Organizations Members shall support SNMC in ITU conferences for the protection of the C-Band (as proposed by conclusion 8.3). 3 - States and Organizations Members should implement substantive harmonization defined by the Technological Watch Group. First it might be possible to simplify the architecture of RF stations by the standardization of the L Band modem: o Suppression of modem 70/140 MHz (as proposed in chapter 4.1.6). o Suppression of converter 70/140 MHz/L band (as proposed in chapter 4.1.5) 4 - States and Organizations Members should implement the migration of their supervision systems to PC Vue (as proposed in chapter 4.4.2) 5 - States and Organizations Members should modify the architecture of their stations in order to meet the new AFISNET architecture defined by the Technological Watch Group.	1 - States and Organizations Members should manage their spare parts and implement the Maintenance and Training Plants (as proposed in chapter 4.7). 2 - States and Organizations Members shall support SNMC in ITU conferences for the protection of the C-Band (as proposed by conclusion 8.3). 3 - States and Organizations Members should implement substantive harmonization defined by the Technological Watch Group. It might be possible to simplify the architecture of RF stations by: o The implementation of BUC amplifier when power lower than 100W (as proposed in chapter 4.1.4) o The suppression of converter L/C Band (as proposed in chapter 4.1.5). 4 - States and Organizations Members should modify the architecture of their stations in order to meet the new AFISNET architecture defined by the Technological Watch Group 5 - States and Organizations Members should implement the separation of RF between CNS/ATM services and others services (as proposed in chapter 4.3.1.2).	1 - States and Organizations Members should manage their spare parts and implement the Maintenance and Training Plants (as proposed in chapter 4.7). 2 - States and Organizations Members shall support SNMC in ITU conferences for the protection of the C-Band (as proposed by conclusion 8.3). 3 - States and Organizations Members should implement substantive harmonization defined by the Technological Watch Group. After migration to new AFISNET architecture It might be possible to simplify the architecture of RF stations by: o The suppression of the FRAD for the HUB interconnections 4 - States and Organizations Members should implement new CNS/ATM services in their stations.
Earth Stations	1 - Earth Stations should update and manage properly their documentations (as proposed in chapter 4.5.6). 2 - Earth Stations should revise the Wiring/Cabling in order to clean and simplify the interconnections in the electronic cabinets (as proposed in chapter 4.5.4).	1 - Earth Stations should implement the migration to AMHS. 2 - Earth Stations should improve their supervision systems (as proposed in chapter 4.4.2). 3 - Earth Stations should implement substantive harmonization defined by the Technological Watch Group. First it might be possible to simplify the architecture of RF stations by the standardization of the L Band modem: o Suppression of modem 70/140 MHz (as proposed in chapter 4.1.6). o Suppression of converter 70/140 MHz/L band (as proposed in chapter 4.1.5) 4 - Earth Stations should implement the migration of their supervision systems to PC Vue (as proposed in chapter 4.4.2) 5 - Earth Stations should modify the architecture of their stations in order to meet the new AFISNET architecture defined by the Technological Watch Group.	1 - Earth Stations should implement substantive harmonization defined by the Technological Watch Group. It might be possible to simplify the architecture of RF stations by: o The implementation of BUC amplifier when power lower than 100W (as proposed in chapter 4.1.4) o The suppression of converter L/C Band (as proposed in chapter 4.1.5). 2 - Earth Stations should modify the architecture of their stations in order to meet the new AFISNET architecture defined by the Technological Watch Group 3 - Earth Stations should implement the separation of RF between CNS/ATM services and others services (as proposed in chapter 4.3.1.2).	1 - Earth Stations should implement substantive harmonization defined by the Technological Watch Group. After migration to new AFISNET architecture It might be possible to simplify the architecture of RF stations by: o The suppression of the FRAD for the HUB interconnections 2 - Earth Stations should implement new CNS/ATM services in their stations.

Table 6.5-1 Evolution of AFISNET Network roadmap

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