INTERNATIONAL CIVIL AVIATION ORGANIZATION

Second Meeting of the AFI AMHS Implementation Task Force (AFI AMHS/I/TF/2)

(Dakar, Senegal, 30 – 31 May 2013)

FINAL REPORT

Prepared by ICAO WACAF Office

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1. Introduction

The Second Meeting of the AFI ATS Message Handling System Implementation Task Force (AFI AMHS /I/ TF/2) was held at the ASECNA's Ecole Regionale de la Navigation Aerienne et du Management (**ERNAM**), Dakar, Senegal, from 30 to 31 May 2013.

2. Objecting

The main objective of the Task Force was to review the status of implementation of AMHS within the AFI region and to assess whether the guidance to the standardization and the harmonization of the implementation process is met within the Region.
The meeting also reviewed the AFI AFTN Directory in preparation of the updated AFI AMHS/ATN routing Table.

The meeting was preceded by a two-day workshop on ATS Message Handling System (AMHS), the main objective of which was to provide an overview of the AMHS concept, system level provisions, detailed technical specifications and AFTN/AMHS gateway specifications, based on the provisions contained in ICAO Annex 10 Aeronautical Telecommunications, Volume III and Manuals related to the matter (Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Doc 9880), and Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896)).

3. Attendance

The meeting was attended by Fifty One (51) participants from seventeen (17) Contracting States, One international Organization, namely **AFCAC**, five (05) Air Navigation Service Providers (**ASECNA** acting on behalf AFI 18 Contracting States, **ATNS**, **GCAA**, **NAMA**, **Roberts FIR**) and an AMHS facilities manufacturer, namely INDRA/ AVITECH. COMFSOFT, a second AMHS facilities manufacturer attended the Workshop.
A list of participants is provided at **Appendix A.**

4. Officers and Secretariat

The meeting nominated **Mrs. Lindi-Lee KIRKMAN** from ATNS/ South Africa as Chairperson. **Mr. Francois Xavier SALAMBANGA**, Regional Officer, Communication, Navigation and Surveillance (CNS) from the ICAO Regional Office for Western and Central Africa (Dakar), acted as Secretary of the AFI AMHS Implementation Task Force.

5. Working language

The meeting was conducted in English and the meeting documentation was issued in this language.

6. Opening

The meeting was opened by Mr. **Mam Sait JALLOW**, ICAO Regional Director WACAF, Dakar, assisted by Mr**. Eugenio NSU**E Director of ERNAM, ASECNA.

7. Agenda

Agenda Item 1: Election of the Chairperson and Vice-Chairperson of the AMHS Planning Task Force

Agenda Item 2: Review of the conclusions/decisions of the First Meeting of the AFI AMHS
Implementation Task Force

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AMHS in the AFI Region

Agenda Item 7: Terms of Reference Future work programme and composition of the AMHS Planning
Task Force

Agenda Item 8: Any other business

8. Summary of Conclusions and Decisions

The following conclusions and decisions were formulated by the Task Force

Number	Title
Agenda Item 1	**Election of the Chairperson of the AMHS Planning Task Force**
	NIL
Agenda Item 2	**Review of the conclusions/decisions of the First Meeting of the AFI AMHS Implementation Task Force**
Draft conclusion 2/01	*AMC Registration* **That,** **States/Organizations implement conclusion 1/ 07 of the 1st meeting of AFI/AMHS/TF by:** **a)** **designating representatives to register as AMC users;** **b)** **ensuring that the designated AMC users are duly trained on AMC Web based training platform before they are actually allowed to enter data in the AMC http://www.eurocontrol.int/amc ; and** **c) Communicate to the relevant ICAO Regional Office the details of the designated AMC users to facilitate their accreditation enabling them to access the ATS Messaging Management Centre (AMC).**
Agenda Item 3	**Planning and implementation of AMHS**
Draft Conclusion 2/02	*Completion of the AFI AMHS Manual* **That;** **The AFI AMHS Manual, Main Part is amended and aligned with the EUR AMHS Manual version 8.0 as applicable**
Draft Decision 2/03	*Completion of the AFI AMHS Manual Appendices A, B, C,D, E F* **That;** **In accordance with the AFI/AMHS/I/TF Terms of Reference and assignment of responsibilities, the original team that compiled the AFI AMHS Manual Appendixes A. B, C, D, E & F finalize these documents using a refined EUR AMHS Manual Appendixes to comply with the AFI specific terminology.**
Draft Decision 2/04	*AFI IP Infrastructure Test Guidelines* **That;** **By the end of July 2013, an IP Infrastructure Test Guidelines for the AFI region be drafted by ASECNA and Nigeria, to be circulated to the team members for comments and completion in order to conduct IP infrastructure Tests for ensuring IP connectivity between AMHS application systems**
Draft Conclusion 2/05	*Survey of the status of implementation of AMHS in AFI region and in AFI neighboring regions* **That;** **The secretariat pursue the conduct of the survey of the status of implementation of AMHS in the AFI region, coordinate to obtain the evolving status of implementation of AMHS in AFI neighboring regions and circulate the result to States/Organizations for consideration**

Number	Title
Draft Conclusion 2/06	*Survey on Interregional planned links* **That;** **States contiguous to AFI neighboring regions endeavor to obtain AMHS implementation status data with respect to the direct interregional planned link.**
Draft Conclusion 2/07	*AFI AMHS Training Guidelines* **That;** **By the end of August 2013 South Africa and Botswana to develop Training Guidelines for staff that operates and maintains COM Centres with AMHS capabilities in the Region. The document will be drafted and circulated to the team members for comments and completion.**

Draft Conclusion 2/08	*Need of training on AMHS for AFI operational and technical personnel*
	
	That;
	
	a) **States/Organizations are encouraged to:**
	   ▪ **Expedite the development and the implementation of consolidated training plans and programmes for operational and technical personnel;**
	   ▪ **Take training opportunity and capability offered by current training centers within the Region to reinforce the capacity of their operational and technical personnel**
	
	b) **ICAO pursue its efforts in supporting the AFI States through training, Regional, Workshops and seminars on AMHS systems.**

Draft Conclusion 2/09	**Security policy on AMHS application** **That;** **In the future activities of the Task Force, States and Organizations consider Security Policy to be included in the guidance materials for the implementation of AMHS.**
Agenda Item 4	**Review/update of AFI AFTN Directory**
Draft Decision 2/10	*Amendment and update to the AFI AFTN directory* **That;** **The AFI AFTN Directory is amended as presented in Appendix D** **States that have not done so update the AFTN directory by the end of June 2013**
Agenda Item 5	**Overview of AMHS in the framework of ICAO ASBU concept**
Draft Decision 2/11	*Implementation of AMHS in the framework of ICAO ASBU concept* **That;** **When implementing AMHS, States/Organizations align their strategy, plan and guidance materials with ICAO Aviation Systems Blocks Upgrades (ASBU) schedule and with Roadmaps for CNS technologies.**
Agenda Item 6	**Review of the Recommendations of the Second Workshop on the implementation of AMHS in the AFI Region**
Draft conclusion 2/12	*Endorsement of the Recommendations of the Second Workshop on the implementation of AMHS in the AFI Region* **That;** **Taking into consideration the work done by the Task Force, the recommendations of the AFI second Regional Workshop on AMHS held in Dakar from 28 to 29 May 2013 are endorsed as presented in Appendix E by the AFI AMHS/I/Task Force for consideration in addressing its Work Programme**

Number	Title
Agenda Item 7	**Work Programme and Composition of the AMHS Implementation Task Force, and Assignment of Responsibilities and Timelines for identified Activities**
Draft Conclusion 2/13	*Terms of Reference, Composition and Work Programme of AFI/AMHS/I/TF* **That,** **The Terms of Reference, Composition and Work Programme and assignment of responsibilities of AFI/AMHS/I/TF are amended as presented in Appendix F**
Agenda Item 8	**Any other Business**
	NIL

PART II – REPORT ON AGENDA ITEMS

Agenda Item 1: Election of the Chairperson and Vice-Chairperson of the AMHS Planning Task Force

Under this Agenda Item, the meeting elected **Mrs Lindi-Lee KIRKMAN** from ATNS/ South Africa as Chairperson of the AFI AMHS Planning Task Force in accordance with its Terms of reference.

Agenda Item 2: Review of the conclusions/decisions of the First Meeting of the AFI AMHS Implementation Task Force

2.1   Under this Agenda Item, the Task Force reviewed the status of implementation of the conclusions and decisions of the first meeting of AFI AMHS Implementation Task Force held in Nairobi from 19 to 20 may 2011. The Secretariat reported on the lack of feedback encountered on the status of implementation of some of these conclusions and decisions.

2.2   Based on report by the participants the meeting noted some progress made in the implementation of the conclusion and decision of the first meeting of the AFI AMHS Task Force and encouraged States and Organizations to pursue their effort to implement the outstanding Conclusion/Decisions of the first meeting of the AFI/AMHS implementation Task Force.

2.3   The meeting made a review of the status of implementation of conclusion 1/07 of the first meeting of AFI AMHS Task Force and noted the low pace of designation of representatives by States to register as AMHS COM Centre (AMC) users and to be trained on the Web based platform in order to enter data in the AMC http://www.eurocontrol.int/amc for global coordination.

2.4   The meeting was reminded that EUR AMC was tasked to provide such training and to monitor data on AMHS in coordination with communication centres and management centres in other ICAO Regions focusing on aspects of global significance for international network management.
The following draft conclusion was formulated.

Draft conclusion 2/01- AMC Registration
That,
States/Organizations implement conclusion 1/ 07 of the 1st meeting of AFI/AMHS/TF by:
a)   designating representatives to register as AMC users;
b)   ensuring that the designated AMC users are duly trained on AMC Web based training platform before they are actually allowed to enter data in the AMC http://www.eurocontrol.int/amc ; and
c) Communicate to the relevant ICAO Regional Office the details of the designated AMC users to facilitate their accreditation enabling them to access the ATS Messaging Management Centre (AMC).

Agenda Item 3: Status of Planning and implementation of AMHS

3.1   Planning and Implementation Activities

3.1.1   Under this agenda item the meeting reviewed the planning and implementation activities by AFI States and by other neighbouring regions. The meeting noted the progress made in the implementation of AMHS in the AFI Region

as reflected in the table attached in <mark>**Appendix B**</mark> to this report. However it was agreed that AMHS systems are implemented with a low pace of establishment of international links so that the operational benefit from such implementation was not fully met.

3.1.2   Furthermore the meeting agreed that the status of implementation should be recorded in the table as attached at <mark>**Appendix C**</mark> (that will replace **Appendix B**) in order to ensure more efficient follow up of the status of implementation of AMHS in the region.

3.1.3   The meeting tasked a Working Group to review the AFI AMHS Manual (Main Part and Appendices) and make proposals for its update. It was agreed to adopt the AFI AMHS Manual, Main Part and its Appendices in line with the EUR AMHS Manual and Appendixes **A, B, C, D, E, F** versions 8.0 as applicable.
The following draft conclusion and decision were formulated.

Draft Conclusion 2/02 - Completion of the AFI AMHS Manual
That;
The AFI AMHS Manual, Main Part is amended and aligned with the EUR AMHS Manual version 8.0 as applicable.

Draft Decision 2/03 - Completion of the AFI AMHS Manual Appendices A, B, C, D, E F
That;
In accordance with the AFI/AMHS/I/TF Terms of Reference and assignment of responsibilities, the original team that compiled the AFI AMHS Manual Appendixes A, B, C, D, E and F finalize these documents using a refined EUR AMHS Manual Appendices to comply with the AFI specific terminology.

3.1.4   Examining the protocols candidate to support AMHS and in accordance with the existing AMHS system connectivity capabilities the meeting noted that neighbouring regions were considering the Internet Protocol Suite (IPS) as defined in ICAO Manual for the ATN using IPS Standards and Protocols (**Doc. 9896**). The meeting noted that the implementation should be conducted in the framework of regional air navigation agreements between States in accordance with Annex 10, Volume III, Part I, Chapter 3, and Paragraph 3.3.2. The meeting also discussed and came to the agreement that, in order to conduct IP infrastructure Tests for ensuring IP connectivity between AMHS application systems there was a need for the AFI region of an IP Infrastructure Test Guidelines. ASECNA and Nigeria were tasked to draft and circulate the Test Guidelines for comments and completion.
The following draft decision was formulated.

Draft Decision 2/04- AFI IP Infrastructure Test Guidelines
That;
By the end of July 2013, an IP Infrastructure Test Guidelines for the AFI region be drafted by ASECNA and Nigeria, to be circulated to the team members for comments and completion in order to conduct IP infrastructure Tests for ensuring IP connectivity between AMHS application systems

3.1.5   The meeting was briefed on the on-going strategy and status of implementation of AMHS in AFI neighbouring regions. The meeting noted for example that for MID Region, ATN implementation (therefore its components including AMHS implementation) will be IPS based and will maintain compatibility with AFTN, CIDIN and ISO/OSI based implementation and in close coordination with adjacent region and that phase out of any protocol will be based in close coordination within MID Region and with the adjacent Regions.

3.1.6   The meeting encouraged the secretariat to pursue the survey on the status of implementation of AMHS in AFI region and in AFI neighbouring region in order to ensure full interregional connectivity of AMHS systems.
The following draft conclusion was formulated.

Draft Conclusion 2/05 - Survey of the status of implementation of AMHS in AFI region and in AFI neighbouring regions
That;
The secretariat pursue the conduct of the survey of the status of implementation of AMHS in the AFI region, coordinate to obtain the evolving status of implementation of AMHS in AFI neighbouring regions and circulate the result to States/Organizations for consideration

3.1.7   The meeting also noted the need for concerned States/Organizations which are at the interface of AFI neighbouring regions to endeavour to obtain AMHS implementation technical and operational data with respect to the direct interregional planned links.
The following draft conclusion was formulated

Draft Conclusion 2/06 Survey on Interregional planned links
That;
 States contiguous to AFI neighbouring regions endeavour to obtain AMHS implementation status data with respect to the direct interregional planned links.

3.2   Development of guidance materials

3.2.1   Under this agenda item the meeting addressed issues related to the development of AFI AMHS Implementation Strategy, AFI AMHS Implementation Plan and Guidance Materials.

3.2.2   The meeting noted inter alia the general need for training for the operational and technical staff involved in the planning implementation and operation of AMHS.

3.2.3   It was agreed that due to complexity of AMHS systems an efficient training needs guidelines. Based on the experience gained by States the meeting tasked **Botswana** and **South Africa** to develop a draft Training Guidelines document to be circulated for comments and completion.
The following draft conclusions were formulated.

Draft Conclusion 2/07 - AFI AMHS Training Guidelines
That;
By the end of August 2013 South Africa and Botswana develop Training Guidelines for staff that operates and maintains COM Centres with AMHS capabilities in the Region. The document will be drafted and circulated to the team members for comments and completion.

3.2.4   The meeting also emphasised the need for States to develop training plans and programmes and to reinforce their cooperation by sharing the exiting capabilities of the training canters within AFI region;
The meeting recognized the effort deployed by ICAO to assist States by organizing seminars Workshops and encourage ICAO to pursue this support to the implementation process.
The following draft conclusion was formulated.

Draft Conclusion 2/08 - Need of training on AMHS for AFI operational and technical personnel
 That,
a) **States/Organizations are encouraged to:**
- **Expedite the development and the implementation of consolidated training plans and programmes for operational and technical personnel;**
- **Take training opportunity and capability offered by current training centres within the Region to reinforce the capacity of their operational and technical personnel**

b) ICAO pursue its efforts in supporting the AFI States through training, Regional, Workshops and seminars on AMHS systems.

3.2.5   The meeting also discussed in length on the issue related to the security of AMHS systems and was briefed on the on-going work undertaken by the appropriated ACP WGs. It was agreed that the security concerns apply to the whole automated ATM/CNS functions and applications.

3.2.6   The meeting was informed that USA FAA has already developed an AMHS Security Plan, Security Controls and Documentation aiming to tackling this issue. This document is being applauded by AFI neighbouring regions.

3.2.7   The meeting agreed on the need for the Task Force to develop a security policy to be included in the guidance materials for the implementation of AMHS in the AFI Region.
The following draft conclusion was formulated.

Draft Conclusion 2/09 Security policy on AMHS application
That;
In the future activities of the Task Force, States and Organizations consider Security Policy to be included in the guidance materials for the implementation of AMHS.

Agenda Item 4: Review/update of AFI AFTN Directory

4.1   The meeting tasked a Working Group to review and update the AFI AFTN directory in line with the development of the AFI ATN routing table. States which were attending the meeting provided the group with updated information. The meeting agreed on the necessity for the remaining States to provide the remaining information by end of June 2013. The current amended directory is attached at **Appendix D**
The following draft decision was formulated.

Draft Decision 2/10   Amendment and update to the AFI AFTN directory
That;
The AFI AFTN Directory is amended as presented in Appendix D
States that have not done so update the AFTN directory by the end of June 2013

Agenda Item 5: Overview of AMHS in the framework of ICAO ASBU concept

5.1   Under this Agenda Item, the meeting was briefed on ICAO Aviation System Blocks Upgrade Methodology. The ASBU Performance Improvement Areas, Blocks and Modules were introduced to the meeting with emphasis on those related to Ground/Ground applications.

5.2   The meeting noted in particular that the efficient implementation of ASBU modules such **as B0-AMET, B0-ASEP, B0-ASUR, B0-DATM, B0-FICE, B0-SNET, and B1-SWIM** will need an interoperable AMHS infrastructure supported by a robust ground/ground Aeronautical Telecommunication Network.

5.3   The meeting was also provided with a summary of   the CNS technologies roadmaps for ICAO ASBU developed by the ICAO 12th Air navigation Conference. It was agreed that the strategy and plan of implementation of AMHS in the AFI Region should be aligned with the Communication Roadmap.
The following draft decision was formulated.

Draft Decision 2/11   Implementation of AMHS in the framework of ICAO ASBU concept
That;
When implementing AMHS, States/Organizations align their strategy, plan and guidance materials with ICAO Aviation Systems Blocks Upgrades (ASBU) schedule and with Roadmaps for CNS technologies.

Agenda Item 6: Review of the Recommendations of the Second Workshop on the implementation of AMHS in the AFI Region

6.1   Under this agenda item, the meeting examined the recommendations of the second Workshop on the implementation of AMHS in the AFI region held in the same venue from 28 to 29 May 2013.This workshop organized with the collaboration of two AMHS facilities manufacturers (COMSOFT and INDRA /ADVANTECH) was attended by 51 participants from seventeen (17) Contracting States, One international organization, namely AFCAC, Six (06) Air Navigation Service Providers (ASECNA ,acting behalf AFI 17 Contracting States, ATNS (South Africa), NAMA (Nigeria), Roberts FIR , acting behalf Guinea, Liberia and Sierra Leone, GCAA (Ghana), ENANA (Angola)).

6.2   From presentations made by ATNS, Botswana, Ethiopia, Ghana, Tunisia, Zimbabwe and Roberts FIR the workshop shared technical experience gained in the AFI Region. The Workshop was updated by the industry on the evolving technology for AMHS and trends on protocols that will be used for the future.

6.3   The Workshop formulated Recommendations to be considered by the AFI AMHS Task Force such as the need for the reinforcement of AFI Ground-Ground Communication medium capability to support the implementation of AMHS, bilateral and multilateral Agreements , regional and interregional connectivity and interoperability through Network infrastructures tests, survey of the status of implementation of AMHS in the AFI neighbouring regions, update of the Strategy for the Implementation of AMHS in the AFI Region, National and Regional Security Policy and Regulation and training on AMHS for AFI operational and technical personnel.

6.4   The meeting endorsed these recommendations and encouraged States/Organizations to implement them in the framework of the Communications Roadmap defined by ICAO 12th Air Navigation Conference and contained in the 4th edition of the global Air navigation Plan (**GANP Doc. 9750 4th Ed**.).
The following draft conclusion was formulated.

Draft conclusion 2/12   Endorsement of the Recommendations of the Second Workshop on the implementation of AMHS in the AFI Region
That;

Taking into consideration the work done by the Task Force, the recommendations of the AFI second Regional Workshop on AMHS held in Dakar from 28 to 29 May 2013 are endorsed as presented in Appendix E, by the AFI AMHS/I/Task Force for consideration in addressing its Work Programme

Agenda Item 7: Terms of Reference Future work programme and composition of the AMHS Planning Task Force

7.1   Under this Agenda Item, the meeting reviewed the Terms of Reference, the work programme and Composition of the AMHS Implementation Task Force.

7.2   The meeting recognized that the primary ToRs of the AFI AMHS Implementation Task Force were developed based on the ICAO Global Plans Initiatives (**GPI**) and noted that the last 12th Air Navigation Conference developed the ICAO ASBU concept from which will derive the Global Air Navigation Plan and the AFI regional Air Navigation Plans to be implemented by APIRG.

7.3   The meeting therefore agreed that the AFI/AMHS/Implementation process may be tailored in the framework of this new concept. The Secretariat presented the updated Terms of Reference which was amended by the meeting and presented as attached in **Appendix F.**
The following draft conclusion was formulated.

Draft Conclusion 2/13 Terms of Reference, Composition and Work Programme of AFI/AMHS/I/TF
That,
The Terms of Reference, Composition and Work Programme and assignment of responsibilities of AFI/AMHS/I/TF are amended as presented in Appendix F

Agenda Item 8: Any other business

Under this Agenda Item, the Task Force proposed that issues related to ATN architecture and plan and directory be considered by the First Meeting of the APIRG Integrated Regional Telecommunication Infrastructure Task Force (IRTI/TF/1) for submission to CNS/SG/5th meeting.

APPENDIX A
Second Meeting of the AFI ATS Message Handling System Implementation
Task Force (AFI AMHS1/TF-2)
(Dakar, Senegal, 30 – 31 May 2013)

List of participants

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APPENDIX B

Status of implementation of AMHS in AFI Region

State/Organisation	Status of implementation	Operating Area	Remarks
Ethiopia	Implemented	Domestic	AFTN/AMHS Gateway Available
South Africa	Implemented	Domestic	AFTN/AMHS Gateway Available
Zimbabwe	Implemented	Domestic	AFTN/AMHS Gateway Available
Tunisia	Implemented	Domestic	AFTN/AMHS Gateway Available
Angola	Implemented	Domestic	AFTN/AMHS Gateway Available
Ghana	Implemented	Domestic	AFTN/AMHS Gateway Available
Morocco	Implemented	Domestic	AFTN/AMHS Gateway Available
Roberts FIR (Guinea, Liberia, Sierra Leone)	Implemented	Domestic	AFTN/AMHS Gateway Available
ASECNA (17 States members)	Being purchased		
Botswana	Implemented	Domestic	AFTN/AMHS Gateway Available
Mozambique	Planned for 2012		
Rwanda	Planned for 2014		
Sudan	Planned for 2012		
Uganda	Planned for 2014		
Tanzania	Planned for 2013		
Nigeria	Implementation to be completed by end of 2013		
Kenya	Implementation to be completed by end of June 2013		
Burundi	Planned for 2014		

INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICA OFFICE

AFI Message Handling System Implementation Table

APPENDIX C

TABLE OF IMPLEMENATATION OF AMHS

Country	Status of Implementation			Date of implementation	International links	Main Problems encountered & Mitigation solutions	Manufacturer	Registration AMC and Training	Remarks
	Planned/Purchasing	Pre-operational	Operational						
*South Africa			2009	2010/11	**Testing / Planned 2013 onwards**	none	Thales	completed	Full domestic implementation

* Note: Example with South Africa

APPENDIX D

AFI AFTN Directory

(See Attached file)

APPENDIX E

Summary of Recommendations of the AFI Second Workshop on AMHS held in Dakar, Senegal from 28 to 29 May 2013

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Summary of Recommendations

Second AFI Regional Workshop on AMHS

(Dakar, Senegal, 28–29 May 2013)

Prepared by ICAO Secretariat   **May 2013**

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1. Introduction

The Second Regional Workshop on the AFI ATS Message Handling System (AFI/AMS/WS/2) took place at the Ecole Regionale de la Navigation Aerienne et du Management, Dakar, Senegal from, 28 to 29 May 2013.

2. Objectives

The main objective of the workshop was to provide an overview of the AMHS concept, system level provisions, detailed technical specifications and AFTN/AMHS gateway specifications, based on the provisions contained in ICAO Annex 10, Aeronautical Telecommunications, Volume III, Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols (Doc 9880), and Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896).
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3. Attendance

The meeting was attended by 51 participants from seventeen (17) Contracting States, One international organization, namely AFCAC, Six (06) Air Navigation Service Providers (ASECNA (acting behalf AFI 17 Contracting States), ATNS, NAMA (Nigeria), Roberts FIR Guinea, Liberia, (Sierra Leone), GCAA (Ghana), ENANA (Angola)) and two (02) AMHS facilities manufacturers, namely INDRA/Avitech and Comsoft. A list of participants is provided at **Appendix** A.

4. Officers and Secretariat

Mr. Francois-Xavier SALAMBANGA, Regional Officer, Communications, Navigation and Surveillance (CNS) from the ICAO Regional Office for Western and Central Africa (Dakar), acted as Secretary of the AFI AMHS Implementation Workshop,

5. Working language

The meeting was conducted in English and the meeting documentation was issued in this language.

6. Opening

The meeting was opened by **Mr. Mam Sait JALLOW**, Regional Director WACAF, Dakar, assisted by Mr **Eugenio NSUE** Director of ERNAM, ASECNA

7. Agenda

The meeting adopted the following agenda:

1. Introduction

1.1 Overview

1.2 End systems providing the ATSMHS

1.3 Terminology

2. System Level Provisions

2.1 ATSMHS users

2.2 AMHS model

8. Recommendations

The meeting was provided with presentations from the secretariat, from ATNS, ASECNA, Ethiopia, Roberts FIR and Zimbabwe.

The industry provided the meeting with the ongoing evolving technology governing AMHS, demonstration and trials. After technical discussion the 2nd Workshop on the implementation of AMHS in the AFI region agreed on the following recommendations to the attention of the AFI AMHS Implementation Task Force scheduled to take place back to back with the Workshop.

Number	Title
Agenda Item 1	**Introduction:** *Overview- End systems providing the AMHS- Terminology*
Recommendation 2/01	**Reinforcement of AFI Ground-Ground Communication medium capability to support the implementation of AMHS** That, considering the critical role of the satellite VSAT based networks to support ATN components in particular AMHS within AFI, Administration/Organizations reinforce the capability of current Networks (AFISNET, CAFSAT, NAFISAT, and SADC/2) to comply with the requirements of AMHS in accordance with the specifications provided by ICAO relevant Documents (Annex 10)
Agenda Item 2	**System Level Provisions**
Recommendation 2/02	**Bilateral and Multilateral Agreements** That in accordance with the provision of AFI AMHS strategy, bilateral and multilateral agreements be concluded with the aim to ensuring compliance and full AMHS systems interoperability within AFI Region.
Agenda Item 3	**AMHS Specifications**
Recommendation 2/03	**Need of Network infrastructures tests** That, in accordance with interoperability requirements for the implementation of AMHS, AFI/AMHS/I/TF encourage States to conduct tests on the network infrastructure designed to support AMHS in the AFI Region.
Recommendation 2/04	**Interoperability of AMHS in the AFI Region** That, in accordance with interoperability requirements for the implementation of AMHS, AFI/AMHS/I/TF finalize AMHS guidance materials taking into consideration the existing AMHS systems.
Recommendation 2/05	**Interregional connectivity and interoperability of AMHS systems** That, AFI/AMHS/I/TF develop proposals to ensure interregional connectivity/interoperability between AMHS systems in the time frame of the AFI AMHS implementation Plan.
Recommendation 2/06	**Survey of the status of implementation AMHS in AFI neighboring regions** That, a survey of the status of implementation of AMHS in the AFI neighboring regions be updated in order to align the implementation of cost effective AFTN AMHS Gateway capability aiming to ensure seamless Aeronautical Fixed Service during the AMHS transition period.
Recommendation 2/07	**National and Regional Security Policy and Regulation** That, the AFI/AMHS/I/TF develop with the support of ICAO, guidelines for national and regional security policy and regulation for AMHS systems and applications.
Agenda Item 4	**AFTN/AMHS Gateway Specifications**
Agenda Item 5	**AMHS Implementation in the AFI Region**

Number	Title

Recommendation 2/08	**Update of the Strategy for the Implementation of AMHS in the AFI Region**
	That, following APIRG Conclusion 18/19 (AFI AMHS strategy) :
	    a) AFI AMHS strategy be reviewed taking into consideration, the experience gained by the States/Organizations who have already implemented AMHS systems;
	    b) The relevant documents be finalized to enable an efficient and coordinated implementation of AMHS in the Region.

Recommendation 2/09	**Need of training on AMHS for AFI operational and technical personnel**
	That ,
	a) States/Organizations are encouraged to:
	    ▪ Expedite the development and the implementation of consolidated training plans and programmes for operational and technical personnel;
	    ▪ Take training opportunity and capability offered by current training centers within the Region to reinforce the capacity of their operational and technical personnel
	b) ICAO pursue its efforts in supporting the AFI States through training, Regional Workshops and seminars on AMHS systems.

APPENDIX F

TERMS OF REFERENCE OF THE AFI AMHS IMPLEMENTATION TASK FORCE

Terms of Reference:

1) Conduct a comprehensive review of ICAO Standards and Recommended Practices for the Aeronautical Message Handling System (AMHS) application as specified in Annex 10 Volume II[3], chapter 4.6 and Annex 10 Volume III, Part I[26], chapter 3.5.3), ICAO Doc.9880 Part II[5] and Doc 9896;

2) Collect and analyze information on the status of AFI ANSP Aeronautical Message Handling System plan processing systems including ongoing upgrades to existing systems;

3) On the basis of the above, based on ICAO Global Air Navigation Plan and in accordance with relevant additional ICAO provisions, develop a coordinated AFI transition strategy and plan with associated timelines to enable the streamlined coordinated implementation of AMHS.

Considerations:

In addressing these terms of reference, the Task Force should consider, inter alia, the following aspects:

a) The implemented systems in the AFI Region could differ from systems in other ICAO Regions and accordingly provide recommendable Regional action with global goals;

b) Inter and intra-regional issues taking into consideration ICAO Aviation System Block Upgrades (ASBU) planning requirements;

c) Personnel training for operational migration from AFTN to AMHS;

d) AFS network backbone capability as defined by the AFI APIRG CNS/SG Task Force on integrated VSAT infrastructure;

e) Contingency arrangements for States that cannot comply by the due date;
- Way to handle staged implementations by States,
- Expectations across ANSPs with different implementation dates, and

f) Systems that transition early will need to be capable of handling both new and current instructions.

g) Inter-system exchanges need to take account of differing automation capabilities in order to avoid excessive message rejection;

h) Establishment of an Information Management system to track implementation timelines for various States/systems;

i) Impacts to users; and

j) Appropriately timed withdrawal of existing systems specific requirements to ensure consistency with new instruction.

k) Existing ICAO guidance material

3-WORK PROGRAMME

Task No.	ASBU Performance Improvement Area and Block0 Modules	Subject	Target date

1	**PIA-2:** Globally interoperable systems and data; **B0-FICE**: Increased interoperability through ground/ground integration; **B0-DATM**: Service improvement through digital information Management	**Review of ICAO SARPs and Guidance Material**
		
		Team Leader: Secretariat
		Team members: All Task Force Core members
		References:
		  • *ICAO Annex 10 (Vol. 2 and Vol.3)*
		  • *ICAO Doc 9880, 9896*
			CNS/SG/6 Deliverable:

2	**PIA-2:** Globally interoperable systems and data; **B0-FICE**: Increased interoperability through ground/ground integration; **B0-DATM**: Service improvement through digital information Management	**Conduct of a Regional and Interregional (direct connection) Survey on:**
		1. AFS circuits specifications (circuit type, modulation rate, protocol, ITU code, VSAT network)
		2. AMHS implementation status (implementations, plans, levels of service, protocols, implementation challenges, level of knowledge on AMHS and ATN, etc.)
		
		Team Leader: Secretariat
		Team members: All Task Force Core members
		References:
		  • *APIRG/15,16,17 and 18 Report*
		  • *ICAO Annex 10 (Vol. 2 and Vol.3)*
		  • *ICAO Doc 9880*
		  • *ICAO Doc 9896*
			CNS/SG/6 Deliverable:

3	**PIA-2:** Globally interoperable systems and data; **B0-FICE**: Increased interoperability through ground/ground integration; **B0-DATM**: Service improvement through digital information Management	**Finalize the revised AFI AMHS Implementation Strategy** *Team Leader: ASECNA* *Team members: Botswana, Burkina Faso, Madagascar, South Africa (ATNS), Tanzania and ASECNA* *References:* • *CAR/SAM AMHS Implementation Strategy*	CNS/SG/5 Deliverable: August 2013

4	**PIA-2:** Globally interoperable systems and data; **B0-FICE**: Increased interoperability through ground/ground integration; **B0-DATM:** Service improvement through digital information Management	**Redraft the AFI AMHS Implementation Plan**
		1. Draft AFI AMHS Architecture
		2. Draft AFI AMHS Network Service Access Point Addressing Plan
		3. Draft AFI AMHS Implementation Plan
		    a. AFI FASID CNS1B Table
		    b. AFI FASID CNS1C Table
			CNS/SG/5 Deliverable: August 2013

		*Team Leader: **Nigeria*** *Team members: Angola, Ethiopia, Kenya, Mozambique, Rwanda, Sudan,Uganda, Zimbabwe and ASECNA* *References:* • *Report of the fith meeting of APIRG CNS/SG* • *AFI Air Navigation Plan, FASID (CNS)* • *ICAO Annex 10 (Vol. 2 and Vol.3)*	
5	**PIA-2**: Globally interoperable systems and data; **B0-FICE**: Increased interoperability through ground/ground integration; **B0-DATM**: Service improvement through digital information Management	**Revised AFI AMHS Manual and the Appendixes** 1. AFI IP AMHS infrastructure test guidelines 2. AFI AMHS training guidelines *Team Leader: South Africa (ATNS)* *Team members: Somalia (CACAS), South Africa, Tanzania, Uganda and ASECNA* *References:* • *ICAO EUR AMHS Manual (Doc 020)* • *ICAO Annex 10 (Vol. 2 and Vol.3)* • *ICAO Doc 9880* • *ICAO Doc 9896*	CNS/SG/5 Deliverables: August 2013

3-COMPOSITION

Core members: *Algeria, Angola, Botswana, Burkina Faso, Burundi, Egypt, Ethiopia, Ghana, Guinea, Kenya, Malawi, Mali, Mauritania, Niger, Nigeria, Rwanda,   Senegal, South Africa (ATNS), Sudan, Tanzania, Tunisia, Uganda, Zimbabwe, ASECNA, IFATSEA and Roberts FIR.*

Other members: *All AFI States and Air Navigation Service Providers (ANSPs) with implemented and planned AMHS systems.*

Note: *Members should nominate suitable experts involved in aeronautical telecommunications operations and   systems engineering.*

Working arrangements: TBD.

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