



International Civil Aviation Organization

MID ATS Message Management Center Steering Group

Third Meeting (MIDAMC STG/3)
(Cairo, Egypt 26 - 28 January 2016)

Agenda Item 4: Enhancement of the MID AFS Network Services

SITA MIGRATION PLAN TO AMHS

(Presented by SITA)

SUMMARY

This paper presents the SITA migration plan to AMHS and the SITA the progress in interconnections with AMHS.

Action by the meeting is at paragraph 3.

REFERENCES

- EUR/NAT AFSG/19 Report

1. INTRODUCTION

1.1 ICAO EUR/NAT AFSG/19 proposed to the FAA to organize a coordination workshop inviting experts from AFS gateways to Atlanta, United States, where the SITA gateway and the Atlanta COM Centre reside in order to promote common principles, exchange information, experiences and resolve/clarify outstanding issues related to SITA interconnections and migration to AMHS.

1.2 This workshop was hosted by SITA from 12 to 14 August and led by ICAO ANSP representations from United States, Germany, United Kingdom, Russia, Singapore and Thailand COM Centers. It resulted in drafting the migration plan document and an update to the AMHS-SITA Interconnection Architecture document.

1.3 This Working Paper is intended to present the SITA migration plan to AMHS resulting from the Atlanta workshop. Additionally it provides an outline of the progress in interconnections with AMHS.

2. DISCUSSION

2.1 Following the ICAO Atlanta Workshop discussions, the proposed Migration Plan is to provide:

2.1.1 An abreast of the SITA infrastructure components related to message exchanges with AFS users globally.

- 2.1.2 Regional AMHS interconnection topologies and routing principles.
- 2.1.3 Expected message formats.
- 2.1.4 The appropriate migration principles and necessary details related to addressing and address management.
- 2.1.5 AMC use.
- 2.1.6 And steps and procedures necessary to progressively migrate SITA traffic from AFTN to AMHS.

2.2 The initial version of Migration document has been shared with the Atlanta workshop participants for comments. The current document at **Appendix A** integrates all comments received from the workshop participants.

2.3 New versions of this document will include additional information in chapter 5 of the document as we progress with the migration plan in cooperation with AMHS Gateway COM Centers.

2.4 This document is to be shared with all ICAO Regions to comment and be used to prepare and enable the migration of SITA users traffic from AFTN to AMHS.

2.5 SITA users addresses are to be published in AMC on the 4th of February and activated on AIRAC 1603 cycle on the 3rd of March 2016.

2.6 A communication related to the introduction of SITA PRMD in AMC as well as guidance for address validation is sent by AMC operator (NATS) to all COM Centers. The updated version of the AMHS – SITA Interconnection Architecture version 2.4 is also attached to this communication providing the overall technical details.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) review the presented material;
 - b) provide comments; and
 - c) recommend its use to prepare SITA's users traffic migration from AFTN to AMHS.



SITA Migration Plan to AMHS

Author: <enter name>

Document version: 1.0.1

Document Date: December 2015



Revision History

Date	Version	Description (which must identify key changes occurred since previous revision)	Author
9/9/2015	0.1	Initial Draft	Mansour Rezaei Mazinani
15/12/2015	1.0.1	draft version	Mansour Rezaei Mazinani

Approvals

Version	Approved By	Signed	Date



Table of Contents

1.	Introduction	4
1.1.	Context	4
1.2.	Purpose of the document	5
2.	Overview of SITA AMHS Gateway and Interconnection to AMHS	6
2.1.	Overview of SITA AMHS Gateway Platform	6
2.2.	Overview of SITA terminals	8
2.3.	Message Formats and Format Conversion	8
2.3.1.	From Type B to AMHS	8
2.3.2.	From AMHS to Type B	9
2.4.	AMHS Address allocation and Controls	11
2.5.	Principles of Interoperability with AMHS	12
2.6.	Regional Interconnection Topologies and time frames	12
2.6.1.	SITA AMHS Gateway Interconnections Topology in EUR Region	13
2.6.2.	SITA AMHS Gateway Interconnection Topology in APAC Region	13
2.6.3.	SITA AMHS Gateway Interconnection Topology in NAM Region	14
2.6.4.	SITA AMHS Gateway Interconnection Topology in MID Region	15
2.6.5.	SITA AMHS Gateway Interconnection Topology in AFI Region	16
2.7.	Global Interconnection Topology	16
2.8.	SITA and AMHS Gateway COM Centers Role and Responsibility	17
3.	Principles of SITA Migration to AMHS	19
3.1.	SITA and COM Center Pre-migration set up and Validation	19
3.2.	Principles and procedures for Migration	19
4.	Use of AMC	21
4.1.	User look-up table introduction in AMC, validation and use	21
4.2.	New SITA user introduction and maintenance	21
5.	AMHS Migration Tentative Plan	22
5.1.	AMHS migration in ICAO EUR Region	22
5.2.	AMHS migration in ICAO APAC Region	22
5.3.	AMHS migration in ICAO NAM region	22
5.4.	AMHS migration in ICAO MID region	22
5.5.	AMHS migration in ICAO SAM region	22
5.6.	AMHS migration in ICAO AFI region	22
6.	References	23



1. Introduction

1.1. Context

SITA has been operating an AFTN – Type B gateway for decades. The service is today connected to the AFTN network in limited number of countries. These inter-connections allow ATS organizations and airlines to communicate using AFTN messages on the ATS organizations' side and Type B messages on the airlines' side. The SITA service provides all necessary conversions to enable seamless data exchange between ATS organizations and airlines.

AMHS is under active deployment by majority of ANSPs in all ICAO Regions in view of AFTN interconnection replacement. Additionally the new rich data formats including XML based aeronautical messages are planned to be used over the next few years to further improve air traffic management effectiveness which requires the use of new generation messaging based on ICAO AMHS standards.

The move to this new communication path for SITA requires AMHS and appropriate gateway deployment and interconnections to AMHS in most of ICAO Regions to continue to support data exchange between ATS Organizations which will increasingly use AMHS and airlines using Type B or Type X for XML based information such as digital NOTAMs.

To this end SITA engaged with ICAO EUR/NAT Region in 2012 for AMHS planning and to follow the required ICAO procedures and necessary clarifications for the development and deployment of necessary components to enable regional interconnections to AMHS and migration from AFTN without traffic interruption.

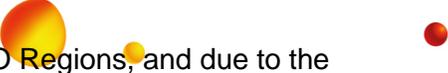
Subsequently and following ICAO EURNAT AFSG recommendations SITA worked with ICAO EURNAT AFSG - Operations Group to elaborate a detailed architecture for SITA interconnection to AMHS in a mixed AMHS and AFTN environment which specifies the details of addressing and routing for message exchanges between ATS and SITA users. AMHS / SITA Interconnection Architecture Version 1.0 document is approved during ICAO EURNAT AFSG/17 meeting which took place in Paris from 22 to 26 April 2013 and was updated to Version 2.0 at AFSG/19 in April 2015.

Following the technical and operational recommendations elaborated as a part of the AMHS/SITA Type X Interconnection Architecture document (Ref. 6), SITA addressing scheme changed from CAAS to XF scheme as C=XX/A=ICAO/P=SITA/O=AFTN/OU=AFTNADDR, where AFTNADDR is an AFTN address of a SITA user.

SITA's AMHS Gateway is in production since November 2014 and ready for AMHS interconnections with ANSPs as necessary.

At the time of writing this document, only the ICAO EUR Region has formally accepted the migration of the existing Regional AFTN interconnections toward AMHS. 3 other ICAO Regions namely APAC, SAM and MID Regions accepting the principle propose to liaise and plan with the concerned ANSPs. For NAM region an engagement with FAA is initiated.

Due to the need to have global approach in the transition from AFTN to AMHS, between SITA and the AFS, the ICAO EUR AFSG has invited all Regions and SITA for a workshop in Atlanta with the scope to continue the transition but in a globally coordinated manner.



Taking into account the AMHS deployment status and plans in all ICAO Regions, and due to the agreement in the EUR Region to migrate to AMHS with SITA in short term, the global transition toward AMHS should include this element and adapt the migration accordingly.

1.2. Purpose of the Document

The purpose of the document is to provide:

- An abreast of the SITA infrastructure components related to messages exchanges with AFS users globally.
- The appropriate migration principles and necessary details related to addressing and address management.
- Expected message formats.
- Regional AMHS interconnection topologies and routing principles.
- AMC use
- And steps and procedures necessary to progressively migration SITA traffic from AFTN to AMHS

This document is expected to be shared with all ICAO Regions as a precondition to prepare and enable the migration of SITA users message traffic from AFTN to AMHS.

2. Overview of SITA AMHS Gateway and Interconnection to AMHS

2.1. Overview of SITA AMHS Gateway Platform

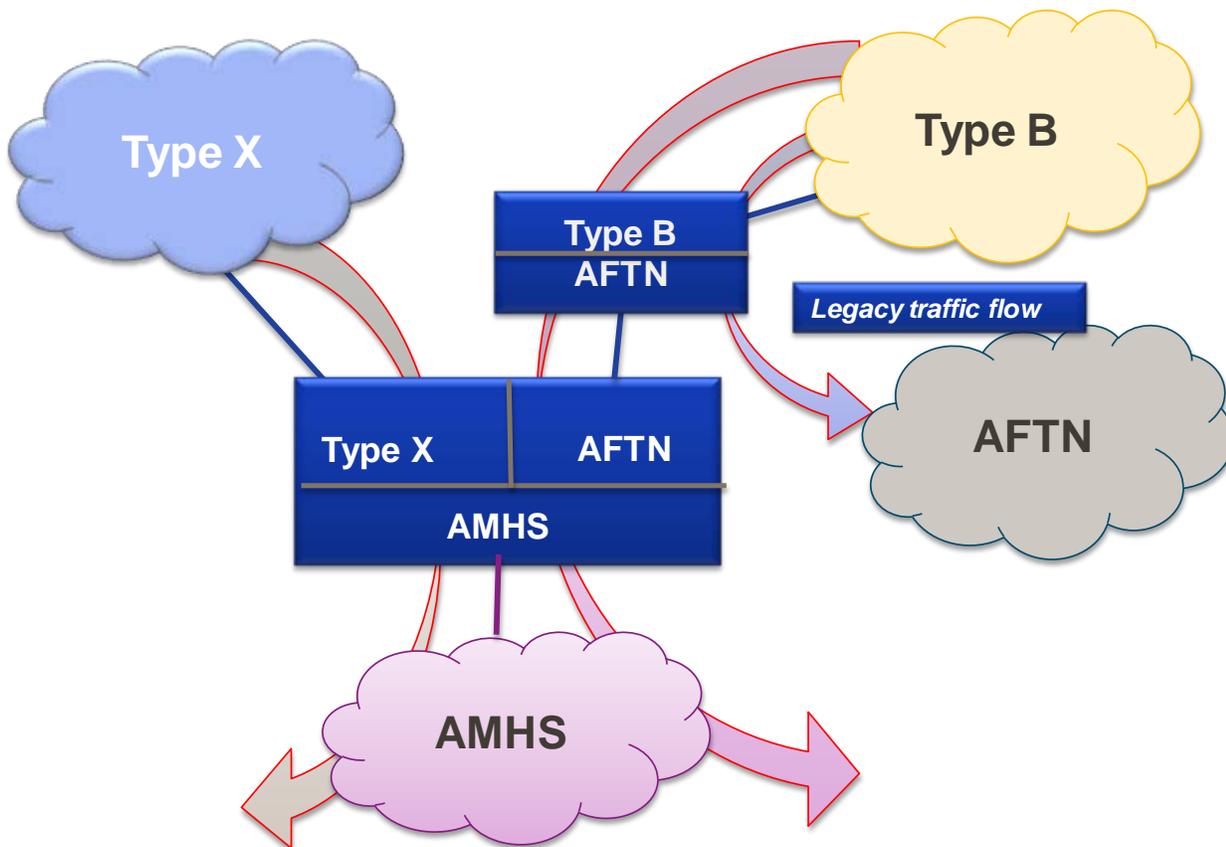
This section describes the components of SITA gateway platform and the general data flows between SITA and the AFS.

Currently SITA users use Type B to exchange with AFS users using AFTN. For interconnections with AMHS a new gateway was integrated in the current SITA Type B and AFTN related systems to allow migration from AFTN to AMHS.

In a next step when SITA users start using Type X for exchanges with AFS users the related gateway in place will support the exchanges with AFS users.

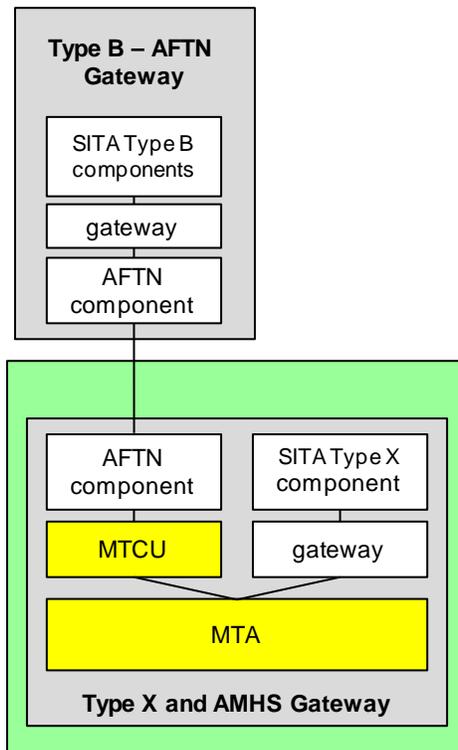
The following diagram illustrates the current message flow through Type B and AFTN messaging networks, as well as the migration path from AFTN to AMHS. It also illustrates the Type X flow to AMHS.

Type X being based on XML and Web services technologies is to convert to AMHS for exchanges with AMHS users as we progress in the planned AMHS interconnections. And in the meanwhile and while Type B is used the defined gateway and flow continue.





The following diagram illustrates the two gateways, namely the Type B – AFTN Gateway and the Type X and AFTN/AMHS Gateway, which are already deployed in SITA data centers with back up and disaster recovery.



Considering that through decades of exchanges with AFTN, several specific procedures have been developed to allow adoption to ANSP or airline profiles, the use of Type B – AFTN Gateway is to avoid any miscommunication due to message conversions and to continue communication with AFTN while we prepare to move to AMHS.

The latter gateway includes a standard AFTN/AMHS Gateway compliant with ICAO specifications and enables standard conversion of AFTN messaging to/from AMHS.

The combination of the two gateways allows continuation of exchanges with AFTN. And as we move to AMHS, the related AFTN messages get converted to AMHS for delivery over the operational AMHS connections.

The move to AMHS will be entirely coordinated with respective COM Centre gateways and the related ICAO Regional forums.

The rules for address control and validation are enforced during the migration to AMHS. Both gateways have address control capabilities for Type B as well as AFTN addresses.

2.2. Overview of SITA Terminals

SITA users are connected to Type B network using either a SITA package SITATEX over an IP connections or by applications related to flight operations running on servers connecting to SITA over protocols including MQ or MATIP (an RFC for airline traffic over IP).

Each terminal or application is identified by a Type B address (based on IATA location codes and designators).

Type X users have similar environment. However Type X being based on XML and Web Service technologies use IATA Type X XML schemas and are connected using HTTP(-S) or MQ. Type X can use IATA or ICAO AFTN addresses indifferently.

2.3. Message Formats and Format Conversion

Although we are concerned about the end to end format in Type B and AMHS domains, in the following the different cases of format conversions are demonstrated for better clarification.

2.3.1. From Type B to AMHS

This section provides two message examples used by SITA users and the steps of conversion from Type Bs through AFTN and then to AMHS for delivery via AMHS connections.

Therefore the AFTN message format shown in this section should be expected from SITA for routing and delivery towards AMHS. The resulting AMHS message in this section should be expected from SITA on the AMHS connections for standard routing based on PRMD.

2.3.1.1. Type B message with non-AFTN Payload

The Type B message with IEVYAPS recipient address is routed within SITA infrastructure to Type B/AFTN Gateway for sending to AFTN. There is an AFTN address mapping for both originator and recipient Type B addresses which is used for form the AFTN envelop.

The Type B simple format is;

```
QN IEVYAPS
.SINXTSQ 120123
TEXT
TEXT
```

The converted AFTN message format where IEVYAPS mapped to UKKAYAYF and SINXTSQ mapped to WSSSSIAX to form the AFTN message envelop is;

```
GG UKKAYAYF
120124 WSSSSIAX
QN IEVYAPS
.SINXTSQ 120123
TEXT
TEXT
```

And the AFTN/AMHS Gateway converts to AMHS under related AMHS scheme and PRMD name to;

```
Originator      : /C=XX/A=ICAO/P=SITA/O=AFTN/OU1=WSSSSIAX
Recipient[1]   : /C=XX/A=ICAO/P=UKRAINE/O=AFTN/OU1=UKKAYAYF
PRI            : GG
FT             : 120124
QN IEVYAPS
.SINXTSQ 120123
TEXT
TEXT
```

2.3.1.2. Type B message with AFTN Payload

Type B Message with recipient address HDQYFXS is routed through SITA infrastructure to AFTN gateway for which there is a setting for Type B header stripping. The resulting AFTN message is then converted to AMHS.

The sequence of subsequent Type B, AFTN and then AMHS messages are as follows:

Type B message;

```
QN HDQYFXS
.SINXTSQ 120124
GG UKKAYAYF
120124 WSSSSIAX
AFTN TEXT
```

AFTN Message (the Type B header is stripped)

```
GG UKKAYAYF
120124 WSSSSIAX
AFTN TEXT
```

AMHS message

```
Originator      : /C=XX/A=ICAO/P=SITA/O=AFTN/OU1=WSSSSIAX
Recipient[1]   : /C=XX/A=ICAO/P=UKRAINE/O=AFTN/OU1=UKKAYAYF
PRI            : GG
FT             : 120124
AFTN TEXT
```

2.3.2. From AMHS to Type B

The section describes the message formats expected from AMHS for conversion and delivery to Type B user.

2.3.2.1. AMHS message with non-Type B Payload (regular AMHS message)

```
Originator      : /C=XX/A=ICAO/P=THAILAND/O=VTBB/OU1=VTBB
                  /CN=VTBBZTZ
Recipient[1]   : /C=XX/A=ICAO/P=SITA/O=AFTN/OU1=RPLLALX
PRI            : GG
FT             : 120123
CONFIRM RECEPTION OF YR 120122 RPLLALX
BRGDS VTBBZTZ
```

The message is then converted with SITA gateway platform as described in section 2.1 to AFTN and then Type B as follows for routing and delivery to Type B user;

AFTN message

```
GG RPLLPALX
120123 VTBBZTZX
CONFIRM RECEPTION OF YR 120122 RPLLPALX
BRGDS VTBBZTZX
```

And Type B message (RPLLPALX being converted to MNLXTPR and SLCXAXS being the Type B service address of the input connection. This is then sent to Type B user.

```
QN MNLXTPR
.SLCXAXS 120123AFTN
GG RPLLPALX
120123 VTBBZTZX
CONFIRM RECEPTION OF YR 120122 RPLLPALX
BRGDS VTBBZTZX
```

2.3.2.2. AMHS message with Type B Payload

AMHS message

```
Originator      : /C=XX/A=ICAO/P=THAILAND/O=VTBB/OU1=VTBB
                 /CN=VTBBZTZX
Recipient[1]    : /C=XX/A=ICAO/P=SITA/O=AFTN/OU1=WSSSSITX
PRI             : GG
FT              : 120123
QU SINXTSQ
.ATLXTDL 121212
TEXT
TEXT
```

AFTN message (WSSSSITX is routed to SITA AMHS gateway)

```
GG WSSSSITX
120123 VTBBZTZX
QU SINXTSQ
.ATLXTDL 121212
TEXT
TEXT
```

Type B message (The AFTN Header being stripped off resulting into a standard Type B message)

```
QU SINXTSQ
.ATLXTDL 121212
TEXT
TEXT
```

2.3.2.3. AMHS message with Pilot Address, e.g. WSSSSITA

AMHS message

```
Originator      : /C=XX/A=ICAO/P=THAILAND/O=VTBB/OU1=VTBB
                 /CN=VTBBZTZX
Recipient[1]   : /C=XX/A=ICAO/P=SITA/O=AFTN/OU1=WSSSSITA
PRI            : GG
FT            : 120123
YBBBQFAX
TEXT
TEXT
```

AFTN Message (WSSSSITA being routed to SITA AFTN gateway)

```
GG WSSSSITA
120123 VTBBZTZX
YBBBQFAX
TEXT
TEXT
```

The above message in AFTN gateway - the Pilot address, WSSSSITA, is replaced by the first line of text, and then a Type B header is generated as in message with non-type B payload, (YBBBQFAX being translated to BNEXTQF and SLCXAXS being the type B service address of the input connection and sent to Type B user).

```
QN BNEXTQF
.SLCXAXS 120123AFTN
GG YBBBQFAX
120123 VTBBZTZX
TEXT
TEXT
```

2.4. AMHS Address Allocation and Controls

SITA uses XF addressing scheme with allocated PRMD=SITA. The addressing scheme and use in AMHS is defined in AMHS/SITA Type X Interconnection Architecture document (see reference 6). All SITA user O/R addresses will be defined under PRMD=SITA. All SITA users AFTN addresses are provided by ANSPs.

Currently there are some 1081 SITA users AFTN addresses. However do to practices cumulated over decades there are more Type B addresses than AFTN ones. As some of the message examples in section 2.2 show, there are cases that AFTN/AMHS originators use one AFTN recipient address or SITA gateway AFTN address and include a full Type B message with several addresses in the body of the message to send to several recipients. SITA has initiated a work stream to request the concerned users to contact the related local ANSPs and communicate with one AFTN address for every Type B address only. This however is an ongoing task to reach a one-to-one AFTN-Type B address list.

In AMHS procedures are created within SITA under controlled processes to request the user to provide a valid AFTN address registered with its local ANSP. This address is



checked by SITA provisioning against ICAO location and designator directories (ICAO Doc 7910 and ICAO Doc 8585) prior to its service configuration.

In addition to above SITA uses in its gateways address control and white listing. In case the address control fails, the message is rejected back to the originator.

2.5. ***Principles of Interoperability with AMHS***

SITA's interconnection to AMHS follows and complies with ICAO recommendation for:

- IP network connectivity and testing,
- AMHS Inter-Operability Testing (IOT) using ICAO EUR AMHS Manual, Appendix E
- Pre-operational Testing (POT) defined in ICAO EUR AMHS Manual, Appendix F (see references section), and
- commissioning with adequate principles as follows;
 - Independent AMHS interconnections with ICAO Regions with at least 2 AMHS interconnections per Region and more when the traffic and extend of the Region justifies.
 - Definition and Regional agreements with defined AMHS COM Centers through the related regional ICAO Working Groups.
 - Coordination with defined AMHS Gateway COM Centers and SITA for connections and testing, commissioning and routing to the subsequent COM Centers according to the defined and agreed topologies (see section 2.6 for regional AMHS interconnection topologies.
 - Coordination with AMC Operator and concerned COM Centers for address publication, validation and use.
 - The address use and routing will be according to AMC AIRAC cycle to ensure that all parties have agreed with the new routings
 - SITA ensures that each generated AMHS message contains users addresses listed in the User address look-up table.
 - SITA shall maintain the User address look-up table in the AMC with all SITA users allowed to communicate with AMHS containing their SITA address as well as AFTN address used for the O/R address with PRMD=SITA.
 - The migration of every COM Center traffic through the AMHS gateway COM Center will be done after validation of SITA users addresses with the concerned COM Center and according to AMC AIRAC cycle for use in the respective AMHS user look-up table.
 - The AMHS migration process should be led by the COM Center in closed coordination with SITA

2.6. ***Regional Interconnection Topologies and time frames***

Following the recommendations formulated in the AMHS/SITA Type X Interconnection Architecture document SITA is establishing at least 2 independent interconnections to AMHS in every ICAO Region.

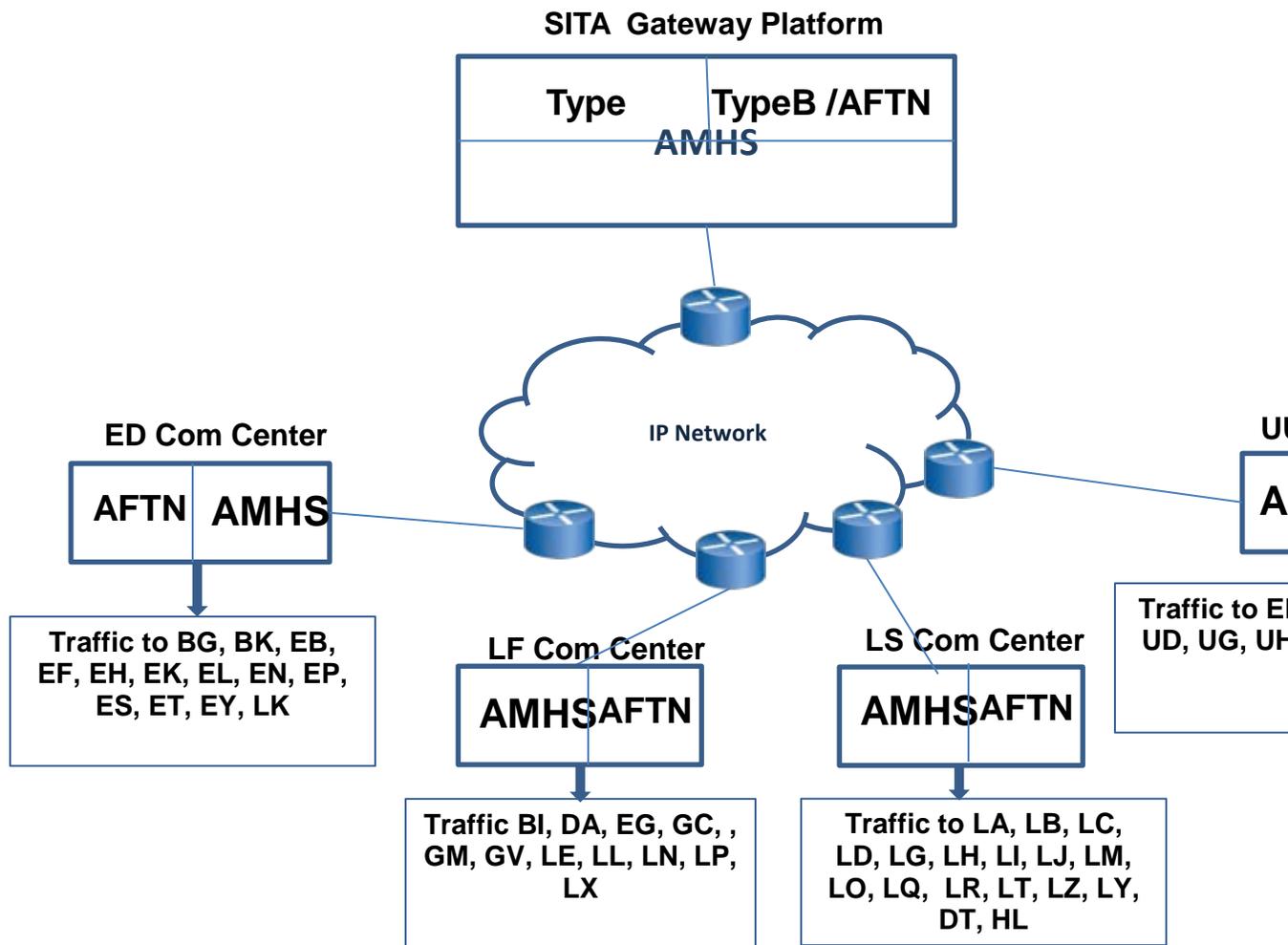
The proposed COM Center for interconnections to AMHS is based on the traffic volume and in turn its AMHS interconnectivity with other COM Centers to reach the final AFS user. In case a final destination COM Center is in AFTN, care is taken to use only one AMHS/AFTN Gateway for conversion to AFTN and delivery to the destination AFTN COM Center.

The proposed SITA interconnections to AMHS in every ICAO Region are as follows:

2.6.1. SITA AMHS Gateway Interconnections Topology in EUR Region

It is expected to complete the migration toward AMHS EUR Region by 2016 with 4 AMHS gateways. During this time no additional AFTN connection will be established between SITA and a COM Center in EUR Region.

After 2016 all the current AFTN interconnections with SITA in the EUR Region should be removed.

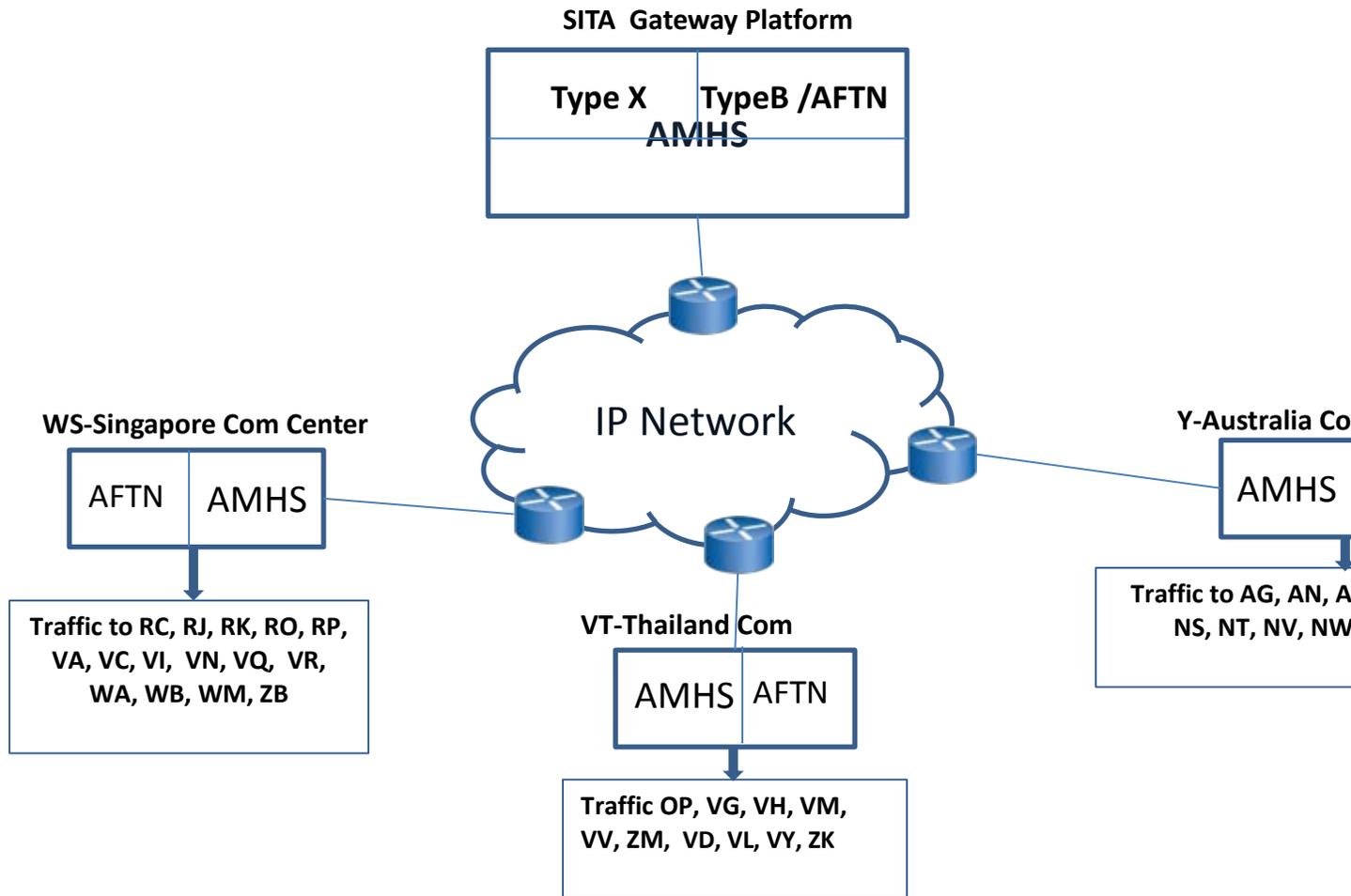


2.6.2. SITA AMHS Gateway Interconnection Topology in APAC Region

It is expected to complete the migration toward AMHS by 2016. During the period 2015 –

2016 the APAC Region traffics will be exchanged between SITA and the AFS via AFTN and AMHS.

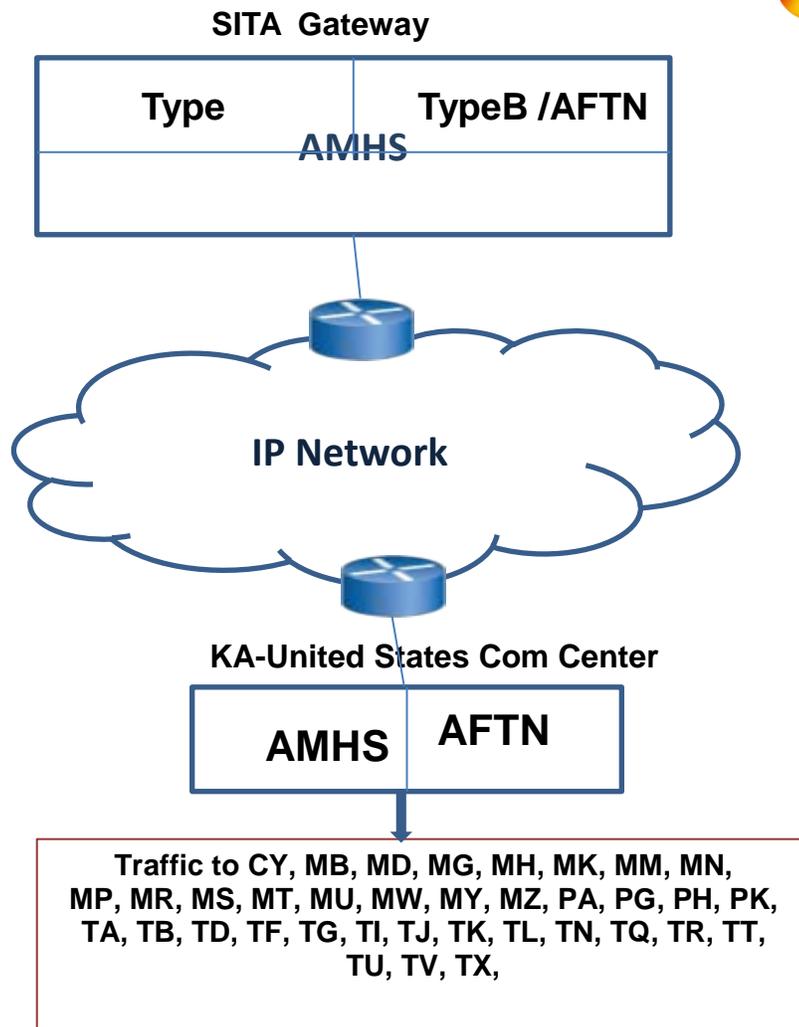
As from beginning of 2017 all current AFTN interconnections with SITA in the APAC Region should be removed.



2.6.3. SITA AMHS Gateway Interconnection Topology in NAM Region

It is expected to complete the migration toward AMHS by 2016 with FAA AMHS gateway. During the period 2015 – 2016 the NAM Region traffics will be exchanged between SITA and the AFS via AFTN and AMHS.

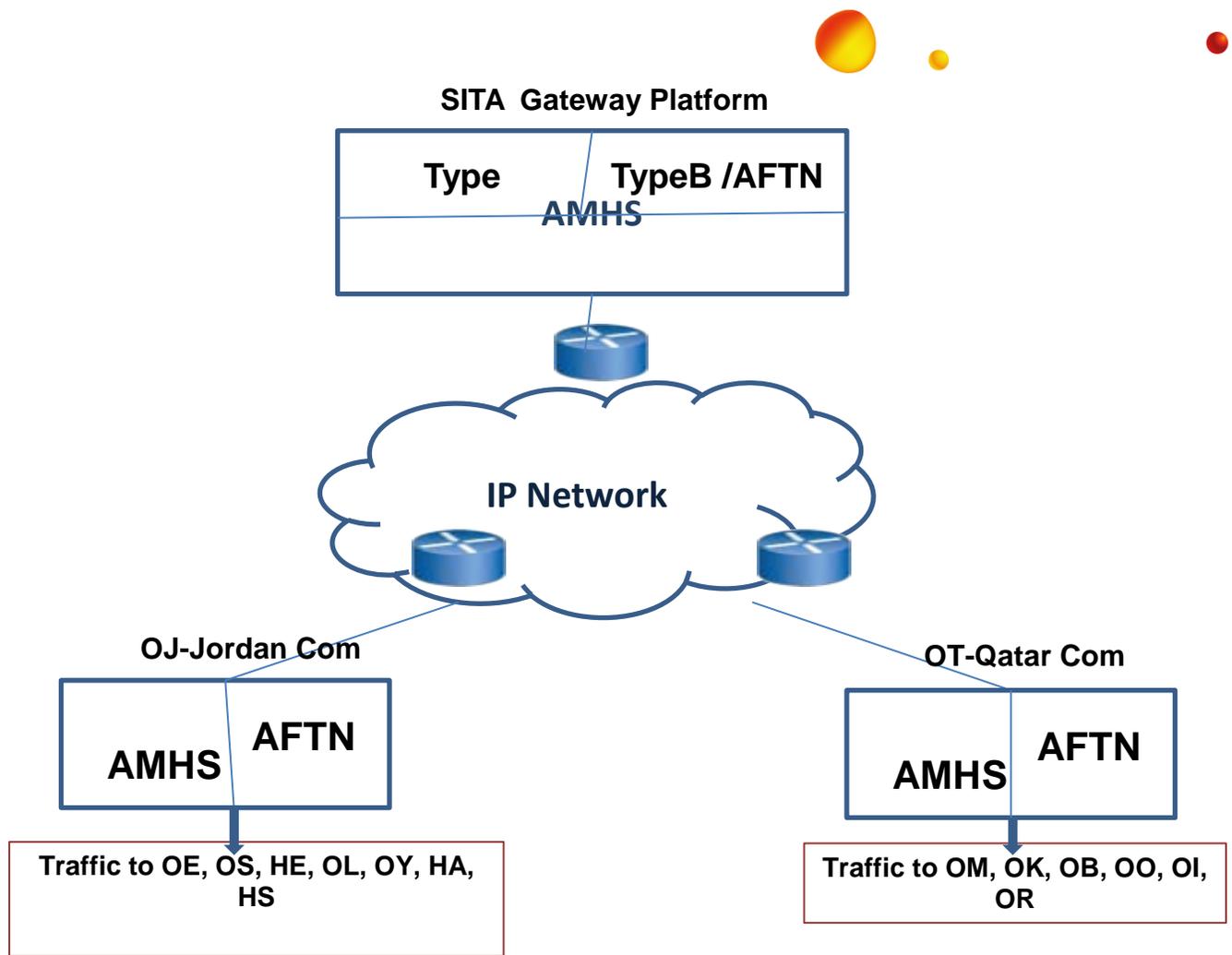
After 2016 the current AFTN interconnections with SITA in the NAM Region should be removed.



2.6.4. SITA AMHS Gateway Interconnection Topology in MID Region

It's expected to complete the migration toward AMHS in 2016, with 2 AMHS COM Center gateways. During the period 2015 – 2016 the MID Region traffic will be exchanged between SITA and the AFS via AFTN and AMHS.

Currently there is no AFTN connection between SITA and a COM Center within the MID region.



2.6.5. SITA AMHS Gateway Interconnection Topology in AFI Region

At the time of writing this document no information is available related to the appropriate ICAO AFI Working Group to discuss the interconnection with AMHS within AFI Region and after agreements and plan accordingly.

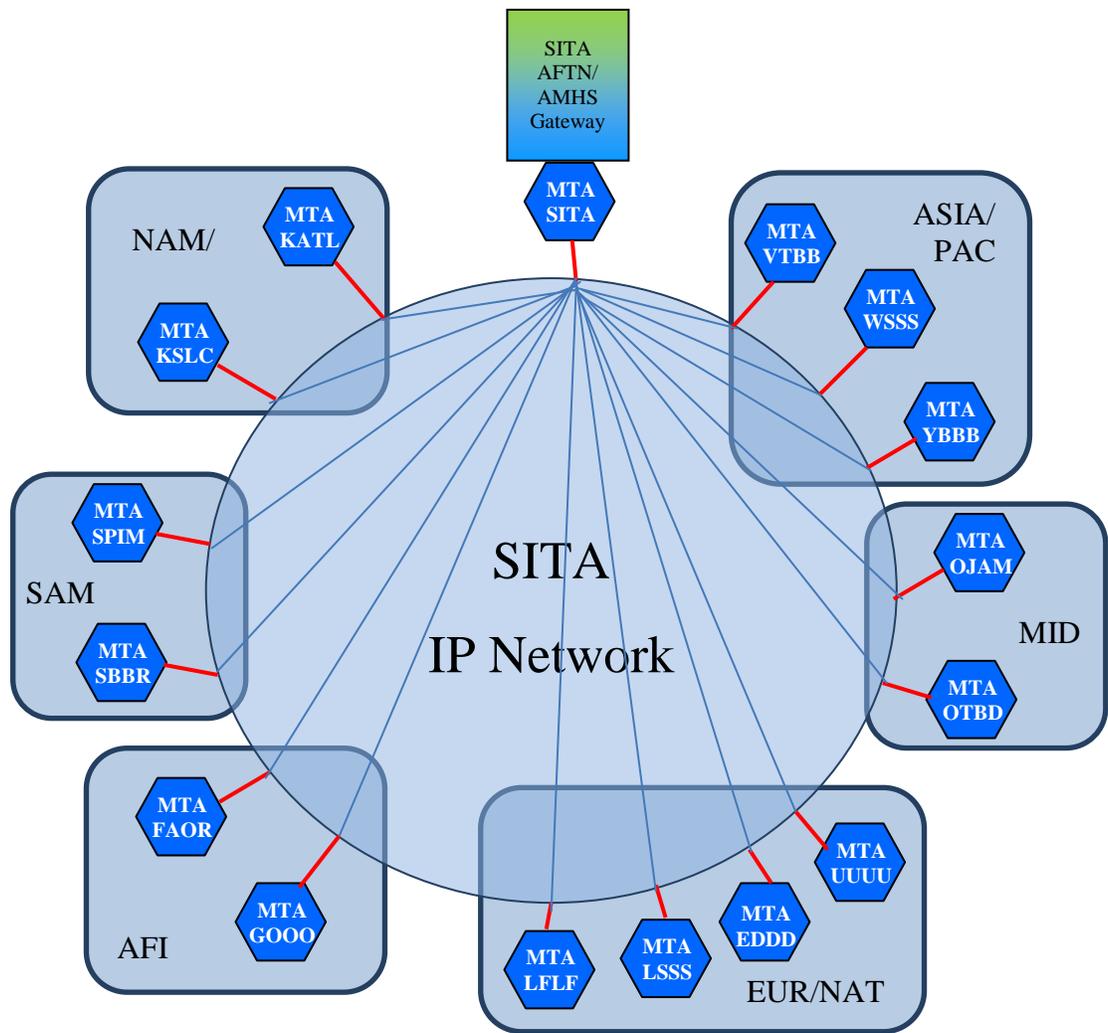
However it is envisaged to connect to South Africa and Dakar. Considering the current state of progress it is expected to have the initial connections late 2016. While the interconnections with AFI Region are not operational the traffic will continue through AFTN.

There is an AFTN interconnection with SITA and South Africa that shall be removed after AMHS connection completion and migration.

Diagram to be added with interconnections to SAA and Dakar

2.7. Global Interconnection Topology

The following diagram illustrates an overview of planned global SITA interconnections to AMHS on a regional basis as described above;



2.8. ***SITA and AMHS Gateway COM Centers Role and Responsibility***

- SITA will convert, relay and deliver the messages received from AMHS Gateway COM Centers to SITA users
- AMHS Gateway COM Centers will relay and deliver the messages received from SITA to the concerned AFS user.
- In case the AFS user is in AFTN the last AMHS COM Center in the routing path converts the message to AFTN for delivery to the AFS user or to the AFTN COM Center responsible for delivery to the intended AFS user.

- 
- The AFTN addresses of all SITA users shall be allocated by the concerned ANSP. These AFTN addresses will then be used by SITA and introduced in AMC under PRMD=SITA.
 - All COM Centers shall validate existing AFTN addresses of SITA users published in AMC.
 - The AMHS address management and use will be done according to the ATS Messaging Management Manual by AIRAC cycles.
 - SITA has established user address validation against ICAO 7910 and 8585 directories and use white listing in its AMHS gateway platform.

3. Principles of SITA Migration to AMHS

3.1. *SITA and COM Center Pre-migration Set up and Validation*

The communications between SITA users and AFS users will follow the migrations plan from AFTN connections to AMHS connection. During this transition the AFTN connections will remain as long as necessary to allow progressive global migration to AMHS. Each time an AMHS connection becomes operational, messages from SITA to AFS with destination addresses related to that AMHS connection will be sent through that AMHS connection while the others continue on AFTN. For messages from AFS to SITA the migrated addresses should then take AMHS path and included in the user look up table.

To prepare for migration SITA has completed new developments to allow step wise and progressive migration of its traffic from AFTN to AMHS in closed coordination with AMHS Gateway COM Centers. SITA users origin addresses are validated at the entry of the gateway and invalid origin addresses are rejected. Additionally the platform can be set up to send selective recipient addresses and flows through AMHS links while all other traffic will continue to be sent on AFTN connections.

At every step an address validation of SITA user addresses under the concerned COM Center will take place. This includes possible use of an AFTN address both with the concerned COM Center as well as with SITA. In this case the user will be required to choose only one or ask for a 2nd address to make sure that the address under the concerned COM Center PRMD and SITA PRMD are different.

Preparations are made prior to Pre-Operational Testing (POT) including address clarification and validation. This and other procedures are then qualified during POT to ensure validation and controlled progressive migration to AMHS.

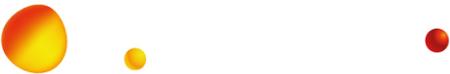
3.2. *Principles and Procedures for Migration*

This section describes the principles to be used by SITA and AMHS Gateway COM Center to exchange address list, engage for address validation, step by step set up to migrate traffic from AFTN to AMHS. The traffic to every AMHS Gateway COM Center is for its AMHS Gateway COM Center recipients as well as for routing to the COM Centers as defined in the regional topologies in section 2.6.

When the first AMHS connection with a AMHS Gateway COM Center becomes operational, only messages from SITA users to that AMHS Gateway COM Center users will be sent on the active AMHS connection. This will then extend as soon as the AMHS Gateway COM Center is ready to relay to another COM Center according to the defined topology. This pattern will then continue until completion for delivery to all related COM Centers through the AMHS Gateway COM Center. The same principle can then be used with other AMHS Gateway COM Centers.

All SITA user addresses will be in all user look up tables for routing through AMHS to SITA but step wise i.e. initially for SITA user addresses under the AMHS Gateway COM Center location code and progressively adding others as we progress in migration from AFTN to AMHS.

All other messages will continue to be routed through AFTN. When sending through AFTN



the exception table should use the related addresses for delivery to SITA rather than to the ANSP under the location code.

Principles and tasks related AMHS interconnection testing and migration are well defined in ATS Messaging Management Manual and related appendix A (see ref. 4). There are however some specifics related to SITA connection and migration mainly related to SITA users address validation, use of user look up tables and routing exception preparation for ANSPs still in AFTN.

All address introduction and routing will use AMC cycle.

4. Use of AMC



4.1. ***User Look-up Table Introduction in AMC, Validation and Use***

SITA user AFTN addresses shall be registered by the COM Centers where the SITA user is located. The allocated AFTN address of a SITA user will be used to define the O/R address under PRMD=SITA.

SITA provisioning and messaging support shall be allocated read and write access for posting and maintenance of SITA user addresses within SITA PRMD allocated space.

The existing SITA Users Address List is communicated for review. It may be complemented by few other addresses not known due to in-body addressing practice in SITA AFTN messages (see section 2.3 – Message Formats and Format Conversion. Care should be taken in exchanging and using SITA Users Address List due to its confidentially nature (Only for internal use) to be circulated between and accessed by authorized persons. The AMC is the management tool of these addresses for addressing reviews by ANSPs globally and for the use of the addresses in operations.

The procedure to check the AFTN addresses of SITA Users published in AMC (User address table) is defined in EUR Doc 021 – ATS Messaging Management Manual (see reference 4).

At the time of writing this document SITA users address list is prepared and communicated to AMHS Gateway COM Center countries and AMC operator.

The list of SITA appropriate persons with read/write (for operational functions) and read only access (to view operational data) is also communicated to provide access for posting addresses, address management and use in the progressive migration path to AMHS. The AMC access rights for the proposed users follow the model defined in ATS Messaging Management Manual and related appendix B (see ref 4).

4.2. ***New SITA User Introduction and Maintenance***

Introduction of SITA new users and maintenance of SITA user addresses as well as changes and information to appear in AMC will follow procedures defined ATS Messaging Management Manual and related appendix A (see ref 4).

Prior to introduction of the user addresses in AMC, all SITA users are requested to provide a valid AFTN address by contacting its local ANSP. The location and designator parts of the address are checked by SITA provisioning using ICAO related documents – Doc 7910 and Doc 8585. The internally validated address will be then introduced in AMC to follow the related procedure in relation with AIRAC cycle to go through data entry, data validation by the address assigning ANSP and acknowledgement prior to its processing, retrieval and use by SITA and SITA user.



5. AMHS Migration Tentative Plan

5.1. **AMHS Migration in ICAO EUR Region**

- At the end of 2015 the AMHS connection and Inter-Operability Testing (IOT) are completed with Switzerland, Germany and under test with Russia. The Pre-Operational Testing (POT) should start in January 2016 with Switzerland and Germany. It is envisaged to introduce the list of SITA users addresses in AMC in February 2016 for use in March 2016 for progressive commissioning and migration of current AFTN traffic to AMHS. The AMHS connection with France is envisaged and expected to start connection tests early 2016.

5.2. **AMHS Migration in ICAO APAC Region**

- At the end of 2015 the AMHS connection, Inter-Operability Testing (IOT) as well as Pre-Operational Testing (POT) are completed with Thailand. AMHS commissioning and migration steps are to be defined early 2016.
- Initial contacts are also made with Singapore and Australia. However the network and AMHS testing needs to be planned early 2016.

5.3. **AMHS Migration in ICAO NAM region**

- IOT document preparation is initiated. Network connectivity, IOT, POT, commissioning and migration steps are to be defined.

5.4. **AMHS Migration in ICAO MID region**

- IOT document is under completion with Jordan. Network connectivity, IOT, POT, commissioning and migration steps are to be defined. Contact with Qatar is also initiated pending updates to the proposed draft IOT document.

5.5. **AMHS Migration in ICAO SAM region**

- IOT document is under completion with Brazil. Network connectivity, IOT, POT, commissioning and migration steps are to be defined.

5.6. **AMHS Migration in ICAO AFI region**

- Contact is initiated with South Africa. Initial connection preparations are to be defined.

6. References



- 1- ICAO Doc 7910, Location Indicators
- 2- ICAO Doc 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services
- 3- EUR Doc 020 – EUR AMHS Manual, including Appendices A - G
- 4- EUR Doc 021 – ATS Messaging Management Manual
- 5- EUR Doc 027 (Provisional) – IP Infrastructure Test Guidelines for EUR AMHS
- 6- EUR AMHS Documentation – AMHS/SITA Type X Interconnexion Architecture, Version 2.0

-END-