SAM/IG/5-WP/10
14/04/10

International Civil Aviation Organization
South American Regional Office

FIFTH WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM/IG/5)
REGIONAL PROJECT RLA/06/901

Lima, Peru, 10 to 14 May 2010

Agenda Item 6: Assessment of operational requirements in order to determine the implementation of communications and surveillance (CNS) capabilities improvement for en-route and terminal area operations

FOLLOW-UP TO AMHS INTERCONNECTION IN THE SAM REGION

(Presented by the Secretariat)

Summary

This working paper presents a follow-up to the actions scheduled for the interconnection of AMHS in the Region.

References:

- Second workshop/meeting of the SAM Implementation group (SAM/IG/2);
- Third workshop/meeting of the SAM Implementation group (SAM/IG/3); and
- Fourth workshop/meeting of the SAM Implementation group (SAM/IG/4).

ICAO strategic objective:	*D - Efficiency*

1. Introducción

1.1 SAM/IG/4 meeting presented an initial *guide for AMHS interconnection*. The guide has two parts: the first, related with prior functional trials to ensure end-to-end inter-operability between two AMHS systems in the SAM Region so as not to disturb real traffic and avoid unnecessary inconveniences to the operational systems. The second part defines the interconnection, the ATN addressing and AMHS scenarios, and the appropriate procedures for the operational integration of AMHS, on the basis of the national deployment of user terminals in each State and of the AMHS interconnection guide.

1.2 The document, following indications in Conclusion *SAM/IG/4-9 - Review of the guide for the interconnection of AMHS* was circulated to all SAM States for its review. **Appendix A** to this working paper presents the revised guide.

1.3 In addition, SAM/IG/4 meeting took note that Argentina-Brazil, Argentina-Paraguay and Brazil-Paraguay had drafted and signed memoranda of understanding (MoU) for the interconnection of the AMHS existing in the indicated countries.

1.4 With the aim that the remaining SAM States having AMHS systems can start with the interconnection of the existing AMHS, SAM/IG/4 meeting reviewed and adapted a model MoU for the interconnection of AMHS for its use by the States when implementing their interconnection, formulating Conclusion SAM/IG/4-10 - *AMHS interconnection between Argentina-Chile, Argentina-Peru, Brazil-Colombia, Brazil-Peru, Chile-Peru and Colombia-Peru.*

2. **Analysis**

2.1 **Appendix B** to this working paper presents an updated action plan for the interconnection of AMHS, with views that the Meeting proceed to its review. In this respect, it is expected that the Meeting receives information on the status of implementation of the MoU signed between Argentina-Brazil, Argentina-Paraguay, as well as Brazil-Paraguay.

2.2 It is also expected that during SAM/IG/5 meeting MoUs for the interconnection of the following AMHS be presented, for their review and possible signature: Argentina-Chile, Argentina-Perú, Brazil-Colombia, Brazil-Perú, Chile-Perú and Colombia-Perú, as specified in Conclusion SAM/IG/4-10.

2.3 In the event that during the Meeting none of the above indicated MoU is presented, it is hoped that they can then be drafted and, possibly, signed during SMA/IG/5 meeting. For the drafting of the MoU, as per Conclusion SAM/IG/4-10, the model MoU drafted during SAM/IG/4 meeting and shown in **Appendix C** to this working paper is to be used.

3. **Analysis**

3.1 The Meeting is invited to:

a) Take note of the information presented;

b) Examine the status of interconnection of the AMHS between Argentina-Paraguay, Argentina-Brazil and Brazil-Paraguay, on the basis of the MoU drafted to that end;

c) Analyze the status of implementation of the MoU between Argentina-Chile, Argentina-Peru, Brazil-Colombia, Brazil-Peru, Chile-Peru and Colombia-Peru, with the aim that they can be completed and, possibly, signed during the Meeting;

d) Update the action plan for the interconnection of AMHS shown in Appendix B to this working paper; and

e) Analyze other matters in this regard that the Meeting might consider necessary.

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APPENDIX A

Guide for the Operational Interconnection of AMHS Systems in the SAM Region

Project RLA/06/901

INDEX

REFERENCE DOCUMENTS

1. EUR AMHS 4.0 Manual
2. EUR AMHS Documentation, PRMD and Addressing Registry
3. Fifth ATN Task Force Meeting Report
4. SAM AMHS Implementation Plan
5. SAM AMHS Addressing Scheme

LIST OF ACRONYMS

ADMD	Administrative Domain
AFTN	Aeronautical Fixed Telecommunications Network
AMHS	Aeronautical Message Handling System
ATN	Aeronautical Telecommunications Network
ATS	Air Traffic Service
BIS	Boundary Intermediate System
CAAS	Common AMHS Addressing Scheme
CARSAM	The Caribbean - South America
CH	AFTN Channel
CN	Common Name
DL	Distribution List
Dr	Delivery Report
DS	Directory Service
EUR	Europe - Eurocontrol
IP	Internet Protocol
IPM	Personal Inter Message
IUT	Implementation under test
MTA	Message Transfer Agent
MTCU	Message Transfer and Conversion Unit
NAT	Network Address Translation
NDR	Non Delivery Report
PRMD	Primary Domain
RE	Remote
REDDIG	South American Digital network
RN	Read Notification
SS ACK	Message of recognition
SARP	Standard and Recommended Practices
TSAP	Transmission Site Point Access
UA	User Agent

INTRODUCTION

1.1 Purpose

1.1.1 The purpose of this document is:

1.1.1.1 To present to the SAM States *Orientation Guide for AMHS Systems operative Integration* (for any case these systems works nation wide partially or totally), by means of the connection of their respective MTA and, optionally, its Directory services (DS).

1.1.1.2 To define, in first place, the previous functional tests, in order to assure end to end interoperability between two AMHS systems, and to not disturb real traffic, assuring with it to avoid unnecessary disadvantages in the operational systems (First Part of the document).

1.1.1.3 These tests were established once the AMHS approval testing were successfully completed (i.e. Appendix D, EUR AMHS Manual, Version 4.0, Eurocontrol), through which the compliance of all systems under test to the AMHS technical specifications has been demonstrated.

1.1.1.4 Defining, in second place, the interconnection scenarios, ATN and AMHS address, and the appropiate procedures for AMHS operative integration, based on the national UAs' deploy in each State (Second Part of the document).

1.2 Document structure

1.2.1 This Document consists of two parts, highly differentiated but complementary: *First Part (Integration Tests):* This partial has been based from the Appendix E of EUR AMHS Manual, version 4.0, Eurocontrol, with the objective to help the States to have a reference document for the accomplishment of AMHS tests, *essential action to be developed before any attempt of operative integration*:

1.2.1.1 With other States, so that it allows the bilateral verification of systems operation, like a preparation to later Operative Integration, and

1.2.1.2 Within the same Administration, if it has decided to count with more of one MTA in operation.

1.2.2 For this Part has been had the following points:

1.2.2.1 The test atmosphere to be used.

1.2.2.2 The defined address plan to be implemented.

1.2.2.3 The general description of bilateral test procedures, with the subdivisions for each AMHS functional area. Each procedure of the test appears of a structured way that consists of:

a) The defined test criteria,

b) A brief description of the scenario,

c) The reference to the corresponding SARP,

d) The reference to similar tests made by Eurocontrol.

1.2.3 *Second Part (Operative Integration):* this part tries to help to the administrations in operative integration between States, it being developed:

1.2.3.1 The aspects to be considered.

1.2.3.2 The possible scenarios for operative integration.

1.2.3.3 The preparatory phase.

1.2.3.4 The necessary agreements.

1.2.3.5 The operational phase.

1.2.4 **References**

1.2.4.1 EUR AMHS Manual.

1.2.4.2 Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN), Sub-Volume III (Doc 9705).

1.2.4.3 Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Part II-B (Doc 9880).

2. FIRST PART (AMHS INTERCONNECTION TESTS)

2.1 Test Identification Scheme

2.1.1 Each Interoperability Test procedure has an identifier in the form *Itxnn* where*;*

2.1.1.1 **IT** is an acronym for Interoperability Test,

2.1.1.2 ***x*** is a number identifying the test group, and

2.1.1.3 ***nn*** is a consecutive number identifying the individual test procedure.

2.1.2 The bilateral test groups consist of tests using messages specifically generated by IUTs for trials. The following six groups have been identified:

2.1.2.1 testing of submission, transfer and delivery operations (x=1),

2.1.2.2 testing of gateway operations converting a user message from AFTN to AMHS (x=2),

2.1.2.3 testing of gateway operations converting a user message from AMHS to AFTN (x=3),

2.1.2.4 testing of gateway operations converting a user message from AFTN to AMHS and back to AFTN (x=4),

2.1.2.5 testing of gateway operations – special cases (x=5), and

2.1.2.6 testing of stress traffic situations (x=6).

2.2 Application infrastructure

2.2.1 Both AMHS Implementations Under Test (IUTs) are complete systems constituted by AFTN, AMHS and AFTN/AMHS gateway components, with corresponding AFTN and AMHS user terminals and supervision positions, as decided locally by the corresponding organization.

2.2.2 In each IUT, an AMHS User Agent is used in submission and delivery tests. Gateway tests involve an AFTN user terminal. The use of the Monitor & Control Position is required in order to observe the outcome of the conversion processes, especially in out-of-line situations.

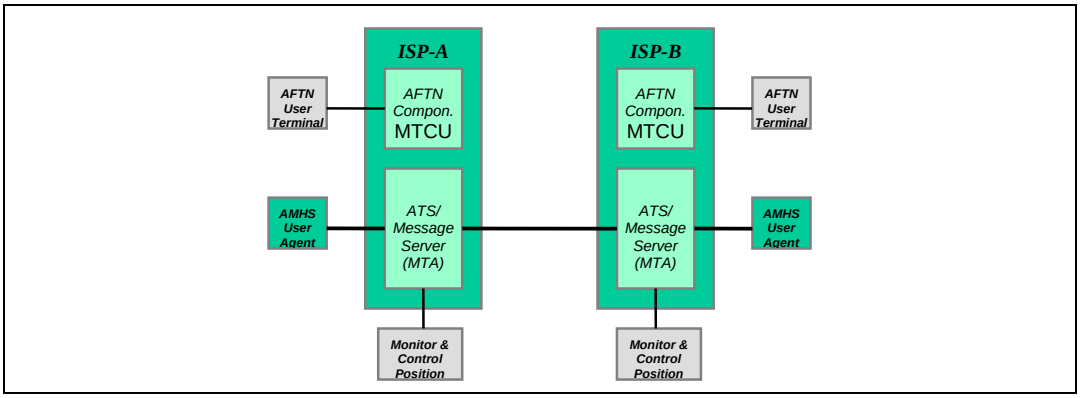


Figure 1: AMHS Interoperability Test Environment

2.2.3 Figure 1 shows the test environment used for AMHS interoperability tests. Both IUTs will be interconnected via AMHS transfer ports supporting the X.400/P1 protocol over a TCP/IP/LAN.

Note. – In Figure 1 the AFTN Terminal is directly connected to the AFTN Component in an abstract way. There may exist different implementations with an AFTN component only connected to an AFTN switch or integrated AFTN/AMHS switches. For the interoperability tests it does not matter whether the AFTN Terminal is connected directly or indirectly.

2.2.4 The components of the test environment as depicted in are involved in the test procedures in following way:

2.2.4.1 ***Submission, Transfer and Delivery operation tests (AMHS => AMHS) (x=1):***

AMHS User Agent => ATS Message Server => ATS Message Server => AMHS User Agent

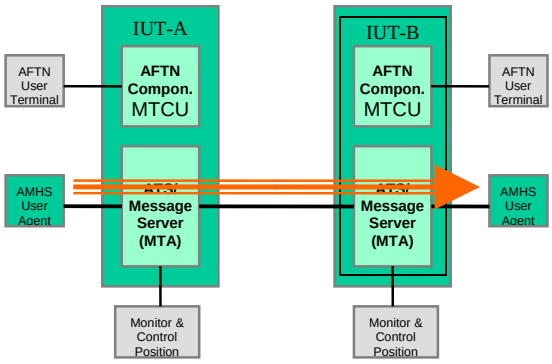


Figure 2: UA to UA (IUT-A to IUT-B)

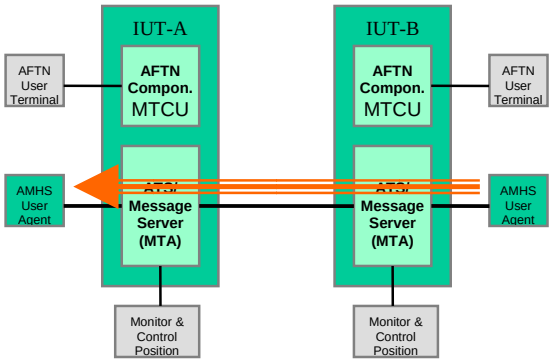


Figure 3: UA to UA (IUT-B to IUT-A)

2.2.4.2 ***AMHS / AFTN gateway tests (AFTN => AMHS) (x=2):***

AFTN Terminal => Gateway and ATS Message Server => UA

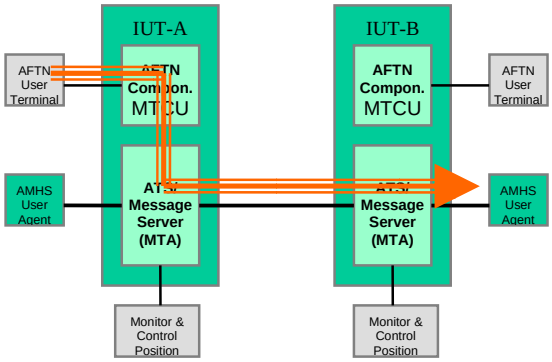


Figure 4: AFTN Terminal to UA (IUT-A to IUT-B)

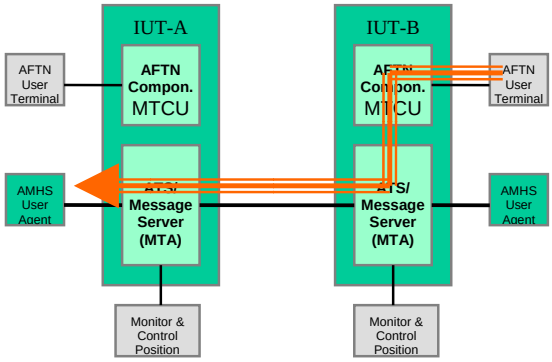


Figure 5: AFTN Terminal to UA (IUT-B to IUT-A)

2.2.4.3 ***AMHS / AFTN gateway tests (AMHS => AFTN) (x=3):***

UA => ATS Message Server and Gateway => AFTN Terminal

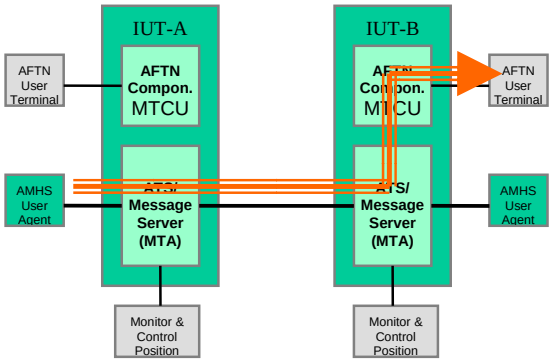


Figure 6: UA to AFTN Terminal (IUT-A to IUT-B)

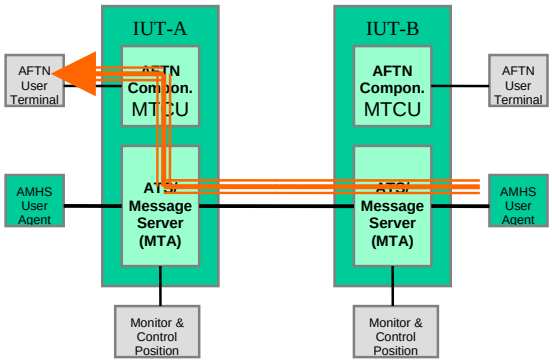


Figure 7: UA to AFTN Terminal (IUT-B to IUT-A)

2.2.4.4 ***AMHS / AFTN gateway tests (AFTN => AMHS => AFTN) (x=4):***

AFTN Terminal => Gateway => ATS Message Servers => Gateway => AFTN Terminal

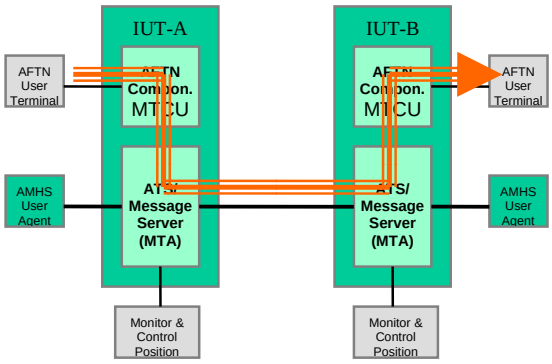


Figure 8: AFTN Terminal to AFTN Terminal (IUT-A to IUT-B)

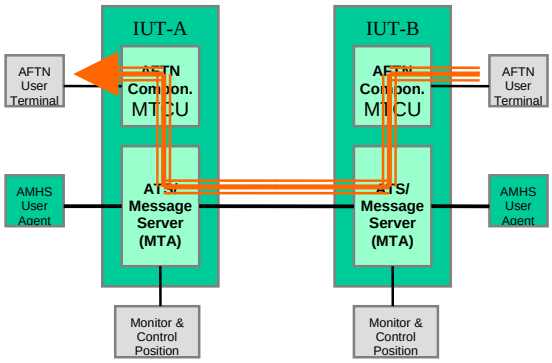


Figure 9: AFTN Terminal to AFTN Terminal (IUT-B to IUT-A)

2.2.4.5 ***Gateway Operations – special case scenarios (x=5)***

a) For the special case scenarios different combinations of the flows shown above are used.

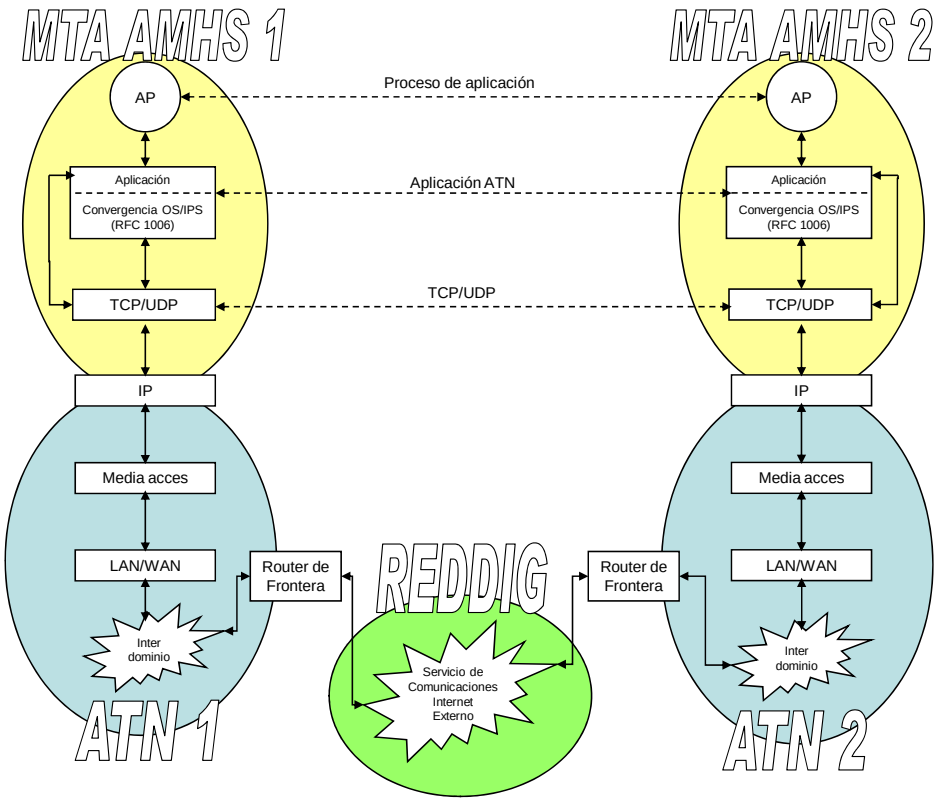
2.2.4.6 ***Stress traffic situations (x=6)***

a) Depending on the stress scenario chosen combinations of the flows shown above are used.

2.3 **Transport infrastructure**

2.3.1 To perform the bilateral interoperability tests, an underlying infrastructure for message transport between the two IUTs has to be agreed.

2.3.2 In the case of the bilateral test between Spain and Argentina the following infrastructure is proposed:



2.4 **IP Address**

2.4.1 Agreed with established in regional frame, it should be use the following IP address for link doors, in accord with states pairs:

Network	Link				
	Number	Subnetwork	Connected Routers	Addresses to Use	
10.15.224.0 / 19	1	10.15.224.0 / 30	Argentina - Bolivia	-	10 . 15 . 224 . 0 / 30
				Argentina	10 . 15 . 224 . 1 / 30
				Bolivia	10 . 15 . 224 . 2 / 30
				-	10 . 15 . 224 . 3 / 30
	2	10.15.224.4 / 30	Argentina - Chile	-	10 . 15 . 224 . 4 / 30
				Argentina	10 . 15 . 224 . 5 / 30
				Chile	10 . 15 . 224 . 6 / 30
				-	10 . 15 . 224 . 7 / 30
	3	10.15.224.8 / 30	Argentina - Paraguay	-	10 . 15 . 224 . 8 / 30
				Argentina	10 . 15 . 224 . 9 / 30
				Paraguay	10 . 15 . 224 . 10 / 30
				-	10 . 15 . 224 . 11 / 30
	4	10.15.224.12 / 30	Argentina - Peru	-	10 . 15 . 224 . 12 / 30
				Argentina	10 . 15 . 224 . 13 / 30
				Peru	10 . 15 . 224 . 14 / 30
				-	10 . 15 . 224 . 15 / 30
	5	10.15.224.16 / 30	Argentina - Uruguay	-	10 . 15 . 224 . 16 / 30
				Argentina	10 . 15 . 224 . 17 / 30
				Uruguay	10 . 15 . 224 . 18 / 30
				-	10 . 15 . 224 . 19 / 30
	7	10.15.224.24 / 30	Brazil - Colombia	-	10 . 15 . 224 . 24 / 30
				Brazil	10 . 15 . 224 . 25 / 30
				Colombia	10 . 15 . 224 . 26 / 30
				-	10 . 15 . 224 . 27 / 30
	8	10.15.224.28 / 30	Brazil - Guyana	-	10 . 15 . 224 . 28 / 30
				Brazil	10 . 15 . 224 . 29 / 30
				Guyana	10 . 15 . 224 . 30 / 30
				-	10 . 15 . 224 . 31 / 30
	9	10.15.224.32 / 30	Brazil – French Guiana	-	10 . 15 . 224 . 32 / 30
				Brazil	10 . 15 . 224 . 33 / 30
				French Guiana	10 . 15 . 224 . 34 / 30
				-	10 . 15 . 224 . 35 / 30
	10	10.15.224.36 / 30	Brazil - Peru	-	10 . 15 . 224 . 36 / 30
				Brazil	10 . 15 . 224 . 37 / 30
				Peru	10 . 15 . 224 . 38 / 30
				-	10 . 15 . 224 . 39 / 30
	11	10.15.224.40 / 30	Brazil - Surinam	-	10 . 15 . 224 . 40 / 30
				Brazil	10 . 15 . 224 . 41 / 30
				Surinam	10 . 15 . 224 . 42 / 30
				-	10 . 15 . 224 . 43 / 30
	12	10.15.224.44 / 30	Brazil - Venezuela	-	10 . 15 . 224 . 44 / 30
				Brazil	10 . 15 . 224 . 45 / 30

Network	Link				
	Number	Subnetwork	Connected Routers	Addresses to Use	
				Venezuela	10 . 15 . 224 . 46 / 30
				-	10 . 15 . 224 . 47 / 30
	16	10.15.224.60 / 30	Brazil - Argentina	-	10 . 15 . 224 . 60 / 30
				Brazil	10 . 15 . 224 . 61 / 30
				Argentina	10 . 15 . 224 . 62 / 30
				-	10 . 15 . 224 . 63 / 30
	17	10.15.224.64 / 30	Brazil - Bolivia	-	10 . 15 . 224 . 64 / 30
				Brazil	10 . 15 . 224 . 65 / 30
				Bolivia	10 . 15 . 224 . 66 / 30
				-	10 . 15 . 224 . 67 / 30
	18	10.15.224.68 / 30	Brazil - Paraguay	-	10 . 15 . 224 . 68 / 30
				Brazil	10 . 15 . 224 . 69 / 30
				Paraguay	10 . 15 . 224 . 70 / 30
				-	10 . 15 . 224 . 71 / 30
	19	10.15.224.72 / 30	Brazil - Uruguay	-	10 . 15 . 224 . 72 / 30
				Brazil	10 . 15 . 224 . 73 / 30
				Uruguay	10 . 15 . 224 . 74 / 30
				-	10 . 15 . 224 . 75 / 30
	21	10.15.224.80 / 30	Chile - Peru	-	10 . 15 . 224 . 80 / 30
				Chile	10 . 15 . 224 . 81 / 30
				Peru	10 . 15 . 224 . 82 / 30
				-	10 . 15 . 224 . 83 / 30
	23	10.15.224.88 / 30	Colombia - Ecuador	-	10 . 15 . 224 . 88 / 30
				Colombia	10 . 15 . 224 . 89 / 30
				Ecuador	10 . 15 . 224 . 90 / 30
				-	10 . 15 . 224 . 91 / 30
	24	10.15.224.92 / 30	Colombia - Peru	-	10 . 15 . 224 . 92 / 30
				Colombia	10 . 15 . 224 . 93 / 30
				Peru	10 . 15 . 224 . 94 / 30
				-	10 . 15 . 224 . 95 / 30
	25	10.15.224.96 / 30	Colombia - Venezuela	-	10 . 15 . 224 . 96 / 30
				Colombia	10 . 15 . 224 . 97 / 30
				Venezuela	10 . 15 . 224 . 98 / 30
				-	10 . 15 . 224 . 99 / 30
	26	10.15.224.100 / 30	Ecuador - Peru	-	10 . 15 . 224 . 100 / 30
				Ecuador	10 . 15 . 224 . 101 / 30
				Peru	10 . 15 . 224 . 102 / 30
				-	10 . 15 . 224 . 103 / 30
	27	10.15.224.104 / 30	Ecuador - Venezuela	-	10 . 15 . 224 . 104 / 30
				Ecuador	10 . 15 . 224 . 105 / 30
				Venezuela	10 . 15 . 224 . 106 / 30
				-	10 . 15 . 224 . 107 / 30
	28	10.15.224.108 / 30	French Guiana - Surinam	-	10 . 15 . 224 . 108 / 30
				French Guiana	10 . 15 . 224 . 109 / 30
				Surinam	10 . 15 . 224 . 110 / 30
				-	10 . 15 . 224 . 111 / 30
	29	10.15.224.112 / 30	Guyana - CCAR	-	10 . 15 . 224 . 112 / 30

Network	Link				
	Number	Subnetwork	Connected Routers	Addresses to Use	
				Guyana	10 . 15 . 224 . 113 / 30
				CCAR (Piarco)	10 . 15 . 224 . 114 / 30
				-	10 . 15 . 224 . 115 / 30
	30	10.15.224.116 / 30	Guyana - Surinam	-	10 . 15 . 224 . 116 / 30
				Guyana	10 . 15 . 224 . 117 / 30
				Surinam	10 . 15 . 224 . 118 / 30
				-	10 . 15 . 224 . 119 / 30
	31	10.15.224.120 / 30	Guyana - Venezuela	-	10 . 15 . 224 . 120 / 30
				Guyana	10 . 15 . 224 . 121 / 30
				Venezuela	10 . 15 . 224 . 122 / 30
				-	10 . 15 . 224 . 123 / 30
	33	10.15.224.128 / 30	Peru - Bolivia	-	10 . 15 . 224 . 128 / 30
				Peru	10 . 15 . 224 . 129 / 30
				Bolivia	10 . 15 . 224 . 130 / 30
				-	10 . 15 . 224 . 131 / 30
	34	10.15.224.132 / 30	Peru - Colombia	-	10 . 15 . 224 . 132 / 30
				Peru	10 . 15 . 224 . 133 / 30
				Colombia	10 . 15 . 224 . 134 / 30
				-	10 . 15 . 224 . 135 / 30
	35	10.15.224.136 / 30	Peru - Venezuela	-	10 . 15 . 224 . 136 / 30
				Peru	10 . 15 . 224 . 137 / 30
				Venezuela	10 . 15 . 224 . 138 / 30
				-	10 . 15 . 224 . 139 / 30
	36	10.15.224.140 / 30	Surinam - Venezuela	-	10 . 15 . 224 . 140 / 30
				Surinam	10 . 15 . 224 . 141 / 30
				Venezuela	10 . 15 . 224 . 142 / 30
				-	10 . 15 . 224 . 143 / 30
	37	10.15.224.144 / 30	Venezuela - CAR	-	10 . 15 . 224 . 144 / 30
				Venezuela	10 . 15 . 224 . 145 / 30
				CAR (San Juan)	10 . 15 . 224 . 146 / 30
				-	10 . 15 . 224 . 147 / 30
	39	10.15.224.152 / 30	Venezuela - Trinidad y Tobago	-	10 . 15 . 224 . 152 / 30
				Venezuela	10 . 15 . 224 . 153 / 30
				Trinidad y Tobago	10 . 15 . 224 . 154 / 30
				-	10 . 15 . 224 . 155 / 30
	40	10.15.224.156 / 30	Vacant	-	10 . 15 . 224 . 156 / 30
				-	10 . 15 . 224 . 157 / 30
				-	10 . 15 . 224 . 158 / 30
				-	10 . 15 . 224 . 159 / 30
	-	10.15.224.160 / 30	Vacant	-	10 . 15 . 224 . 160 / 30
				-	10 . 15 . 224 . 161 / 30
				-	10 . 15 . 224 . 162 / 30
				-	10 . 15 . 224 . 163 / 30
	-	10.15.224.164 / 30	Vacant	-	10 . 15 . 224 . 164 / 30
				-	10 . 15 . 224 . 165 / 30
				-	10 . 15 . 224 . 166 / 30

Network	Link				
	Number	Subnetwork	Connected Routers	Addresses to Use	
				-	10 . 15 . 224 . 167 / 30
	-	-	-	-	-
				-	-
				-	-
				-	-
	-	-	-	-	-
				-	-
				-	-
				-	-
	2048 (last)	10.15.31.252 / 30	Vacant	-	10 . 15 . 224 . 252 / 30
				-	10 . 15 . 224 . 253 / 30
				-	10 . 15 . 224 . 254 / 30
				-	10 . 15 . 224 . 255 / 30

2.4.2 With respect to IP addresses initially assigned to each State, they are attached as Appendix A.

2.5 Default names and passwords

2.5.1 The following entries and/or parameter shall be agreed between the test partners. Preferred the default values should be used.

2.5.2 Default MTA names and passwords

IUT A: Name of the aeronautical administration- State A.
IUT B: Name of the aeronautical administration- State B.

IUT	MTA name	Remarks
IUT-A		
IUT-B		

Table 1: Default MTA names

IUT	Password	Remarks
IUT-A		
IUT-B		

Table 2: Default passwords

2.5.3 TSAP addresses

IUT A: Name of the aeronautical administration- State A.
IUT B: Name of the aeronautical administration- State B.

IUT	TSAP address	Remarks
IUT-A		
IUT-B		

Table 3: TSAP addresses

2.5.4 **MTA Addresses**

IUT A: Name of the aeronautical administration- State A.
IUT B: Name of the aeronautical administration- State B.

ISP	IP address	Remarks
IUT-A	MTA address, in agree with IP regional addressing plan	
IUT-B	MTA address, in agree with IP regional addressing plan	

Table 4: IP Address

2.6 **User addresses**

2.6.1 To meet the scope of testing, the test-address space used by AMHS Interoperability Testing should include, for each IUT, the respective AFTN and AMHS addresses and the corresponding AMHS PRMD.

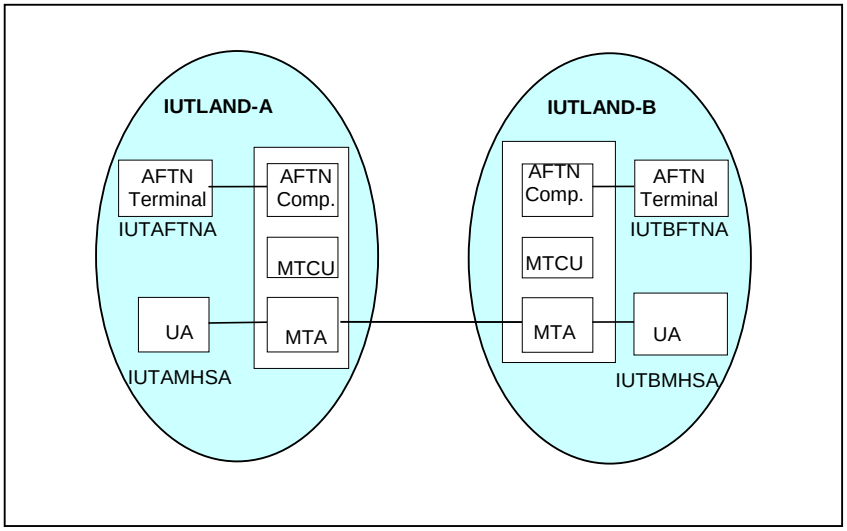


Figure 10: Addressing Plan

2.6.2 The original, operational AMHS and AFTN addresses assigned to the COM Centre could be used as test addresses for each IUT. To distinguish between operational and test addresses it is recommended to use alternatively, a generic address space taken from fictitious PRMD/AFTN countries IUTLAND-A and IUTLAND-B.

2.6.3 This includes generic user addresses IUTAFTNA and IUTAMHSA for IUTLAND-A as well as IUTBFTNA and IUTBMHSA for IUTLAND-B, which may be mapped either according to the CAAS with multiple "O" values.

2.6.4 The following tables show the generic address space assigned to the two IUTs and a third IUT if trilateral network tests are performed.

CAAS (preferred) – single "O"	CAAS – multiple "O"	XF
C = XX ADMD = ICAO PRMD = IUTLAND-A O = REGION A OU1 = IUTA CN = IUTAFTNA ... IUTAMHSA	C = XX ADMD = ICAO PRMD = IUTLAND-A O = A-REGION1 OU1 = IUTA CN = IUTAFTNA ... IUTAMHSA O = A-REGION2 OU1 = IUBA CN = IUBAFTNA ... IUBAMHSA	C = XX ADMD = ICAO PRMD = IUTLAND-B O = AFTN OU1 = IUTBFTNA ... IUTBMHSA

Table 5: Generic address spaces of IUTLAND-A

CAAS (preferentemente) –"O" simple	CAAS – "O"multiple	XF
C = XX ADMD = ICAO PRMD = ISPLAND-B O = REGION B OU1 = ISPB CN = ISPBFTNA ... ISPBMHSA	C = XX ADMD = ICAO PRMD = ISPLAND-B O = B-REGION1 OU1 = ISPB CN = ISPBFTNA ... ISPBMHSA O = B-REGION2 OU1 = IUBB CN = IUBBFTNA ... IUBBMHSA	C = XX ADMD = ICAO PRMD = ISPLAND-B O = AFTN OU1 = ISPBFTNA ... ISPBMHSA

Table 6: Generic address spaces of IUTLAND-B

2.7 DL addresses

IUT A: Name of the aeronautical administration- State A.
IUT B: Name of the aeronautical administration- State B.

Distribution List name	Addresses included in the DL	Remarks
IUTADLLO	IUTBFTNA IUTBFTNB IUTBMHSA	
IUTADLRE	IUTAFTNA IUTAFTNB IUTAMHSA	

Table 7: DL addresses of IUT-A

Distribution List name	Addresses included in the DL	Remarks
IUTBDLLO	IUTAFTNA IUTAFTNB IUTAMHSA	
IUTBDLRE	IUTBFTNA IUTBFTNB IUTBMHSA	

Table 8: DL addresses of IUT-B

2.8 AFTN and X.400 Routing Tables

IUT A: Name of the aeronautical administration- State A.
IUT B: Name of the aeronautical administration- State B.

2.8.1 AFTN and X.400 Routing Tables of IUT-A

IUT - A: Name of the aeronautical administration- State A., IUTAFTN* address where IUTA corresponds to the four letters from site indicator corresponding to the site where MTA A is located..

IUT - B: Name of the aeronautical administration- State B., IUTBFTN* address where IUTB corresponds to the four letters from site indicator corresponding to the site where MTA B is located.

AFTN Routing Indicator	Routing direction	Remarks
IUTAFT*	AFTN Terminal	
IUTA*	MTCU	
IUTB*	MTCU	

Table 9: AFTN Routing Table of IUT-A

X.400 Routing Indicator	Routing direction	Remarks
/C=XX/A=ICAO/P=IUTLAND-A /O=A-REGION/OU1=IUTA/CN=IUTAMHSA/	UA IUT-A	If CAAS "single "O" type
/C=XX/A=ICAO/P=IUTLAND-A /O=A-REGION/OU1=IUTA/CN=IUTAMHSB/	UA IUT-A	If CAAS "single "O" type
/C=XX/A=ICAO/P=IUTLAND-A /O=A-REGION/OU1=IUTA/CN=IUTAMHSC/	UA IUT-A	If CAAS "single "O" type
/C=XX/A=ICAO/P=IUTLAND-A /O=AFTN/OU1=IUTAMHSA/	UA IUT-A	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-A /O=AFTN/OU1=IUTAMHSB/	UA IUT-A	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-A /O=AFTN/OU1=IUTAMHSC/	UA IUT-A	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-A	MTCU	
/C=XX/A=ICAO/P=IUTLAND-B	MTA-IUTB-1	
/C=XX/A=ICAO/P=IUTLAND-C	MTA-IUTC-1	
/C=XX/A=ICAO/P=IUTLAND-X	MTA-IUTB-1	

Table 10: X.400 Routing Table of IUT-A

2.8.2 AFTN and X.400 Routing Tables of IUT-B

AFTN Routing Indicator	Routing direction	Remarks
IUTBFT*	AFTN Terminal	
IUTA*	MTCU	
IUTB*	MTCU	
IUTC*	MTCU	

Table 5: AFTN Routing Table of IUT-B

X.400 Routing Indicator	Routing direction	Remarks
/C=XX/A=ICAO/P=IUTLAND-B /O=B-REGION/OU1=IUTB/CN=IUTBMHSA/	UA IUT-B	If CAAS "single "O" type
/C=XX/A=ICAO/P=IUTLAND-B /O=B-REGION/OU1=IUTB/CN=IUTBMHSB/	UA IUT-B	If CAAS "single "O" type
/C=XX/A=ICAO/P=IUTLAND-B /O=B-REGION/OU1=IUTB/CN=IUTBMHSC/	UA IUT-B	If CAAS "single "O" type

X.400 Routing Indicator	Routing direction	Remarks
/C=XX/A=ICAO/P=IUTLAND-B /O=AFTN/OU1=IUTBMHSA/	UA IUT-B	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-B /O=AFTN/OU1=IUTBMHSB/	UA IUT-B	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-B /O=AFTN/OU1=IUTBMHSC/	UA IUT-B	If "XF" type
/C=XX/A=ICAO/P=IUTLAND-B	MTCU	
/C=XX/A=ICAO/P=IUTLAND-A	MTA-IUTA-1	
/C=XX/A=ICAO/P=IUTLAND-X	MTA-IUTC-1	

Table 11: X.400 Routing Table of IUT-B

2.9 Look-up Table

2.9.1 Generic look-up Table for all Implementations Under Test (IUT) (CAAS single "O" type).

AFTN address	O/R Address (CAAS single "O" type)
IUTAFTN*	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/
IUTAFTA*	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/
IUTAFTU*	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/ ***Note. – This address has to be unknown and not defined in IUT-A***
IUTAMHSA	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSA/
IUTAMHSB	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSB/
IUTAMHSC	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSC/
IUTADLLO	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTADLLO/
IUTADLRE	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTADLRE/
IUTBFTN*	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/
IUTBFTA*	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/
IUTBFTU*	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/ ***Note. – This address has to be unknown and not defined in IUT-B***
IUTBMHSA	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSA/
IUTBMHSB	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSB/
IUTBMHSC	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSC/
IUTBDLLO	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBDLLO/
IUTBDLRE	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBDLRE/
IUTXLOOP	/C=XX/A=ICAO/P=IUTLAND-X/O=X-REGION/OU1=IUTX/CN=IUTXLOOP/

Table 12: Generic look-up table (CAAS single "O" type)

2.9.2 Generic look-up Table for all Implementations Under Test (IUT) ("XF" type)

AFTN address	O/R Address ("XF" type)
IUTAFTN*	/C=XX/A=ICAO/P=IUTLAND-A/
IUTAFTA*	/C=XX/A=ICAO/P=IUTLAND-A/
IUTAFTU*	/C=XX/A=ICAO/P=IUTLAND-A/ ***Note. – This address has to be unknown and not defined in IUT-A***
IUTAMHSA	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSA/
IUTAMHSB	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSB/
IUTAMHSC	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSC/
IUTADLLO	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTADLLO/
IUTADLRE	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTADLRE/
IUTBFTN*	/C=XX/A=ICAO/P=IUTLAND-B/
IUTBFTA*	/C=XX/A=ICAO/P=IUTLAND-B/
IUTBFTU*	/C=XX/A=ICAO/P=IUTLAND-B/ ***Note. – This address has to be unknown and not defined in IUT-B***
IUTBMHSA	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSA/
IUTBMHSB	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSB/
IUTBMHSC	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSC/
IUTBDLLO	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBDLLO/
IUTBDLRE	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBDLRE/
IUTXLOOP	/C=XX/A=ICAO/P=IUTLAND-X/O=AFTN/OU1=IUTXLOOP/

Table 13: Generic look-up table ("XF" type)

Note. – There are further possibilities: IUT-A could have XF addressing scheme whilst IUT-B has CAAS, or vice-versa. In such a case, the corresponding table entries should be selected. To simplify matters it is recommended to use CAAS single "O" type or "XF" type only.

2.10 **Local AMHS User address book**

2.10.1 Local AMHS User address book for UA of all Implementations Under Test (IUT) (CAAS single "O" type).

Nick name	O/R Address (CAAS single "O" type)
IUTAFTNA	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNA/
IUTAFTNB	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNB/
IUTAFTNC	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNC/
IUTAFTND	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTND/
IUTAFTNE	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNE/
IUTAFTNF	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNF/
IUTAFTNG	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNG/
IUTAFTNH	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNH/
IUTAFTNI	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNI/
IUTAFTNJ	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNJ/
IUTAFTNK	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNK/
IUTAFTNL	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNL/
IUTAFTNM	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNM/
IUTAFTNN	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNN/
IUTAFTNO	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNO/

Nick name	O/R Address (CAAS single "O" type)
IUTAFTNP	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNP/
IUTAFTNQ	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNQ/
IUTAFTNR	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNR/
IUTAFTNS	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNS/
IUTAFTNT	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNT/
IUTAFTNU	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNU/
IUTAFTNV	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNV/
IUTAFTNW	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNW/
IUTAFTNX	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNX/
IUTAFTNY	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTNY/
IUTAFTAA	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAA/
IUTAFTAB	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAB/
IUTAFTAC	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAC/
IUTAFTAD	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAD/
IUTAFTAE	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAE/
IUTAFTAF	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAF/
IUTAFTAG	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAG/
IUTAFTAH	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAH/
IUTAFTAI	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAI/
IUTAFTAJ	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAJ/
IUTAFTAK	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAK/
IUTAFTAL	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAL/
IUTAFTAM	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAM/
IUTAFTAN	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAN/
IUTAFTAO	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAO/
IUTAFTAP	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAP/
IUTAFTAQ	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAQ/
IUTAFTAR	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAR/
IUTAFTAS	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAS/
IUTAFTAT	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAT/
IUTAFTAU	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAU/
IUTAFTAV	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAV/
IUTAFTAW	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAW/
IUTAFTAX	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAX/
IUTAFTAY	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTAY/
IUTAFTUU	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAFTUU/
IUTAMHSA	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSA/
IUTAMHSB	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSB/
IUTAMHSC	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTAMHSC/
IUTADLLO	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTADLLO/
IUTADLRE	/C=XX/A=ICAO/P=IUTLAND-A/O=A-REGION/OU1=IUTA/CN=IUTADLRE/
IUTBFTNA	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTNA/
IUTBFTNB	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTNB/
IUTBFTNC	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTNC/
till	**To be continued till**
IUTBFTNY	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTNY/
IUTBFTAA	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTAA/
till	**To be continued till**
IUTBFTAY	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTAY/
IUTBFTUU	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBFTUU/

Nick name	O/R Address (CAAS single "O" type)
IUTBMHSA	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSA/
IUTBMHSB	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSB/
IUTBMHSC	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBMHSC/
IUTBDLLO	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBDLLO/
IUTBDLRE	/C=XX/A=ICAO/P=IUTLAND-B/O=B-REGION/OU1=IUTB/CN=IUTBDLRE/
IUTCFTNC	/C=XX/A=ICAO/P=IUTLAND-C/O=C-REGION/OU1=IUTC/CN=IUTCFTNA/
IUTCMHSA	/C=XX/A=ICAO/P=IUTLAND-C/O=C-REGION/OU1=IUTC/CN=IUTCMHSA/
IUTXLOOP	/C=XX/A=ICAO/P=IUTLAND-X/O=X-REGION/OU1=IUTX/CN=IUTXLOOP/

Table 64: Local AMHS User address book (CAAS single "O" type)

2.10.2 Local AMHS User address book for UA of all Implementations Under Test (IUT) ("XF" type).

Nick name	O/R Address ("XF" type)
IUTAFTNA	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTNA/
IUTAFTNB	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTNB/
IUTAFTNC	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTNC/
till	**To be continued till**
IUTAFTNY	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTNY/
IUTAFTAA	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTAA/
till	**To be continued till**
IUTAFTAY	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTAY/
IUTAFTUU	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAFTUU/
IUTAMHSA	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSA/
IUTAMHSB	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSB/
IUTAMHSC	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTAMHSC/
IUTADLLO	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTADLLO/
IUTADLRE	/C=XX/A=ICAO/P=IUTLAND-A/O=AFTN/OU1=IUTADLRE/
IUTBFTNA	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTNA/
IUTBFTNB	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTNB/
IUTBFTNC	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTNC/
till	**To be continued till**
IUTBFTNY	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTNY/
IUTBFTAA	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTAA/
till	**To be continued till**
IUTBFTAY	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTAY/
IUTBFTUU	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBFTUU/
IUTBMHSA	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSA/
IUTBMHSB	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSB/
IUTBMHSC	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBMHSC/
IUTBDLLO	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBDLLO/
IUTBDLRE	/C=XX/A=ICAO/P=IUTLAND-B/O=AFTN/OU1=IUTBDLRE/
IUTXLOOP	/C=XX/A=ICAO/P=IUTLAND-X/O=AFTN/OU1=IUTXLOOP/

Table 75: Local AMHS User address book ("XF" type)

2.11 Bilateral Test Procedures

2.11.1 Submission, Transfer and Delivery Operation (AMHS to AMHS)

2.11.1.1 IT101 – Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)
Test criteria	This test is successful, if the MTA of the sending IUT transfers the submitted ATS messages (IPM) correctly to a peer MTA which delivers the ATS messages (IPM) to the UA of the receiving IUT.
Scenario description	From the UA of IUT-A send a sequence of five ATS messages (IPMs) to the IUT addressing a remote AMHS user in the peer IUT, via AMHS. Message 1 (IT101M01) shall have ATS-message-priority KK. Message 2 (IT101M02) shall have ATS-message-priority GG. Message 3 (IT101M03) shall have ATS-message-priority FF. Message 4 (IT101M04) shall have ATS-message-priority DD. Message 5 (IT101M05) shall have ATS-message-priority SS. Each message shall have different ATS-filing-time and ATS-message-text. The *optional-heading-information* element shall be empty. Verify the messages received by the remote UA. In particular, verify: - ATS-message-priority, - ATS-message-filing-time, - ATS-message-text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.2.1 (ATS Message User Agent), 3.1.2.2.2 (ATS Message Server), 3.1.2.2.3.2.3 (ATS-Message-Header)
Related FIRST interoperability test(s)	ITP001/C41/C42
Test class	Normal AMHS communications (N)

2.11.1.2 IT102 – Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)
Test criteria	This test is successful, if the MTA of the sending IUT transfers the submitted ATS messages (IPM) correctly to a peer MTA which delivers the ATS messages (IPM) to the UA of the receiving IUT.
Scenario description	From the UA of IUT-B send a sequence of five ATS messages (IPMs) to the IUT addressing a remote AMHS user in the peer IUT, via AMHS. Message 1 (IT102M01) shall have ATS-message-priority KK. Message 2 (IT102M02) shall have ATS-message-priority GG. Message 3 (IT102M03) shall have ATS-message-priority FF. Message 4 (IT102M04) shall have ATS-message-priority DD. Message 5 (IT102M05) shall have ATS-message-priority SS.

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)
	Each message shall have different ATS-filing-time and ATS-message-text. The *optional-heading-information* element shall be empty. Verify the messages received by the remote UA. In particular, verify: - ATS-message-priority, - ATS-message-filing-time, - ATS-message-text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.2.1 (ATS Message User Agent), 3.1.2.2.2 (ATS Message Server), 3.1.2.2.3.2.3 (ATS-Message-Header)
Related FIRST interoperability test(s)	ITP001/C41/C42
Test class	Normal AMHS communications (N)

2.11.2 Gateway Operations (AFTN to AMHS)

2.11.2.1 IT201 – Convert an AFTN message to AMHS format (IUT-A)

IT201	Convert an AFTN message to AMHS format (IUT-A)
Test criteria	This test is successful, if the sending IUT converts AFTN messages correctly to AMHS messages (IPM).
Scenario description	From the sending IUT send a sequence of AFTN messages addressing a remote AMHS user, consisting of five messages: AFTN message 1 (IT201M01) shall have priority KK. AFTN message 2 (IT201M02) shall have priority GG. AFTN message 3 (IT201M03) shall have priority FF. AFTN message 4 (IT201M04) shall have priority DD. AFTN message 5 (IT201M05) shall have priority SS. The filing time shall be different in each message and the OHI field of each message shall be empty. Check the IPMs that the AMHS user receives in the receiving IUT. Verify that the IUT has converted the messages correctly according to Table 3.1.2-8 of the AMHS SARPs – see section 3.1.2.3.4.2. In particular: - verify that each message has different ATS-filing-time; - verify that the optional-heading-information element is empty; - check the correct format of the ATS message; - verify the ATS-message-priority and the related message transfer priority for each received message; - compare the ATS-message-text with the original AFTN message text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.4.2

IT201	Convert an AFTN message to AMHS format (IUT-A)
Related FIRST interoperability test(s)	ITP001/C21/C31/C51/C53
Test class	Normal AMHS communications (N)

2.11.2.2 IT202 – Convert an AFTN message to AMHS format (IUT-B)

IT202	Convert an AFTN message to AMHS format (IUT-B)
Test criteria	This test is successful, if the sending IUT converts AFTN messages correctly to AMHS messages (IPM).
Scenario description	From the sending IUT send a sequence of AFTN messages addressing a remote AMHS user, consisting of five messages: AFTN message 1 (IT202M01) shall have priority KK. AFTN message 2 (IT202M02) shall have priority GG. AFTN message 3 (IT202M03) shall have priority FF. AFTN message 4 (IT202M04) shall have priority DD. AFTN message 5 (IT202M05) shall have priority SS. The filing time shall be different in each message and the OHI field of each message shall be empty. Check the IPMs that the AMHS user receives in the receiving IUT. Verify that the IUT has converted the messages correctly according to Table 3.1.2-8 of the AMHS SARPs – see section 3.1.2.3.4.2. In particular: - verify that each message has different ATS-filing-time; - verify that the optional-heading-information element is empty; - check the correct format of the ATS message; - verify the ATS-message-priority and the related message transfer priority for each received message; - compare the ATS-message-text with the original AFTN message text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.4.2
Related FIRST interoperability test(s)	ITP001/C21/C31/C51/C53
Test class	Normal AMHS communications (N)

2.11.3 Gateway Operations (AMHS to AFTN)

2.11.3.1 IT301 – Convert an IPM generated by the UA of IUT-A to AFTN format

IT301	Convert an IPM to AFTN format (IUT-B)
Test criteria	This test is successful, if the receiving IUT converts IPMs correctly into AFTN format.
Scenario description	Send from IUT-A (UA) a sequence of ATS messages (IPMs) to the IUT-B, addressing an AFTN terminal. Message 1 (IT301M01) shall have ATS-message-priority KK. Message 2 (IT301M02) shall have ATS-message-priority GG. Message 3 (IT301M03) shall have ATS-message-priority FF. Message 4 (IT301M04) shall have ATS-message-priority DD. Message 5 (IT301M05) shall have ATS-message-priority SS. Each message shall have different ATS-filing-time and ATS-message-text. The *optional-heading-information* element shall be empty. The implicit-conversion-prohibited attribute of the AMHS message must be set to “false”. Check the correct format of the AFTN message. Verify the AFTN priority and filing time for each received message. Compare the AFTN message text with the original ATS-message-text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.5.2 (AMHS IPM conversion)
Related FIRST interoperability test(s)	ITP001/C31/C32/C52/C54
Test class	Normal AMHS communications (N)

2.11.3.2 IT302 – Convert an IPM generated by the UA of IUT-B to AFTN format

IT302	Convert an IPM to AFTN format (IUT-A)
Test criteria	This test is successful, if the receiving IUT converts IPMs correctly into AFTN format.
Scenario description	From the sending IUT send a sequence of ATS messages (IPMs) to the receiving IUT, addressing an AFTN terminal. Message 1 (IT302M01) shall have ATS-message-priority KK. Message 2 (IT302M02) shall have ATS-message-priority GG. Message 3 (IT302M03) shall have ATS-message-priority FF. Message 4 (IT302M04) shall have ATS-message-priority DD. Message 5 (IT302M05) shall have ATS-message-priority SS. Each message shall have different ATS-filing-time and ATS-message-text. The *optional-heading-information* element shall be empty. The implicit-conversion-prohibited attribute of the AMHS message must be set to “false”. Check the correct format of the AFTN message. Verify the AFTN priority and filing time for each received message. Compare the AFTN message text with the

IT302	Convert an IPM to AFTN format (IUT-A)
	original ATS-message-text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.5.2 (AMHS IPM conversion)
Related FIRST interoperability test(s)	ITP001/C31/C32/C52/C54
Test class	Normal AMHS communications (N)

2.11.4 Gateway Operations (AFTN to AMHS to AFTN)

2.11.4.1 IT401 – Convert an AFTN message to AMHS and back to AFTN format

IT401	Convert an AFTN message to AMHS and back to AFTN format
Test criteria	This test is successful, if the sending IUT-A converts AFTN user messages correctly to AMHS messages (IPM) and the IPMs are converted back to AFTN in IUT-B.
Scenario description	From IUT-A send a sequence of AFTN messages addressing a remote AFTN user in IUT-B, consisting of five messages: AFTN message 1 (IT401M01) shall have priority KK. AFTN message 2 (IT401M02) shall have priority GG. AFTN message 3 (IT401M03) shall have priority FF. AFTN message 4 (IT401M04) shall have priority DD. AFTN message 5 (IT401M05) shall have priority SS. The filing time shall be different in each message and the OHI field of each message shall be empty. Check the AFTN message received by the AFTN user in the IUT-B. Check the correct format of the AFTN message. Each AFTN message shall have original filing time. Each message shall have an empty OHI. Verify the AFTN priority for each received message. Compare the AFTN message text with the original AFTN message text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.4.2, 3.1.2.3.5.2
Related FIRST interoperability test(s)	ITP001/C21/C31/C51/C53
Test class	Normal AMHS communications (N)

2.11.4.2 IT402 – Convert an AFTN message to AMHS and back to AFTN format

IT402	Convert an AFTN message to AMHS and back to AFTN format
Test criteria	This test is successful, if the sending IUT-B converts AFTN user messages correctly to AMHS messages (IPM) and the IPMs are converted back to AFTN in IUT-A.
Scenario description	From IUT-B send a sequence of AFTN messages addressing a remote AFTN user in IUT-A, consisting of five messages: AFTN message 1 (IT402M01) shall have priority KK. AFTN message 2 (IT402M02) shall have priority GG. AFTN message 3 (IT402M03) shall have priority FF. AFTN message 4 (IT402M04) shall have priority DD. AFTN message 5 (IT402M05) shall have priority SS. The filing time shall be different in each message and the OHI field of each message shall be empty. Check the AFTN message received by the AFTN user in the IUT-A. Check the correct format of the AFTN message. Each AFTN message shall have original filing time. Each message shall have an empty OHI. Verify the AFTN priority for each received message. Compare the AFTN message text with the original AFTN message text.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.4.2, 3.1.2.3.5.2
Related FIRST interoperability test(s)	ITP001/C21/C31/C51/C53
Test class	Normal AMHS communications (N)

2.11.5 **Gateway Operations – special case scenarios**

Note – The following special case scenarios are symmetric. That means, all test-cases have to be performed by IUT-A as well as IUT-B.

2.11.5.1 IT501 – Distribute an IPM to AMHS and AFTN users

IT501	Distribute an IPM to AMHS and AFTN users
Test criteria	This test is successful, if the receiving IUT distributes an IPM addressing both an AMHS and an AFTN user correctly.
Scenario description	From the sending IUT send an ATS message (IPM), addressing both AMHS and AFTN users, at the receiving IUT. The IPM Heading of the message shall contain two primary recipients, which are one AMHS and one AFTN user. The IPM Heading of the next message shall contain additionally, two copy recipients, which are also one AMHS and one AFTN user. Finally the IPM Heading of the last message shall contain additionally two blind

IT501	Distribute an IPM to AMHS and AFTN users
	copy recipients, which are also one AMHS and one AFTN user. Verify that all the users, whose addresses have been included in the IPM, receive the message correctly.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.2.1 (ATS message user agent), 3.1.2.2.2 (ATS message server), 3.1.2.3.5.2 (IPM conversion)
Related FIRST interoperability test(s)	ITP053/C51/C52/C53/C54/C55/C56
Test class	Normal AMHS communications (N)

2.11.5.2 IT502 – Expand a DL addressing both AMHS and AFTN users

IT502	Expand a DL addressing both AMHS and AFTN users
Test criteria	This test is successful, if the receiving IUT distributes an IPM, addressing AMHS and AFTN users in a distribution list, correctly.
Scenario description	From the sending IUT send an ATS message (IPM) to the receiving IUT. The recipient contained in the MTE addresses a distribution list, for which the receiving IUT is responsible. The distribution list shall have the addresses of one AMHS user and two AFTN users as members. The message shall have the *dl-expansion-prohibited* attribute set to "false". Check the messages received in each AFTN user address verifying that each one contains its corresponding address.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.2.2.1.1 (DL functional group), 3.1.2.3.5.2 (IPM conversion)
Related FIRST interoperability test(s)	ITP055/C51/C52, ITP057/C51/C52
Test class	Normal AMHS communications (N)

2.11.5.3 IT503 – Convert an IPM, if the ATS-message-text contains more than 1800 characters

IT503	Convert or reject an IPM, if the ATS-message-text contains more than 1800 characters
Test criteria	This test is successful, if the IUT, when it receives an ATS message with ATS-message-text longer than 1800 characters, rejects the message and returns a NDR, or splits the received IPM into several messages and converts the resulting messages into AFTN format as specified in ICAO Annex 10, Attm. , or converts the received IPM into a "long" AFTN message. *Note. – The AMHS SARPs (3.1.2.3.5.2.1.7) specify that the message can be rejected (case a) or split into several messages (case b).*

IT503	Convert or reject an IPM, if the ATS-message-text contains more than 1800 characters
Scenario description	From the sending IUT send an ATS message (IPM) containing ATS-message-text of 4500 characters to an AFTN recipient of the receiving IUT. *If case a is implemented:* Verify that the receiving IUT does not convert the IPM into AFTN format, but returns a NDR. Check the NDR contents received at the sending User Agent. Verify that the NDR contains the following elements: "unable-to-transfer" for the *non-delivery-reason-code*; "content-too-long" for the *non-delivery-diagnostic-code*; and "unable to convert to AFTN due to message text length" for the *supplementary-information*. *If case b is implemented:* Verify that (at least) three AFTN messages are received by the AFTN recipient. Check the correct format of the AFTN messages. Check the text field of all received AFTN messages. Verify that the text is complete and unchanged, i.e. compare the received data with the *ATS-message-text* provided in the original IPM. Verify that the received messages contain the sequence indicators as specified in Attm. B of ICAO Annex 10, Vol. II *If case c is implemented:* Verify that the AFTN message is received by the AFTN recipient. Check the correct format of the received AFTN message. Verify that the text is complete and unchanged, i.e. compare the received data with the *ATS-message-text* provided in the original IPM.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.5.2.1.7
Related FIRST interoperability test(s)	ITP007/C31/C32/C51/C52
Test class	Normal AMHS communications (N)

2.11.5.4 IT504 – Split an incoming IPM addressing more than 21 AFTN users

IT504	Split an incoming IPM addressing more than 21 AFTN users
Test criteria	This test is successful, if the receiving IUT receives an ATS message (IPM) addressing more than 21 AFTN users and splits the received IPM into several messages each addressing 21 or less AFTN users. *Note. – PDR M4050004 (Title: AMHS - Too Many Recipients) is resolved. Therefore the message shall be split into several messages.*
Scenario description	From the sending IUT send an ATS message (IPM) to the receiving IUT. The message shall address 50 (primary) recipients. Verify that the receiving IUT converts the IPM into AFTN format and sends three AFTN messages to its AFTN component. Check the addressee indicators contained in the AFTN messages. Verify that no AFTN recipient is lost and the total number of AFTN addressee indicators contained in all three messages is 50. For example - the first AFTN message contains addressee indicators for the first 21 recipients, - the second AFTN message contains addressee indicators for the next 21 recipients, and

IT504	Split an incoming IPM addressing more than 21 AFTN users
	- the third AFTN message contains addressee indicators for the remaining 8 recipients.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.5.2.1.8
Related FIRST interoperability test(s)	ITP008/C31/C32
Test class	Normal AMHS communications (N)

2.11.5.5 IT505 – Probe Conveyance Test

IT505	Probe Conveyance Test
Test criteria	This test is successful, if the receiving IUT generates a report (DR or NDR), when it receives a probe with AFTN users as intended recipients.
Scenario description	From the sending IUT, send AMHS probes to the receiving IUT: addressing two AFTN recipients and one AMHS recipient, addressing two AFTN recipients, one of which can be mapped and one of which cannot be mapped onto a valid AFTN address. Verify that the receiving IUT returns - one DR with 2 AFTN recipients from the MTCU and one DR with one recipient from the MTA - a combined DR and NDR or one DR and one NDR in response to the probe received. Verify in all cases that the DRs reporting about the AFTN addresses which could be translated contains the supplementary information “This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient”.
AMHS SARPs reference	Doc 9705-AN/956, 3.1.2.3.5.5 (reception of AMHS probe), 3.1.2.3.5.6.2.27
Related FIRST interoperability test(s)	ITP066/C51/C52
Test class	Normal AMHS communications (N)

2.11.6 **Stress traffic situations**

2.11.6.1 IT601 – Stress load

IT601	**Stress load**
Test criteria	This test is successful, if both IUTs perform AMHS traffic interchange correctly for a number of messages queued in advance.
Scenario description	Defined numbers of messages (beginning with100, 200, till 400 messages) have to be selected from the data base or generated by the UA or the AFTN terminal. These messages need to be queued (in MTAs) in both IUTs, preferably by disabling the physical connector used to send information to the underlying network in one of the IUTs. When reconnecting, the messages queued in both IUTs will be sent simultaneously from the two sites, the rate being defined by the line speed of the interconnection, as well as the process followed by each system. No errors due to malfunction of the IUTs should be observed during the interchange period. The time from sending the first till receiving the last message has to be measured and analysed in both IUTs.
AMHS SARPs reference	None
Related FIRST interoperability test(s)	None
Test class	Normal (forced) AMHS communications (N)

2.12 Bilateral Test Procedures – Test Scenarios

2.12.1 Introduction

2.12.1.1 The following tables contain the scenarios for the different Interoperability Tests (IT) described in the previous chapters.

2.12.1.2 The test scenarios consist of several test-cases. The test-case reference is as follows:

ITxxx/TCzz

Test scenario: ITxxx where xxx is the scenario number

Test-case: TCzz where zz is the number of test-case.

2.12.1.3 *Personalization of the tests*: if two are the States that they carry out the tests, each one it will replace IUTA and IUTB for Site Indicator of Document 7910 that it corresponds them (e.g. if Paraguay - State A and Peru - State B executes the tests, IUTA will be replaced by SGAS and IUTB by SPIM).

2.12.2 Submission, Transfer and Delivery Operation (AMHS to AMHS)

IT101	**Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)**		
Test-case id: **IT101/TC01**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A KK priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the UA IUTBMHSA: PRI: KK FT: <FT> OHI: TEST IT101/TC01 Get the message with IUTBMHSA (UA-terminal of IUT-B).		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: KK - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)		
Test-case id: **IT101/TC02**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A GG priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the UA IUTBMHSA: PRI: GG FT: <FT> OHI: TEST IT101/TC02 Get the message with IUTBMHSA (UA-terminal of IUT-B).		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: GG - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)		
Test-case id: **IT101/TC03**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities An FF priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the UA IUTBMHSA: PRI: FF FT: <FT> OHI: TEST IT101/TC03 Get the message with IUTBMHSA (UA-terminal of IUT-B).		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: FF - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)		
Test-case id: **IT101/TC04**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A DD priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the UA IUTBMHSA: PRI: DD FT: <FT> OHI: TEST IT101/TC04 Get the message with IUTBMHSA (UA-terminal of IUT-B).		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: DD - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)
Test-case id: **IT101/TC05**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities An SS priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.
Test description:	From the User Agent IUTAMHSA send the following message to the UA IUTBMHSA: PRI: SS FT: <FT> OHI: TEST IT101/TC05 Get the message with IUTBMHSA (UA-terminal of IUT-B). A RN is submitted when the message is displayed. *Note. – Depending on UA implementation the user might be requested to send the RN.*

IT101	Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: SS - the ATS-message-filing-time and - the ATS-message-text Check the reception of a RN on the UA IUTAMHSA of the IUT-A system.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)		
Test-case id: **IT102/TC01**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A KK priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the UA IUTAMHSA: PRI: KK FT: <FT> OHI: TEST IT102/TC01 Get the message with IUTAMHSA (UA-terminal of IUT-A).		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: KK - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)		
Test-case id: **IT102/TC02**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A GG priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the UA IUTAMHSA: PRI: GG FT: <FT> OHI: TEST IT102/TC02 Get the message with IUTAMHSA (UA-terminal of IUT-A).		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: GG - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)		
Test-case id: **IT102/TC03**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities An FF priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the UA IUTAMHSA: PRI: FF FT: <FT> OHI: TEST IT102/TC03 Get the message with IUTAMHSA (UA-terminal of IUT-A).		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: FF - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)		
Test-case id: **IT102/TC04**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities A DD priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the UA IUTAMHSA: PRI: DD FT: <FT> OHI: TEST IT102/TC04 Get the message with IUTAMHSA (UA-terminal of IUT-A)		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: DD - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)
Test-case id: **IT102/TC05**	Tested functionality: Submission, transfer and delivery of messages with different ATS-message-priorities An SS priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.
Test description:	From the User Agent IUTBMHSA send the following message to the UA IUTAMHSA: PRI: SS FT: <FT> OHI: TEST IT102/TC05 Get the message with IUTAMHSA (UA-terminal of IUT-A). A RN is submitted when the message is displayed. *Note. – Depending on UA implementation the user might be requested to send the RN.*

IT102	Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: SS - the ATS-message-filing-time and - the ATS-message-text Check the reception of a RN on the UA IUTBMHSA of the IUT-B system.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.3 Gateway Operations (AFTN to AMHS)

IT201	Convert an AFTN message to AMHS format (IUT-A)		
Test-case id: **IT201/TC01**	Tested functionality: Conversion of messages with different AFTN priorities A KK priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA of IUT-A send the following message to the User Agent (UA) of IUT-B: KK IUTBMHSA <FT> IUTAFTNA TEST IT201/TC01 The message is converted from AFTN into AMHS format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: KK - the message transfer priority: NON URGENT - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT201	Convert an AFTN message to AMHS format (IUT-A)		
Test-case id: **IT201/TC02**	Tested functionality: Conversion of messages with different AFTN priorities A GG priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA of IUT-A send the following message to the User Agent (UA) of IUT-B: GG IUTBMHSA <FT> IUTAFTNA TEST IT201/TC02 The message is converted from AFTN into AMHS format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: GG - the message transfer priority: NON URGENT - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT201	Convert an AFTN message to AMHS format (IUT-A)		
Test-case id: **IT201/TC03**	Tested functionality: Conversion of messages with different AFTN priorities An FF priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA of IUT-A send the following message to the User Agent (UA) of IUT-B: FF IUTBMHSA <FT> IUTAFTNA TEST IT201/TC03 The message is converted from AFTN into AMHS format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: FF - the message transfer priority: NORMAL - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT201	Convert an AFTN message to AMHS format (IUT-A)		
Test-case id: **IT201/TC04**	Tested functionality: Conversion of messages with different AFTN priorities A DD priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA of IUT-A send the following message to the User Agent (UA) of IUT-B: DD IUTBMHSA <FT> IUTAFTNA TEST IT201/TC04 The message is converted from AFTN into AMHS format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: DD - the message transfer priority: NORMAL - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT201	Convert an AFTN message to AMHS format (IUT-A)
Test-case id: **IT201/TC05**	Tested functionality: Conversion of messages with different AFTN priorities An SS priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.
Test description:	From the AFTN terminal IUTAFTNA of IUT-A send the following message to the User Agent (UA) of IUT-B: SS IUTBMHSA <FT> IUTAFTNA TEST IT201/TC05 The message is converted from AFTN into AMHS format in the MTCU of IUT-A. *Optional:* *Generate a RN at the receiving UA IUTBMHSA of ITU-B.*

IT201	Convert an AFTN message to AMHS format (IUT-A)		
Test control:	Check the correct reception of the message at the UA IUTBMHSA of the IUT-B system. Check - the ATS-message-priority: PRI: SS - the message transfer priority: URGENT - the ATS-message-filing-time and - the ATS-message-text *Optional:* *If a RN is replied from the UA IUTBMHSA of ITU-B, the MTCU of IUT-A converts it into an SS Ack message which is sent to the AFTN terminal of IUT-A.* *Check the reception of the SS Ack message at the AFTN terminal IUTAFTNA of IUT-A. .Its originator indicator shall be the AFTN address IUTBMHSA, and its text shall be "R <FT> IUTAFTNA", where <FT> denotes the filing time of the subject AFTN message.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT202	Convert an AFTN message to AMHS format (IUT-B)		
Test-case id: **IT202/TC01**	Tested functionality: Conversion of messages with different AFTN priorities A KK priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA of IUT-B send the following message to the User Agent (UA) of IUT-A: KK IUTAMHSA <FT> IUTBFTNA TEST IT202/TC01 The message is converted from AFTN into AMHS format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: KK - the message transfer priority: NON URGENT - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT202	Convert an AFTN message to AMHS format (IUT-B)		
Test-case id: **IT202/TC02**	Tested functionality: Conversion of messages with different AFTN priorities A GG priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA of IUT-B send the following message to the User Agent (UA) of IUT-A: GG IUTAMHSA <FT> IUTBFTNA TEST IT202/TC02 The message is converted from AFTN into AMHS format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: GG - the message transfer priority: NON URGENT - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT202	Convert an AFTN message to AMHS format (IUT-B)		
Test-case id: **IT202/TC03**	Tested functionality: Conversion of messages with different AFTN priorities An FF priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA of IUT-B send the following message to the User Agent (UA) of IUT-A: FF IUTAMHSA <FT> IUTBFTNA TEST IT202/TC03 The message is converted from AFTN into AMHS format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: FF - the message transfer priority: NORMAL - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT202	Convert an AFTN message to AMHS format (IUT-B)		
Test-case id: **IT202/TC04**	Tested functionality: Conversion of messages with different AFTN priorities A DD priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA of IUT-B send the following message to the User Agent (UA) of IUT-A: DD IUTAMHSA <FT> IUTBFTNA TEST IT202/TC04 The message is converted from AFTN into AMHS format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: DD - the message transfer priority: NORMAL - the ATS-message-filing-time and - the ATS-message-text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT202	Convert an AFTN message to AMHS format (IUT-B)
Test-case id: **IT202/TC05**	Tested functionality: Conversion of messages with different AFTN priorities An SS priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.
Test description:	From the AFTN terminal IUTBFTNA of IUT-B send the following message to the User Agent (UA) of IUT-A: SS IUTAMHSA <FT> IUTBFTNA TEST IT202/TC05 The message is converted from AFTN into AMHS format in the MTCU of IUT-B. *Optional:* *Generate a RN at the receiving UA IUTAMHSA of ITU-A.*

IT202	Convert an AFTN message to AMHS format (IUT-B)		
Test control:	Check the correct reception of the message at the UA IUTAMHSA of the IUT-A system. Check - the ATS-message-priority: PRI: SS - the message transfer priority: URGENT - the ATS-message-filing-time and - the ATS-message-text *Optional:* *If a RN is replied from the UA IUTAMHSA of ITU-A, the MTCU of IUT-B converts it into an SS Ack message which is sent to the AFTN terminal of IUT-B.* *Check the reception of the SS Ack message at the AFTN terminal IUTBFTNA of IUT-B. Its originator indicator shall be the AFTN address IUTAMHSA, and its text shall be "R <FT> IUTBFTNA", where <FT> denotes the filing time of the subject AFTN message.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.4 **Gateway Operations (AMHS to AFTN)**

IT301	Convert an IPM to AFTN format (IUT-B)		
Test-case id: **IT301/TC01**	Tested functionality: Conversion of messages with different ATS-message-priorities A KK priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the AFTN terminal IUTBFTNA of IUT-B: PRI: KK FT: <FT> OHI: TEST IT301/TC01 The message is converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: KK - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT301	Convert an IPM to AFTN format (IUT-B)		
Test-case id: **IT301/TC02**	Tested functionality: Conversion of messages with different ATS-message-priorities A GG priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the AFTN terminal IUTBFTNA of IUT-B: PRI: GG FT: <FT> OHI: TEST IT301/TC02 The message is converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message at the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: GG - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT301	Convert an IPM to AFTN format (IUT-B)
Test-case id: **IT301/TC03**	Tested functionality: Conversion of messages with different ATS-message-priorities An FF priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.
Test description:	From the User Agent IUTAMHSA send the following message to the AFTN terminal IUTBFTNA of IUT-B: PRI: FF FT: <FT> OHI: TEST IT301/TC03 The message is converted from AMHS into AFTN format in the MTCU of IUT-B.

IT301	Convert an IPM to AFTN format (IUT-B)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: FF - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT301	Convert an IPM to AFTN format (IUT-B)		
Test-case id: **IT301/TC04**	Tested functionality: Conversion of messages with different ATS-message-priorities A DD priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.		
Test description:	From the User Agent IUTAMHSA send the following message to the AFTN terminal IUTBFTNA of IUT-B: PRI: DD FT: <FT> OHI: TEST IT301/TC04 The message is converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: DD - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT301	Convert an IPM to AFTN format (IUT-B)		
Test-case id: **IT301/TC05**	Tested functionality: Conversion of messages with different ATS-message-priorities An SS priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B		
Test description:	From the User Agent IUTAMHSA send the following message to the AFTN terminal IUTBFTNA of IUT-B: PRI: SS FT: <FT> OHI: TEST IT301/TC05 The message is converted from AMHS into AFTN format in the MTCU of IUT-B. *Optional:* *Send an SS Acknowledgement message from the receiving AFTN terminal.*		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: SS - the AFTN filing time and - the AFTN message text - *Optional:* *When the SS Ack message is replied, the MTCU of IUT-B converts it into a RN.* *Check the reception of the RN at the UA IUTAMHSA of ITU-A.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT302	Convert an IPM to AFTN format (IUT-A)
Test-case id: **IT302/TC01**	Tested functionality: Conversion of messages with different ATS-message-priorities A KK priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.
Test description:	From the User Agent IUTBMHSA send the following message to the AFTN terminal IUTAFTNA of IUT-A: PRI: KK FT: <FT> OHI: TEST IT302/TC01 The message is converted from AMHS into AFTN format in the MTCU of IUT-A.

IT302	Convert an IPM to AFTN format (IUT-A)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: KK - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT302	Convert an IPM to AFTN format (IUT-A)		
Test-case id: **IT302/TC02**	Tested functionality: Conversion of messages with different ATS-message-priorities A GG priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the AFTN terminal IUTAFTNA of IUT-A: PRI: GG FT: <FT> OHI: TEST IT302/TC02 The message is converted from AMHS into AFTN format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: GG - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT302	Convert an IPM to AFTN format (IUT-A)		
Test-case id: **IT302/TC03**	Tested functionality: Conversion of messages with different ATS-message-priorities An FF priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the AFTN terminal IUTAFTNA of IUT-A: PRI: FF FT: <FT> OHI: TEST IT302/TC03 The message is converted from AMHS into AFTN format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: FF - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT302	Convert an IPM to AFTN format (IUT-A)
Test-case id: **IT302/TC04**	Tested functionality: Conversion of messages with different ATS-message-priorities A DD priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.
Test description:	From the User Agent IUTBMHSA send the following message to the AFTN terminal IUTAFTNA of IUT-A: PRI: DD FT: <FT> OHI: TEST IT302/TC04 The message is converted from AMHS into AFTN format in the MTCU of IUT-A.

IT302	Convert an IPM to AFTN format (IUT-A)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: DD - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT302	Convert an IPM to AFTN format (IUT-A)		
Test-case id: **IT302/TC05**	Tested functionality: Conversion of messages with different ATS-message-priorities An SS priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.		
Test description:	From the User Agent IUTBMHSA send the following message to the AFTN terminal IUTAFTNA of IUT-A: PRI: SS FT: <FT> OHI: TEST IT302/TC05 The message is converted from AMHS into AFTN format in the MTCU of IUT-A. *Optional:* *Send an SS Acknowledgement message from the receiving AFTN terminal.*		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: SS - the AFTN filing time and - the AFTN message text - *Optional:* *When the SS Ack message is replied, the MTCU of IUT-A converts it into a RN.* *Check the reception of the RN at the UA IUTBMHSA of ITU-B.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.5 Gateway Operations (AFTN to AMHS to AFTN)

IT401	**Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)**		
Test-case id: **IT401/TC01**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with KK priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA send the following message to the AFTN terminal IUTBFTNA of IUT-B: KK IUTBFTNA <FT> IUTAFTNA TEST IT401/TC01 The message is - converted from AFTN into AMHS format in the MTCU of IUT-A, - transferred via the MTA o IUT A to the MTA of IUT-B, -routed to the MTCU of IUT-B and - converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check the AFTN priority: KK the AFTN filing time and the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT401	**Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)**
Test-case id: **IT401/TC02**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with GG priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.
Test description:	From the AFTN terminal IUTAFTNA send the following message to the AFTN terminal IUTBFTNA of IUT-B: GG IUTBFTNA <FT> IUTAFTNA TEST IT401/TC02 The message is - converted from AFTN into AMHS format in the MTCU of IUT-A, - transferred via the MTA of IUT A to the MTA of IUT-B, - routed to the MTCU of IUT-B and - converted from AMHS into AFTN format in the MTCU of IUT-B.

IT401	Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: GG - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT401	Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)		
Test-case id: **IT401/TC03**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with FF priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA send the following message to the AFTN terminal IUTBFTNA of IUT-B: FF IUTBFTNA <FT> IUTAFTNA TEST IT401/TC03 The message is - converted from AFTN into AMHS format in the MTCU of IUT-A, - transferred via the MTA of IUT A to the MTA of IUT-B, - routed to the MTCU of IUT-B and - converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: FF - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT401	Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)		
Test-case id: **IT401/TC04**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with DD priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.		
Test description:	From the AFTN terminal IUTAFTNA send the following message to the AFTN terminal IUTBFTNA of IUT-B: DD IUTBFTNA <FT> IUTAFTNA TEST IT401/TC04 The message is - converted from AFTN into AMHS format in the MTCU of IUT-A, - transferred via the MTA of IUT A to the MTA of IUT-B, - routed to the MTCU of IUT-B and - converted from AMHS into AFTN format in the MTCU of IUT-B.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: DD - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT401	Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)
Test-case id: **IT401/TC05**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with SS priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.
Test description:	From the AFTN terminal IUTAFTNA send the following message to the AFTN terminal IUTBFTNA of IUT-B: SS IUTBFTNA <FT> IUTAFTNA TEST IT401/TC05 The message is - converted from AFTN into AMHS format in the MTCU of IUT-A, - transferred via the MTA of IUT A to the MTA of IUT-B, - routed to the MTCU of IUT-B and - converted from AMHS into AFTN format in the MTCU of IUT-B. *Optional:* *Send an SS Acknowledgement message from the receiving AFTN terminal.*

IT401	Convert an AFTN message to an IPM and back to AFTN format (IUT-A to IUT-B)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTBFTNA of the IUT-B system. Check - the AFTN priority: SS - the AFTN filing time and - the AFTN message text *Optional:* *When the SS Ack message is replied, the MTCU of IUT-B converts it into a RN, the RN is re-converted to an SS Acknowledgement message in the MTCU of IUT-A.* *Check the reception of the SS Acknowledgement at the AFTN terminal IUTAFTNA of ITU-A.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT402	Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)		
Test-case id: **IT402/TC01**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with KK priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA send the following message to the AFTN terminal IUTAFTNA of IUT-A: KK IUTAFTNA <FT> IUTBFTNA TEST IT402/TC01 The message is - converted from AFTN into AMHS format in the MTCU of IUT-B, - transferred via the MTA of IUT B to the MTA of IUT-A, - routed to the MTCU of IUT-A and - converted from AMHS into AFTN format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: KK - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT402	Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)		
Test-case id: **IT402/TC02**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with GG priority will be sent from IUT-B to the AFTN terminal of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA send the following message to the AFTN terminal IUTAFTNA of IUT-A: GG IUTAFTNA <FT> IUTBFTNA TEST IT402/TC02 The message is - converted from AFTN into AMHS format in the MTCU of IUT-B, - transferred via the MTA of IUT B to the MTA of IUT-A, - routed to the MTCU of IUT-A and - converted from AMHS into AFTN format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: GG - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT402	Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)
Test-case id: **IT402/TC03**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with FF priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.
Test description:	From the AFTN terminal IUTBFTNA send the following message to the AFTN terminal IUTAFTNA of IUT-A: FF IUTAFTNA <FT> IUTBFTNA TEST IT402/TC03 The message is - converted from AFTN into AMHS format in the MTCU of IUT-B, - transferred via the MTA of IUT B to the MTA of IUT-A, - routed to the MTCU of IUT-A and - converted from AMHS into AFTN format in the MTCU of IUT-A.

IT402	Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: FF - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT402	Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)		
Test-case id: **IT402/TC04**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with DD priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.		
Test description:	From the AFTN terminal IUTBFTNA send the following message to the AFTN terminal IUTAFTNA of IUT-A: DD IUTAFTNA <FT> IUTBFTNA TEST IT402/TC04 The message is - converted from AFTN into AMHS format in the MTCU of IUT-B, - transferred via the MTA of IUT B to the MTA of IUT-A, - routed to the MTCU of IUT-A and - converted from AMHS into AFTN format in the MTCU of IUT-A.		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: DD - the AFTN filing time and - the AFTN message text		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT402	**Convert an AFTN message to an IPM and back to AFTN format (IUT-B to IUT-A)**		
Test-case id: **IT402/TC05**	Tested functionality: Conversion of messages with different AFTN priorities An AFTN message with SS priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.		
Test description:	From the AFTN terminal of IUTBFTNA send the following message to the AFTN terminal IUTAFTNA of IUT-A: SS IUTAFTNA <FT> IUTBFTNA TEST IT402/TC05 The message is - converted from AFTN into AMHS format in the MTCU of IUT-B, - transferred via the MTA of IUT B to the MTA of IUT-A, - routed to the MTCU of IUT-A and - converted from AMHS into AFTN format in the MTCU of IUT-A. *Optional:* *Send an SS Acknowledgement message from the receiving AFTN terminal.*		
Test control:	Check the correct reception of the message on the AFTN terminal IUTAFTNA of the IUT-A system. Check - the AFTN priority: SS - the AFTN filing time and - the AFTN message text *Optional:* *When the SS Ack message is replied, the MTCU of IUT-A converts it into a RN, the RN is re-converted to an SS Acknowledgement message in the MTCU of IUT-B.* *Check the reception of the SS Acknowledgement at the AFTN terminal IUTBFTNA of ITU-B.*		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.6 Gateway Operations – special cases

IT501	Distribute an IPM to AMHS and AFTN users		
Test-case id: **IT501/TC01**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-A to IUT-B with Primary Recipients addressing an AFTN terminal and a UA in IUT-B.		
Test description:	From IUTAMHSA send the following message to: Primary Recipients: IUTBMHSA and IUTBFTNA PRI: FF FT: <FT> TEST IT501/TC01 Get the message at the UA- and AFTN terminals of SUT-B.		
Test control:	Check the correct reception of the message by IUTBFTNA and IUTBMHSA in the IUT-B configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT501	Distribute an IPM to AMHS and AFTN users		
Test-case id: **IT501/TC02**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients addressing an AFTN terminal and a UA in IUT-A.		
Test description:	From IUTBMHSA send the following message to: Primary Recipients: IUTAMHSA and IUTAFTNA PRI: FF FT: <FT> TEST IT501/TC02 Get the message at the UA- and AFTN terminals of SUT-A.		
Test control:	Check the correct reception of the message by IUTAFTNA and IUTAMHSA in the IUT-A configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT501	Distribute an IPM to AMHS and AFTN users		
Test-case id: **IT501/TC03**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-A to IUT-B with Primary Recipients and Copy Recipients, addressing AFTN terminals and UAs in IUT-B.		
Test description:	From IUTAMHSA send the following message to: Primary Recipients: IUTBMHSA and IUTBFTNA Copy Recipients: IUTBMHSB and IUTBFTNB PRI: FF FT: <FT> TEST IT501/TC03 Get the message at the UA- and AFTN terminals of SUT-B.		
Test control:	Check the correct reception of the message by IUTBFTNA, IUTBFTNB and IUTBMHSA, IUTBMHSB in the IUT-B configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT501	Distribute an IPM to AMHS and AFTN users		
Test-case id: **IT501/TC04**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients and Copy Recipients, addressing AFTN terminals and UAs in IUT-A.		
Test description:	From IUTBMHSA send the following message to: Primary Recipients: IUTAMHSA and IUTAFTNA Copy Recipients: IUTAMHSB and IUTAFTNB PRI: FF FT: <FT> TEST IT501/TC04 Get the message at the UA- and AFTN terminals of SUT-A.		
Test control:	Check the correct reception of the message by IUTAFTNA, IUTAFTNB and IUTAMHSA, IUTAMHSB in the IUT-A configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT501	Distribute an IPM to AMHS and AFTN users		
Test-case id: **IT501/TC05**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-A to IUT-B with Primary Recipients, Copy Recipients and Blind Copy Recipients, addressing AFTN terminals and UAs in IUT-B.		
Test description:	From IUTAMHSA send the following message to: Primary Recipients: IUTBMHSA and IUTBFTNA Copy Recipients: IUTBMHSB and IUTBFTNB Blind Copy Recipients: IUTBMHSC and IUTBFTNC PRI: FF FT: <FT> TEST IT501/TC05 Get the message at the UA- and AFTN terminals of SUT-B.		
Test control:	Check that at the AFTN Station of IUT-B one message with addresses IUTBFTNA, IUTBFTNB and another message with the address IUTBFTNC is received. Check that at the UA IUTBMHSA one IPM is received which contains the Primary Recipients IUTBMHSA, IUTBFTNA and the Copy Recipients IUTBMHSB, IUTBFTNB, but no Blind Copy Recipients. Check that at the UA IUTBMHSC one IPM is received which contains the Primary Recipients IUTBMHSA, IUTBFTNA, the Copy Recipients IUTBMHSB, IUTBFTNB and one Blind Copy Recipient IUTBMHSC.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT501	Distribute an IPM to AMHS and AFTN users
Test-case id: **IT501/TC06**	Tested functionality: Distribution of IPM A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients, Copy Recipients and Blind Copy Recipients, addressing AFTN terminals and UAs in IUT-A.
Test description:	From IUTBMHSA send the following message to: Primary Recipients: IUTAMHSA and IUTAFTNA Copy Recipients: IUTAMHSB and IUTAFTNB Blind Copy Recipients: IUTAMHSC and IUTAFTNC PRI: FF FT: <FT> TEST IT501/TC06 Get the message at the UA- and AFTN terminals of SUT-A.

IT501	Distribute an IPM to AMHS and AFTN users		
Test control:	Check that at the AFTN Station of IUT-A one message with addresses IUTAFTNA, IUTAFTNB and another message with the address IUTAFTNC is received. Check that at the UA IUTAMHSA one IPM is received which contains the Primary Recipients IUTAMHSA, IUTAFTNA and the Copy Recipients IUTAMHSB, IUTAFTNB, but no Blind Copy Recipients. Check that at the UA IUTAMHSC one IPM is received which contains the Primary Recipients IUTAMHSA, IUTAFTNA, the Copy Recipients IUTAMHSB, IUTAFTNB and one Blind Copy Recipient IUTAMHSC.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT502	Expand a DL addressing both AMHS and AFTN users		
Test-case id: **IT502/TC01**	Tested functionality: Expanding of Distribution list. The message will be sent from a UA on IUT-A addressing a local DL which contains addresses of AFTN terminals and the UA in IUT-B.		
Test description:	IUTADLLO must be configured as a local DL entry in IUT-A containing the addresses IUTBFTNA IUTBFTNB and IUTBMHSA. From IUTAMHSA send the following message to IUTADLLO: PRI: FF FT: <FT> TEST IT502/TC01 Get the message at the UA and AFTN terminals of IUT-B.		
Test control:	Check the correct reception of the message by AFTN terminals IUTBFTNA, IUTBFTNB and UA IUTBMHSA in the IUT-B configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT502	Expand a DL addressing both AMHS and AFTN users
Test-case id: **IT502/TC02**	Tested functionality: Expanding of Distribution list The message will be sent from a UA on IUT-B addressing a local DL which contains addresses of AFTN terminals and the UA in IUT-A.
Test description:	IUTBDLLO must be configured as a local DL entry in IUT-A containing the addresses IUTAFTNA, IUTAFTNB and IUTAMHSA. From IUTBMHSA send the following message to IUTBDLLO: PRI: FF FT: <FT> TEST IT502/TC02 Get the message at the UA and AFTN terminals of IUT-A.

IT502	Expand a DL addressing both AMHS and AFTN users		
Test control:	Check the correct reception of the message by AFTN terminals IUTAFTNA, IUTAFTNB and UA IUTAMHSA in the IUT-A configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT502	Expand a DL addressing both AMHS and AFTN users		
Test-case id: **IT502/TC03**	Tested functionality: Expanding of Distribution list The message will be sent from a UA on IUT-A addressing a remote DL in IUT-B which contains addresses of AFTN terminals and the UA in IUT-B		
Test description:	IUTBDLRE must be configured as a local DL entry in IUT-B containing the addresses IUTBFTNA, IUTBFTNB and IUTBMHSA. From IUTAMHSA send the following message to IUTBDLRE: PRI: FF FT: <FT> TEST IT502/TC03 Get the message at the UA and AFTN terminals of IUT-B.		
Test control:	Check the correct reception of the message by AFTN terminals IUTBFTNA, IUTBFTNB and UA IUTBMHSA in the IUT-B configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT502	Expand a DL addressing both AMHS and AFTN users		
Test-case id: **IT502/TC04**	Tested functionality: Expanding of Distribution list The message will be sent from a UA on IUT-B addressing a remote DL in IUT-A which contains addresses of AFTN terminals and the UA in IUT-A		
Test description:	IUTADLRE must be configured as a local DL entry in IUT-A containing the addresses IUTAFTNA, IUTAFTNB and IUTAMHSA. From IUTBMHSA send the following message to IUTADLRE: PRI: FF FT: <FT> TEST IT502/TC04 Get the message at the UA- and AFTN terminals of IUT-B.		
Test control:	Check the correct reception of the message by AFTN terminals IUTAFTNA, IUTAFTNB and UA IUTAMHSA in the IUT-A configuration.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT503	**Convert or reject an IPM, if the ATS-message-text contains more than 1800 characters**		
Test-case id: **IT503/TC01**	Tested functionality: Conversion of “long” messages A message with normal priority and length of about 4500 characters is sent from the IUT-A to the IUT-B		
Test description:	From UA IUTAMHSA of IUT-A send the following message to the AFTN terminal IUTBFTNA: PRI: FF FT: <FT> OHI: TEST IT503/TC01 TEXT 4500 CHARACTERS 123456789012345678901234567890123456789012345678901234567890123456789 123456789012345678901234567890123456789012345678901234567890123456789 123456789012345678901234567890123456789012345678901234567890123456789 … 123456789012345678901234567890123456789012345678901234567890123456789 END		
Test control:	The SARPs (3.1.2.3.5.2.1.7) specify that the message can be rejected (case a) or split into several messages (case b). If the system provides “long AFTN message” capability the message will be converted (case c). <u>If case a is implemented:</u> The message is not conveyed to the AFTN component. Check the Report received at the User Agent position IUTAMHSA Verify the following Per-Recipient-Report Non-Delivery information: - Actual-recipient-name: MF-form address of IUTBFTNA - reason code 1 signifies "unable-to-transfer" - diagnostic code 7 signifies "content-too-long". - supplementary information: "unable to convert to AFTN due to message text length". <u>If case b is implemented:</u> Check that IUTBFTNA receives several messages. <u>If case c is implemented:</u> Check that IUTBFTNA receives one message.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**
	a / b / c		

IT503	Convert or reject an IPM, if the ATS-message-text contains more than 1800 characters		
Test-case id: **IT503/TC02**	Tested functionality: Conversion of “long” messages A message with normal priority and length of about 4500 characters is sent from the IUT-B to the IUT-A		
Test description:	From UA IUTBMHSA of IUT-B send the following message to the AFTN terminal IUTAFTNA: PRI: FF FT: <FT> OHI: TEST IT503/TC02 TEXT 4500 CHARACTERS 123456789012345678901234567890123456789012345678901234567890123456789 123456789012345678901234567890123456789012345678901234567890123456789 123456789012345678901234567890123456789012345678901234567890123456789 … 123456789012345678901234567890123456789012345678901234567890123456789 END		
Test control:	The SARPs (3.1.2.3.5.2.1.7) specify that the message can be rejected (case a) or split into several messages (case b). If the system provides “long AFTN message” capability the message will be converted (case c). <u>If case a is implemented:</u> The message is not conveyed to the AFTN component. Check the Report received at the User Agent position IUTBMHSA Verify the following Per-Recipient-Report Non-Delivery information: - Actual-recipient-name: MF-form address of IUTAFTNA - reason code 1 signifies "unable-to-transfer" - diagnostic code 7 signifies "content-too-long". - supplementary information: "unable to convert to AFTN due to message text length". <u>If case b is implemented:</u> Check that IUTAFTNA receives several messages. <u>If case c is implemented:</u> Check that IUTAFTNA receives one message.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**
	a / b / c		

IT504	Split an incoming IPM addressing more than 21 AFTN users		
Test-case id: **IT504/TC01**	Tested functionality: Conversion of messages with more than 21 addresses A message with normal priority containing 50 recipients is sent from the IUT-A to the IUT-B.		
Test description:	From IUTAMHSA send the following message to the following addressees (all recipients in the corresponding MF-Form): IUTBFTNA, IUTBFTNB, IUTBFTNC, IUTBFTND, IUTBFTNE, IUTBFTNF, IUTBFTNG, IUTBFTNH, IUTBFTNI, IUTBFTNJ, IUTBFTNK, IUTBFTNL, IUTBFTNM, IUTBFTNN, IUTBFTNO, IUTBFTNP, IUTBFTNQ, IUTBFTNR, IUTBFTNS, IUTBFTNT, IUTBFTNU, IUTBFTNV, IUTBFTNW, IUTBFTNX, IUTBFTNY, IUTBFTAA, IUTBFTAB, IUTBFTAC, IUTBFTAD, IUTBFTAE, IUTBFTAF, IUTBFTAG, IUTBFTAH, IUTBFTAI, IUTBFTAJ, IUTBFTAK, IUTBFTAL, IUTBFTAM, IUTBFTAN, IUTBFTAO, IUTBFTAP, IUTBFTAQ, IUTBFTAR, IUTBFTAS, IUTBFTAT, IUTBFTAU, IUTBFTAV, IUTBFTAW, IUTBFTAX, IUTBFTAY PRI: FF FT: <FT> OHI: TEST IT504/TC01		
Test control:	PDR M4050004 (Title: AMHS - Too Many Recipients) is resolved. Therefore the message shall be split into several messages. The message is split into 3 copies, each conveyed to the AFTN component. The first copy is addressed to 21 of the 50 addressee indicators. The second copy is addressed to further 21 addressee indicators. The third copy is addressed to the remaining 8 of the 50 addressee indicators. Check the correct reception of the messages on the AFTN terminal of IUT-B.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT504	Split an incoming IPM addressing more than 21 AFTN users		
Test-case id: **IT504/TC02**	Tested functionality: Conversion of messages with more than 21 addresses A message with normal priority containing 50 recipients is sent from the IUT-B to the IUT-A.		
Test description:	From IUTBMHSA send the following message to the following addressees (all recipients in the corresponding MF-Form): IUTAFTNA, IUTAFTNB, IUTAFTNC, IUTAFTND, IUTAFTNE, IUTAFTNF, IUTAFTNG, IUTAFTNH, IUTAFTNI, IUTAFTNJ, IUTAFTNK, IUTAFTNL, IUTAFTNM, IUTAFTNN, IUTAFTNO, IUTAFTNP, IUTAFTNQ, IUTAFTNR, IUTAFTNS, IUTAFTNT, IUTAFTNU, IUTAFTNV, IUTAFTNW, IUTAFTNX, IUTAFTNY, IUTAFTAA, IUTAFTAB, IUTAFTAC, IUTAFTAD, IUTAFTAE, IUTAFTAF, IUTAFTAG, IUTAFTAH, IUTAFTAI, IUTAFTAJ, IUTAFTAK, IUTAFTAL, IUTAFTAM, IUTAFTAN, IUTAFTAO, IUTAFTAP, IUTAFTAQ, IUTAFTAR, IUTAFTAS, IUTAFTAT, IUTAFTAU, IUTAFTAV, IUTAFTAW, IUTAFTAX, IUTAFTAY PRI: FF FT: <FT> OHI: TEST IT504/TC02		
Test control:	PDR M4050004 (Title: AMHS - Too Many Recipients) is resolved. Therefore the message shall be split into several messages. The message is split into 3 copies, each conveyed to the AFTN component. The first copy is addressed to 21 of the 50 addressee indicators. The second copy is addressed to further 21 addressee indicators. The third copy is addressed to the remaining 8 of the 50 addressee indicators. Check the correct reception of the messages on the AFTN terminal of IUT-A.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT505	Probe Conveyance Test
Test-case id: **IT505/TC01**	Tested functionality: Processing of Probe Messages by UA and MTCU. The messages will be sent from a UA on IUT-A to IUT-B, addressing AFTN terminals and UAs in IUT-B.
Test description:	From IUTAMHSA send a probe to IUTBFTNA, IUTBFTNB, IUTBMHSA.

IT505	Probe Conveyance Test		
Test control:	On IUT-A UA IUTAMHSA: One Delivery Report (DR) with 2 AFTN recipients from the MTCU and one DR with one recipient from the MTA Verify that the DR reporting about the AFTN addresses contains the supplementary information "This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient".		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT505	Probe Conveyance Test		
Test-case id: **IT505/TC02**	Tested functionality: Processing of Probe Messages by UA and MTCU. The messages will be sent from a UA on IUT-B to IUT-A, addressing AFTN terminals and UAs in IUT-A.		
Test description:	From IUTBMHSA send a probe to IUTAFTNA, IUTAFTNB, IUTAMHSA.		
Test control:	On IUT-B UA IUTBMHSA: One Delivery Report (DR) with 2 AFTN recipients from the MTCU and one DR with one recipient from the MTA Verify that the DR reporting about the AFTN addresses contains the supplementary information "This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient".		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT505	Probe Conveyance Test
Test-case id: **IT505/TC03**	Tested functionality: Processing of Probe Messages by UA and MTCU. The messages will be sent from a UA on IUT-A to IUT-B, containing the address of an AFTN terminal of IUT-B and an MF address which cannot be translated by the MTCU of IUT-B.
Test description:	From IUTAMHSA send a probe to IUTBFTNA, IUTBFTUU (address is not provided in the look-up table of IUT-B).

IT505	Probe Conveyance Test		
Test control:	Verify that at UA IUTAMHSA: A Delivery Report, containing the reported recipient IUTBFTNA and a NDR, containing the reported recipient IUTBFTUU, with: - non-delivery-reason-code set to “unable-to-transfer”, - non-delivery-diagnostic-code set to “unrecognized-OR-name” are received. Verify that the DR reporting about the address which could be translated contains the supplementary information “This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient”.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT505	Probe Conveyance Test		
Test-case id: **IT505/TC04**	Tested functionality: Processing of Probe Messages by UA and MTCU. The messages will be sent from a UA on IUT-B to IUT-A, containing the address of an AFTN terminal of IUT-A and an MF address which cannot be translated by the MTCU of IUT-A.		
Test description:	From IUTBMHSA send a probe to IUTAFTNA, IUTAFTUU (address is not provided in the look-up table of IUT-A)		
Test control:	Verify that at UA IUTBMHSA: A Delivery Report, containing the reported recipient IUTAFTNA and a NDR, containing the reported recipient IUTAFTUU, with: - non-delivery-reason-code set to “unable-to-transfer”, - non-delivery-diagnostic-code set to “unrecognized-OR-name” are received. Verify that the DR reporting about the address which could be translated contains the supplementary information “This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient”.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.7 **Stress traffic situations**

IT601	**Stress load**		
Test-case id: **IT601/TC01**	Tested functionality: AMHS traffic interchange after queuing of an amount of messages After queuing of an amount of messages both IUTs start sending a burst of messages		
Test description:	Interrupt the connection between IUT-A and IUT-B by disabling the physical connector used to send information to the underlying network in one of the IUTs. Select from the data base or generated by the UA and/or the AFTN terminal 100 messages in both IUTs. For example, from IUTAFTNA send 100 messages to IUTBFTNA, IUTBMHSA. and from IUTBFTNA send 100 messages to IUTAFTNA, IUTAMHSA, In the result on IUT-A and IUT-B there are 100 messages queued in direction to the peer IUT. Re-establish the connection between IUT-A and IUT-B. The queued messages will be sent simultaneously from both IUTs. Measure the time: from re-establishing the connection till sending the first message and from sending the first message till sending the last message. Measure the time: from re-establishing the connection till receiving the first message and from receiving the first message till receiving the last message.		
Test control:	Check that all 100 messages are received at the addressed terminals. Check that no errors or malfunction are reported or observed at the IUTs during the interchange period. Analyse the measured time. Calculate at both sides the amount of time needed to flush the queues. Unacceptable delays shall be treated as “FAILED”.		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.12.7 The following table can be used to make notes of the Test Control Result.

Test Control	**Result IT601/TC01**	**Result IT601/TC02**	**Result IT601/TC03**
Notice the time of re-establishing the connection sending direction.			
Notice the time of sending the first message.			
Notice the time of sending the last message.			
Notice the time of re-establishing the connection receiving direction.			
Notice the time of receiving the first message.			

Test Control	Result IT601/TC01	Result IT601/TC02	Result IT601/TC03
Notice the time of receiving the last message.			
Notice the number of messages received (shall be equal to the number of messages expected.)			
Check the event logging of the system for abnormalities in the area of AMHS / X.400 / AFTN/AMHS Gateway.			
Check the event logging / traffic traces for NDRs. (No NDRs are awaited.)			
Check for Control Position events. (No related events are awaited.)			
Check the X.400 / AMHS diagnostics, check the number of associations used (in particular possible hanging/unused associations).			
Monitor the underlying network infrastructure (network specialist).			
At both sides note the amount of time needed to flush the queues. (Unacceptable delays shall be treated as “FAILED”)			

IT601	Stress load
Test-case id: **IT601/TC02**	Tested functionality: AMHS traffic interchange after queuing of an amount of messages After queuing of an amount of messages both IUTs start sending a burst of messages
Test description:	Interrupt the connection between IUT-A and IUT-B by disabling the physical connector used to send information to the underlying network in one of the IUTs. Select from the data base or generated by the UA and/or the AFTN terminal 200 messages in both IUTs. For example, from IUTAFTNA send 200 messages to IUTBFTNA, IUTBMHSA. and from IUTBFTNA send 200 messages to IUTAFTNA, IUTAMHSA, In the result on IUT-A and IUT-B there are 200 messages queued in direction to the peer IUT. Re-establish the connection between IUT-A and IUT-B. The queued messages will be sent simultaneously from both IUTs. Measure the time: from re-establishing the connection till sending the first message and from sending the first message till sending the last message. Measure the time: from re-establishing the connection till receiving the first message and from receiving the first message till receiving the last message.

IT601	Stress load		
Test control:	Check that all 200 messages are received at the addressed terminals. Check that no errors or malfunction are reported or observed at the IUTs during the interchange period. Analyse the measured time. Calculate at both sides the amount of time needed to flush the queues. Unacceptable delays shall be treated as "FAILED".		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

IT601	Stress load		
Test-case id: **IT601/TC03**	Tested functionality: AMHS traffic interchange after queuing of an amount of messages After queuing of an amount of messages both IUTs start sending a burst of messages		
Test description:	Interrupt the connection between IUT-A and IUT-B by disabling the physical connector used to send information to the underlying network in one of the IUTs. Select from the data base or generated by the UA and/or the AFTN terminal 400 messages in both IUTs. For example, from IUTAFTNA send 400 messages to IUTBFTNA, IUTBMHSA. and from IUTBFTNA send 400 messages to IUTAFTNA, IUTAMHSA, In the result on IUT-A and IUT-B there are 400 messages queued in direction to the peer IUT. Re-establish the connection between IUT-A and IUT-B. The queued messages will be sent simultaneously from both IUTs. Measure the time: from re-establishing the connection till sending the first message and from sending the first till sending the last message. Measure the time: from re-establishing the connection till receiving the first message and from receiving the first message till receiving the last message.		
Test control:	Check that all 400 messages are received at the addressed terminals. Check that no errors or malfunction are reported or observed at the IUTs during the interchange period. Analyse the measured time. Calculate at both sides the amount of time needed to flush the queues. Unacceptable delays shall be treated as "FAILED".		
Test result:	**PASS**	**FAILED**	**INCONCLUSIVE**

2.13 Analysis of the results and second stage of tests

2.13.1 When the tests were finished, the obtained results will be analyzed, it putting special approach in those tests where faults will have been detected.

2.13.2 It’s prudent to execute those failed tests again and to verify the repetition of the inconveniences. If these are reiterated, the involved State should take the necessary measures to correct those errors.

2.13.3 When the system with problems appears to have solved its inconveniences, the involved State asked for the renewal of the tests.

2.13.4 During this second phase it should put special attention to the solution verification of the points with faults. However, once verified this, he is recommendable to return to execute the rest of the tests.

2.14 **Final tests document**

2.14.1 Once they were completed the totality of satisfactorily bilateral tests, it is necessary to leave a registration of the satisfactory execution of the tests, by means of a combined document that guarantees to the personnel that later they will made the operative integration, that all the previous necessary preventions were adopted to guarantee the prospective functionalities.

3. SECOND PART (OPERATIVE INTEGRATION)

3.1 Aspects to be considered for operative integration

3.1.1 *Analysis of the test results of AMHS Interconnection*

3.1.1.1 Must be perfectly clear that it is not possible to advance in operative integration until the interconnection tests have not solved all the points with fault.

3.1.1.2 It's to hope that two administrations that have systems of one same supplier do not present inconveniences in the interconnection.

3.1.1.3 Anyway, these administrations had to make the tests at issue, to avoid later potentials difficulties.

3.1.2 *AMHS Services*

3.1.2.1 The States will have to inform (to confirm) if they have:

a) Basic ATS service, which provides AFTN equivalent functionalities,
b) Extended ATS service, which provides additional services and facilities, including security based on digital signature, binary attachment, big attachments, ATN Directory.

3.1.3 *AMHS address Scheme*

3.1.3.1 If well this action is previous at the beginning of the interconnection tests, each State will have to reconfirm to the other state the definitive AMHS address scheme:

a) CAAS "O" Simple,
b) CAAS "O" Multiple,
c) XF.

3.1.3.2 In the SAM Region, the AMHS addressing scheme adopted for all States is the CAAS.

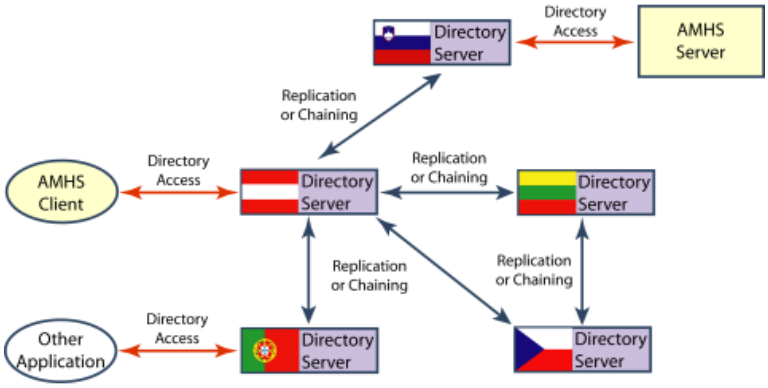
3.1.3.3 States that have installed or are in process of installing same, must register at the AMC (AMHS management centre) following the procedure specified in ICAO State letter AN 7/49.1-09/34 of 14 April 2009. The AMC will manage AMHS addressing off-line globally.

3.1.4 *Directory Service (DS)*

3.1.4.1 When being interconnected, each DS will be able "*to see*" to its adjacent pair, with which the UA will be able to access not only to his State Directory, also it will can to access to the adjacent (s).

3.1.4.2 Is important to use the DS "*shadowing"* functionality, which allows to one of the Directories to have a "copy" of the other, to which will have to consult regularly to maintain updated its data base.

3.1.4.3 At this respect, following it is inserted a schematic image of this operation:



3.1.4.4 In that order, it will be due to anticipate the configuration, in each extreme, the period with each DS will refresh the data from his adjacent (s) pair(s), considering that the increase in the rate of refreshment inevitably will increase the bandwidth to be used.

3.1.5 *National and intraregional IP address*

3.1.5.1 *Protocol*: as outside established in the IP Address Regional Plan:

a) Initially, IPv4 will be used.

b) Each State will be able to use, in its internal frame, the directions assigned in this plan, those that are enclosed like Appendix A. Those States that does not use them nationally, they will have to assure the use of the same ones by means of the NAT functionality.

3.1.5.2 *Border routers (BIS) links doors:* each State should have to use the established at IP Address Regional Plan, already presented in Part 1.

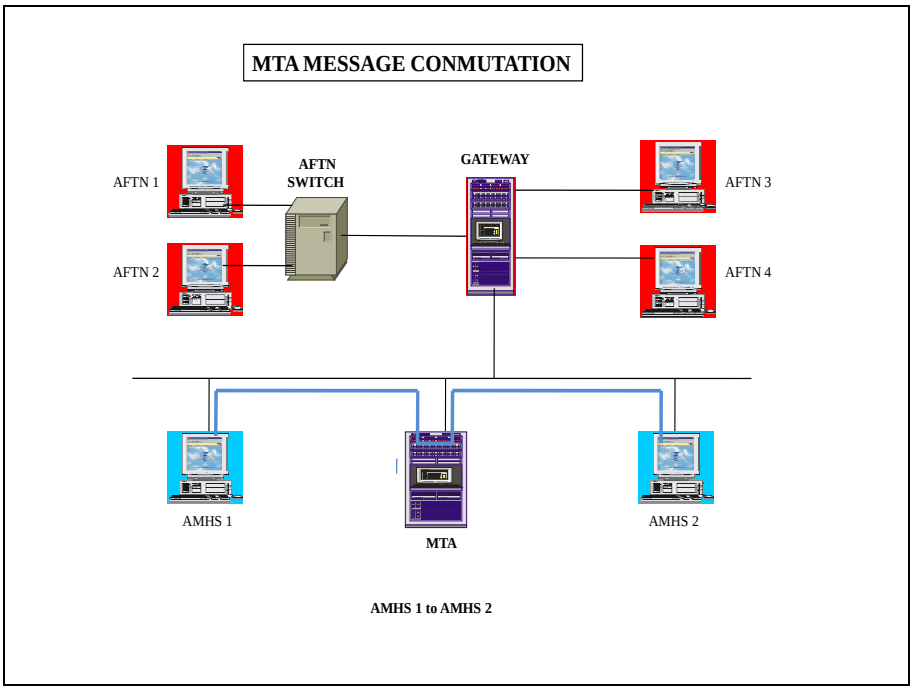
3.1.5.3 *MTA Address*: each State will have to inform this direction, according to the address determined by the established national allocation in the mentioned Regional Plan.

3.1.6 M*essages Commutation*

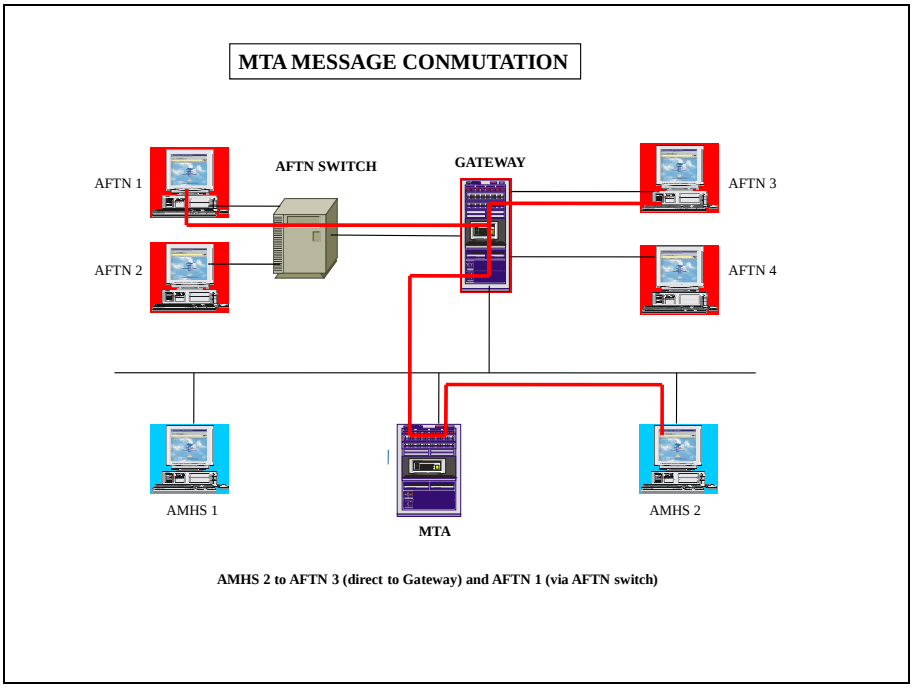
3.1.6.1 Existing AMHS systems allow *two* modalities of messages commutation:

a) All the messages are exchanged by the MTA, without mattering that they exist AFTN terminal, or that these are connected to the Gateway or by interval AFTN switch. In that order, it exist three basic commutation classes: AMHS (UA) to AMHS (UA), AMHS (UA) to AFTN and AFTN to AFTN.

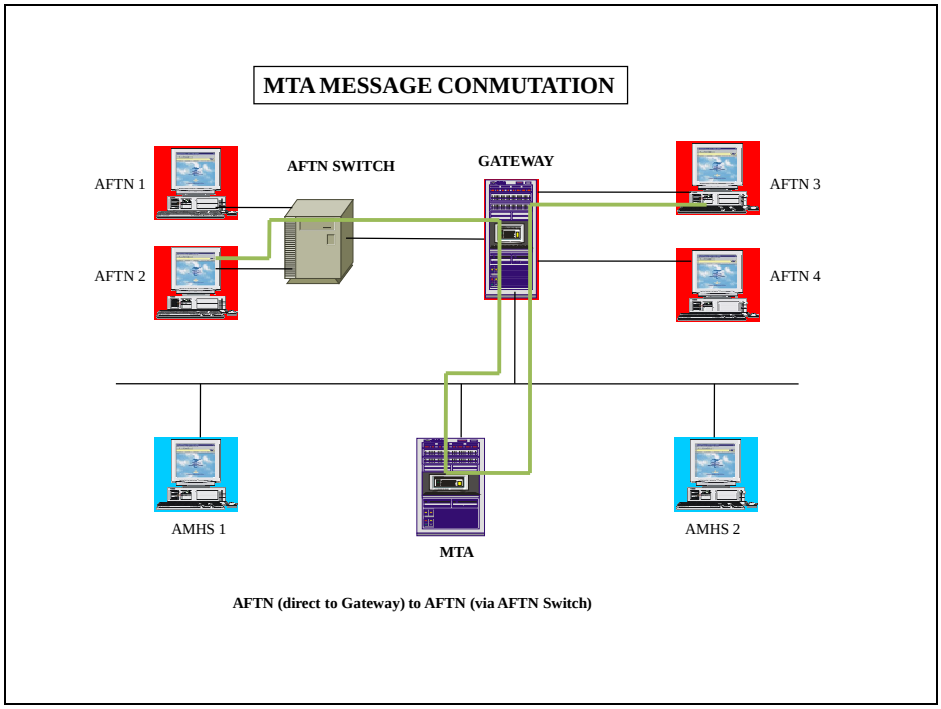
- *Case 1: UA to UA (*The heavy blue line indicates the messages flow towards both sides).



- *Case 2: UA to AFTN (and vice versa) (*The heavy red line indicates the messages flow towards both sides).



- *Case 3: AFTN to AFTN (*The heavy green line indicates the messages flow towards both sides).



b) MTA exchanges only messages corresponding to UA, whereas the Gateway exchanges (without the participation of the MTA) all the messages that do not leave their AFTN area, that is it works like an AFTN switch.

3.1.6.2 To this respect, it must be clear that *only the first case* is applicable to AMHS integration, since the second case would prevent that the DS was complete, since it would interchange with the other adjacent States a single part of the totality of the necessary O/R.

3.1.7 *Bandwidth to be used*

3.1.7.1 Although this factor in principle do not pretend to be important, it will have to become the necessary adjustments with the supplier of the transport network (REDDIG, MEVA II) to assure that, at the time of integration, a DLCI of 64K between border routers of each State is formed.

3.1.8 I*ntegration Scenarios*

3.1.8.1 The scenarios will differ, basically, if integration were made between States that have completed their UAs' deploy in his territory, and those that have done it partially.

3.1.8.2 To the effects to deep in this subject, it is assumed that:

a) Three are the involved states, where two of them have been changed to the AMHS (A and B), whereas one of them (C), remains in AFTN.

b) Two which they changed to AMHS have chosen CAAS, "O" simple.

c) The name of the MTA of State A is MTA=AAA.

d) The name of the MTA of State B is MTA=BBB.

e) State C remains in AFTN.

f) With respect to the attributes of the UAs address (X.400), it is used the following convention:

- C=XX /ADMD=ICAO/ PRMD=S* /O=IUT*/ OU1= IUT*/ CN=IUT*MHS* (for AMHS terminals)

- C=XX/ ADMD=ICAO/ PRMD=S*/ O=Gateway/ CN=IUT*FTN* (for AFTN terminals)

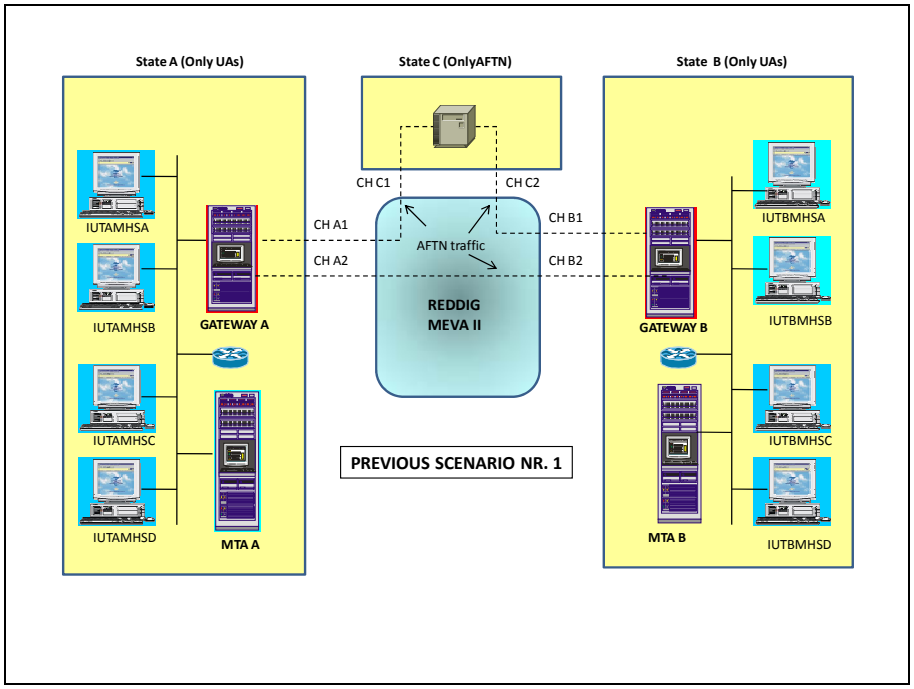
g) The sign * represents the letters A or B, according to corresponds,

h) CH *: it indicates the number of associated AFTN channel, to the Gateway and/or associate AFTN switch.

3.2 Scenarios for operative integration

3.2.1 **TYPE 1**: *State A with complete national development, with State B with complete national development*

3.2.1.1 Previous scenario to integration



3.2.1.2 From the scheme can be observed the following routing and address scheme:

a) For State A

State	Routing and X.400 address							AFTN Routing			
	MTA	C	ADMD	PRMD	O	OU1	CN	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC ****	A1		
								IUTB ****	A2		

b) For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	O	OU1	CN	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSC				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSD				
								IUTC ****	B1		
								IUTA ****	B2		

c) For State C

State	Routing and X.400 directory							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA****	C1
										IUTB****	C2

3.2.1.3 Actions to execute for integration:

a) According to the previous fixed convention, to the State A corresponds PRMD=SA, while to state B corresponds PRMD=SB.

b) For this case, and with respect to **routing**, in each State the following main actions will have to be executed:

- In the configuration of MTA=AAA (State A), it's necessary to add in the tree the data corresponding to State B, that is C=XX, ADMD=ICAO, PRMD=SB, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=BBB.

- Vice versa, in the configuration of MTA=BBB (State B), it's necessary to add in the tree the data corresponding to State A, that is C=XX, ADMD=ICAO, PRMD=SA, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=AAA.

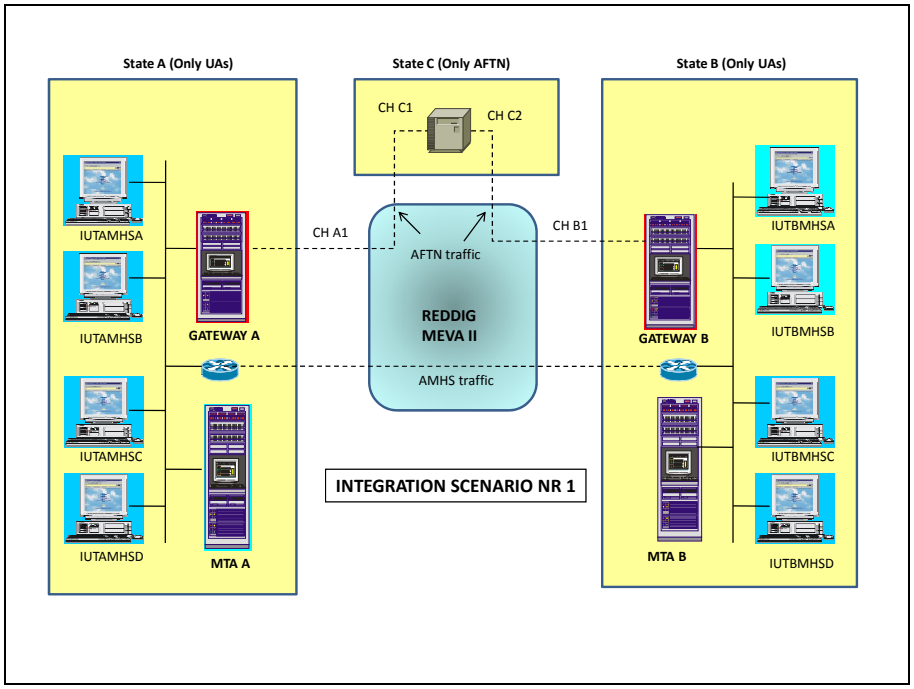
- In the routing configuration of the State A Gateway, the address corresponding to SB****** will be eliminated, staying routing SC ******.

- Vice versa, in the routing configuration of the State B Gateway, the address corresponding to SA****** will be eliminated, staying routing SC ******.

c) With respect to **Directory**, the commentaries indicated previously are been worth, in Chapter "Directory Service".

3.2.1.4 Scenario following to integration

a) According to the adopted actions, the following graphical scheme and tables from routing and directory are:



- For State A

State	Routing and X.400 directory							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH

A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSC				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSD				
								IUTC ***	A1		

- For State B

State	**Routing and X.400 directory**							**Routing AFTN**			
		C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSC				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSD				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC****	B1		

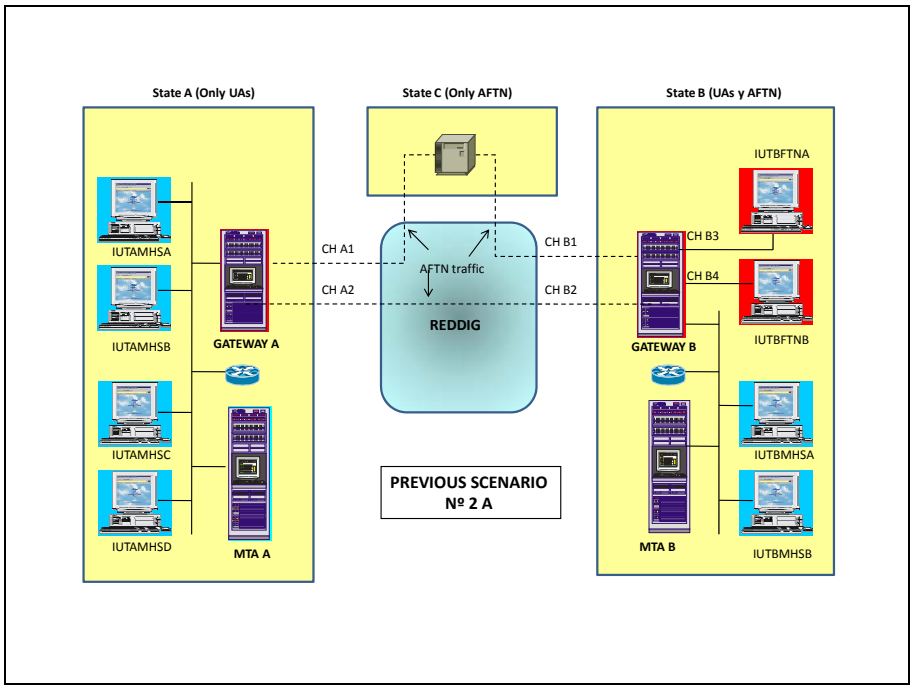
- For State C

State	**Routing and X.400 directory**							**Routing AFTN**			
		C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA****	C1
										IUTB****	C2

3.2.2 **TYPE 2** *State A with complete national development with State B with partial national development.* Although it exist several intermediate possible cases, it distinguish two greater cases, those they appear to continuation:

3.2.2.1 **Case 2A** *AFTN terminals connected to the Gateway*

a) *Previous scenario to integration:* Of the scheme it can be observed the following scheme of routing and address:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC ****	A1		
								IUTB ****	A2		

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB	B4		
								IUTC ****	B1		
								IUTA ****	B2		

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA****	C1
										IUTB ****	C2

b) *Actions to execute for integration*

- According to the previous fixed convention, to the State A corresponds PRMD=SA, while to state B corresponds PRMD=SB.

- For this case, and with respect to **routing**, in each State the following main actions will have to be executed :

  In the configuration of MTA=AAA (State A), it's necessary to add in the tree the data corresponding to State B, that is C=XX, ADMD=ICAO, PRMD=SB, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=BBB.

  Vice versa, in the configuration of MTA=BBB (State B), it's necessary to add in the tree the data corresponding to the State A, that is C=XX, ADMD=ICAO, PRMD=SA, so it will be program that the corresponded routing will not be do by, it will make the by adjacent MTA=AAA.

  In the configuration of routing of the State A Gateway, the address corresponding to SB****** will be eliminated, staying routing SC******.

  Vice versa, in the configuration of routing of the Gateway of State B, the address corresponding to SA****** will be eliminated, staying routing SC ******.

- With respect to **Directory**, the commentaries indicated previously are been worth, in Chapter "Directory Service". Addtionally, it must consider that:

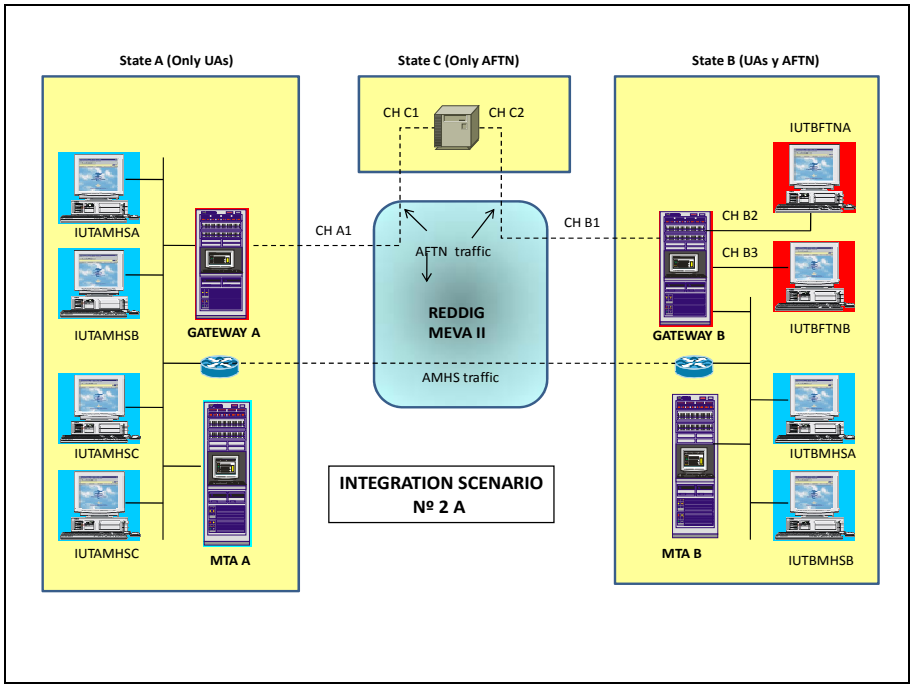
  At the moment of integration, each DS will copy the one of their pair.

  After, within the integrated operation, the State A will not undergo greater changes than the attributable ones to the entrance of new users or the elimination of these.

  However, the situation in State B is different since, in addition to the presented cases for A, each migration of one AFTN terminal to AMHS in his own territory will implied a modification in his own routing as in his own Directory.

  If although it will be remembered a periodic "refresh" between the DS, the action previously mentioned will commited to State B informs beforehand to the State A whenever B produces a modification in its internal frame; in this way A will adopt the necessary measures to update its own Directory in manual form, without waiting for automatic "refresh".

c) *Later scenario to integration:* in agreement to the adopted actions, it results the following graphical scheme and tables of routing and directory



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB				
								IUTC ****	A1		
								IUTB ****	A2		

- For State B

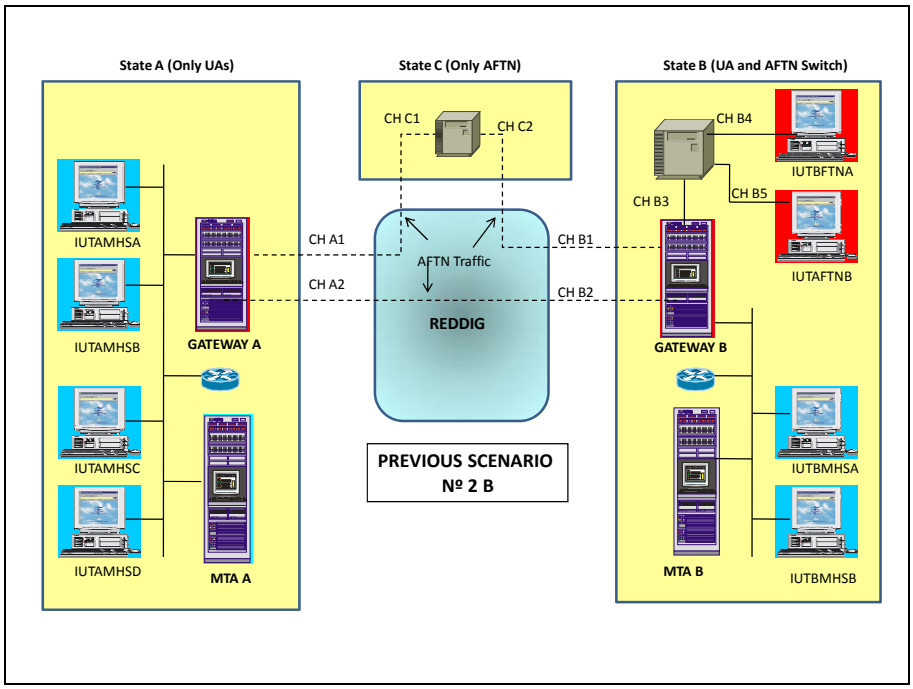
State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB	B4		
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC ****	B1		
								IUTA ****	B2		

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

3.2.2.2 **Case 2B** *AFTN terminals connected to the AFTN switch*

a) *Previous scenario to integration*: from the scheme it can be observed the following tables of routing and address:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OrU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC ****	A1		
								IUTB ****	A2		

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB			
								IUTC ****	B1		
								IUTA ****	B2		
										IUTBFTNA	B4
										IUTBFTNB	B5

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

b) *Actions to execute for integration*

- According to the previous fixed convention, to the State A corresponds PRMD=SA, while to state B corresponds PRMD=SB.

- For this case, and with respect to **routing**, in each State the following main actions will have to be executed :

  In the configuration of MTA=AAA (State A), it's necessary to add in the tree the data corresponding to State B, that is C=XX, ADMD=ICAO, PRMD=SB, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=BBB.

  Vice versa, in the configuration of MTA=BBB (State B), it's necessary to add in the tree the data corresponding to State A, that is C=XX, ADMD=ICAO, PRMD=SA, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=AAA.

  In the configuration of routing of the State To Gateway of the, the address corresponding to SB****** will be to eliminate, staying routing SC ******.

  Vice versa, in the configuration of routing of the Gateway of State B, the address corresponding to SA will be due to eliminate ******, staying routing SC ******.

- With respect to **Directory**, the commentaries indicated previously are been worth, in chapter "Directory Service". In addition, it must consider that:

  At the moment of integration, each DS copied the one of their pair.

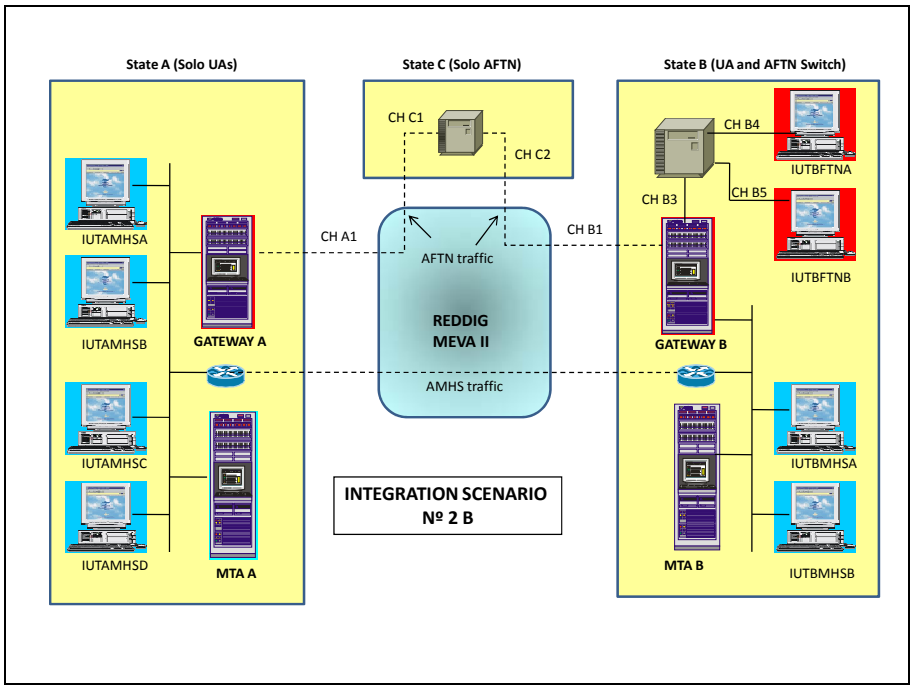
  After, within the integrated operation, the State A will not undergo greater changes than the attributable ones to the entrance of new users or the elimination of these.

  However, the situation in State B is different since, in addition to the presented cases for A, each migration of one AFTN terminal to AMHS in his own territory will implied a modification in his own routing as in his own Directory

  If although it will be remembered a periodic "refresh" between the DS, the action previously mentioned will commited to State B informs beforehand to the State A whenever B produces a modification in its internal frame; in this way A will adopt the necessary measures to update its own Directory in manual form, without waiting for automatic "refresh"

  By another part, if B decides to change of AFTN to AFTN (connection of Switch to Gateway), like a previous step to happen of AFTN to AMHS, this action does not demand a warning to A, already that does not modify the Directory of B, and therefore about A, one only is a modification of routing AFTN in B.

c) *Scene subsequent to integration:* according to the adopted actions, the following graphical scheme and the tables from routing and directory are:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB				
								IUTC ****	A1		

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB			
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSC				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSD				
								IUTC ****	B1		
										IUTBFTNA	B4
										IUTBFTNB	B5

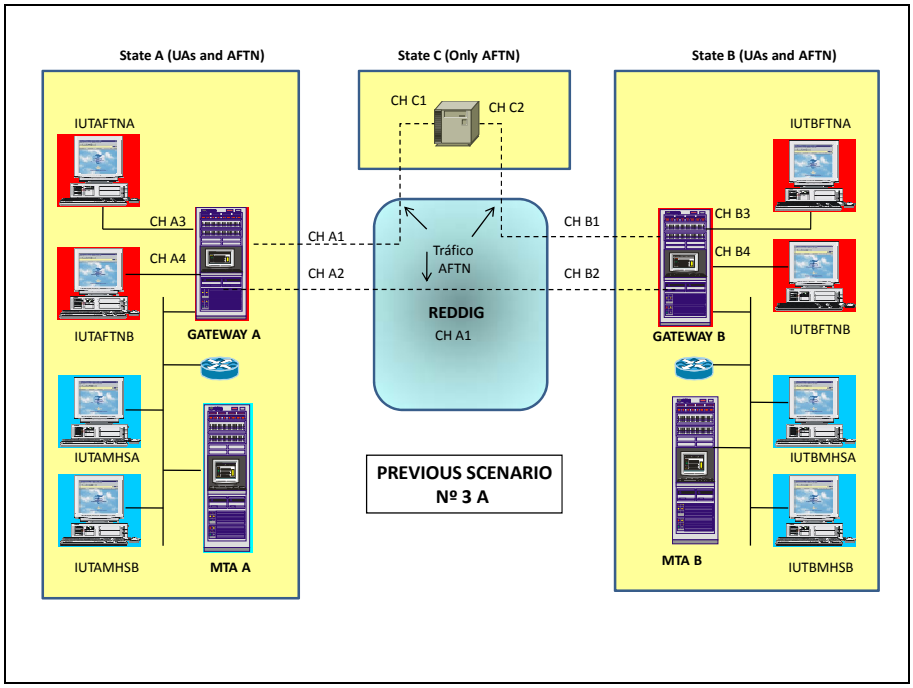
- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

3.2.3 **TYPE 3** *State A with partial national development with State B with partial national development.* Like for the previous Type, several possible intermediate cases exist, two greater cases are distinguished, those than they appear next:

3.2.3.1 **Case 3A** *AFTN terminals connected to the Gateway*

a) *Previous scenario to integration*: From the scheme it can be observed the following scheme of routing and address:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA	IUTAFTNA	A3		
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB	IUTAFTNB	A4		
								IUTC ****	A1		
								IUTB ****	A2		

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB	B4		
								IUTC ****	B1		
								IUTA ****	B2		

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

b) *Actions to execute for integration*

- According to the previous fixed convention, to the State A corresponds PRMD=SA, whereas to state B corresponds PRMD=SB.

- For this case, and with respect to **routing**, in each State the following main actions will have to be executed:

  In the configuration of MTA=AAA (State A), it's necessary to add in the tree the data corresponding to State B, that is C=XX, ADMD=ICAO, PRMD=SB, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=BBB.

  Vice versa, in the configuration of MTA=BBB (State B), it's necessary to add in the tree the data corresponding to State A, that is C=XX, ADMD=ICAO, PRMD=SA, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=AAA.

  In the configuration of routing of the State To Gateway of the, the address corresponding to SB****** will be to eliminate, staying routing SC ******.

  Vice versa, in the configuration of routing of the Gateway of State B, the address corresponding to SA****** will be eliminate, staying routing SC ******.

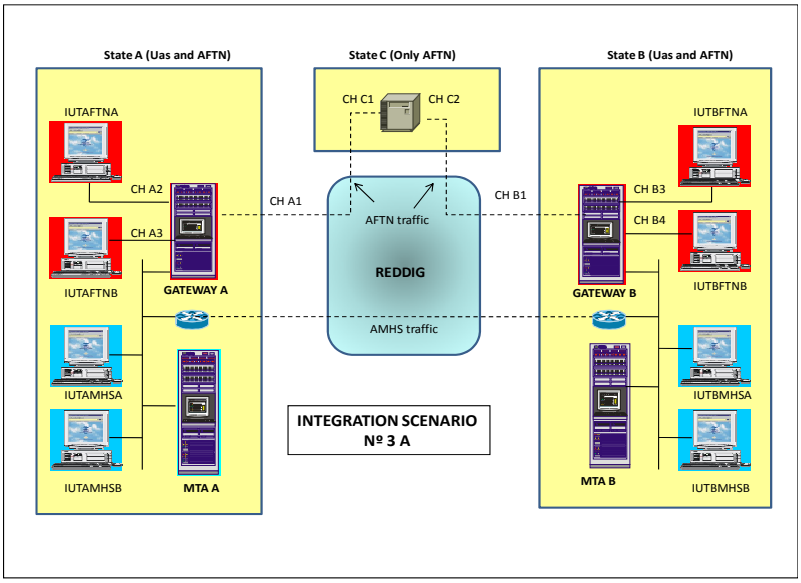
- With respect to **Directory**, the commentaries indicated previously are been worth, in chapter "Directory Service". In addition, it must consider that:

  At the moment of integration, each DS copied the one of their pair.

  The situation in the States A and B is equal, since its context is identical, by which in addition to the cases of entrance of new users or the elimination of these, each migration of a terminal to AFTN to AMHS in its territory as much implied a modification in its own routing as in its Directory,

  If although it will be remembered a periodic "refresh" between the DS, the action previously mentioned will commit to State B informs beforehand to the State A whenever B produces a modification in its internal frame; in this way A will adopt the necessary measures to update its own Directory in manual form, without waiting for automatic "refresh"

c) *Scene subsequent to integration:* in agreement to the adopted actions, is the following graphical scheme and the tables from routing and directory



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA	IUTAFTNA	A3		
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB	IUTAFTNB	A4		
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB				
								IUTC ****	A1		

- For State B

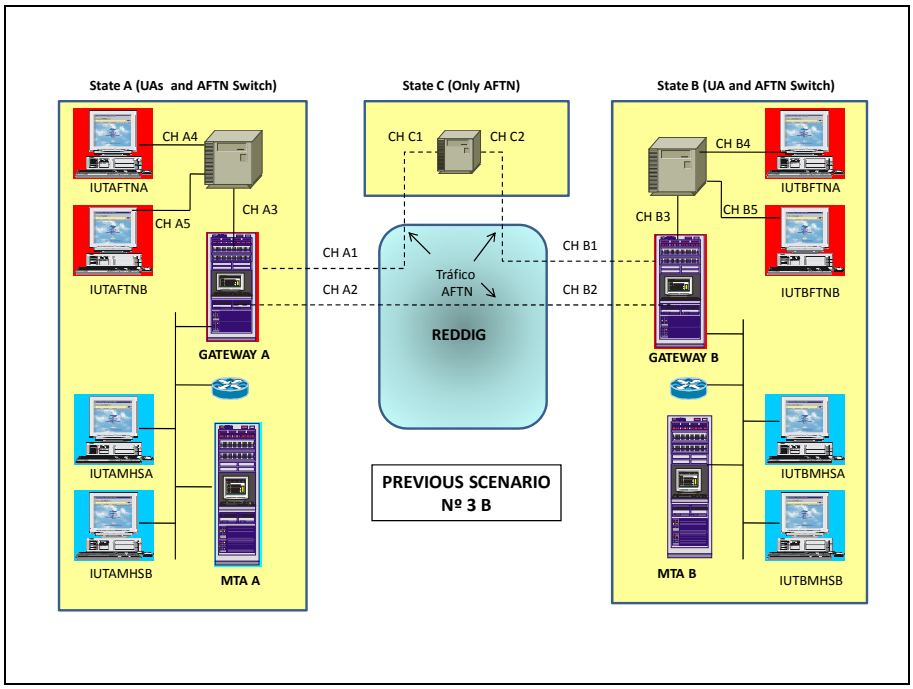
State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB	B4		
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB				
								IUTC ****	B1		

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

3.2.3.2 **Case 3B**: *AFTN terminals connected to the Switch AFTN*.

a) *Previous scene to integration*: From the scheme it can be observed the following scheme of routing and address:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA	IUTAFTNA	A3		
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB	IUTAFTNB			
								IUTC ****	A1		
								IUTB ****	A2		
										IUTAFTNA	A4
										IUTAFTNB	A5

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB			
								IUTC ****	B1		
								IUTA ****	B2		
										IUTBFTNA	B4
										IUTBFTNB	B5

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

b) *Actions to execute for integration*

- According to the previous fixed convention, to the State A corresponds PRMD=SA, while to state B corresponds PRMD=SB.

- For this case, and with respect to **routing**, in each State the following main actions will have to be executed :

  In the configuration of MTA=AAA (State A), it's necessary to add in the tree the data corresponding to State B, that is C=XX, ADMD=ICAO, PRMD=SB, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=BBB.

  Vice versa, in the configuration of MTA=BBB (State B), it's necessary to add in the tree the data corresponding to State A, that is C=XX, ADMD=ICAO, PRMD=SA, so it will be program that the corresponded routing will not be do by himself, it will make by the adjacent MTB=AAA.

  In the configuration of routing of the State To Gateway of the, the address corresponding to SB****** will be to eliminate, staying routing SC ******.

  Vice versa, in the configuration of routing of the Gateway of State B, the address corresponding to SA****** will be eliminate, staying routing SC ******.

- With respect to **Directory**, the commentaries indicated previously are been worth, in chapter "Directory Service". In addition, it must consider that:

At the moment of integration, each DS copied the one of their pair.

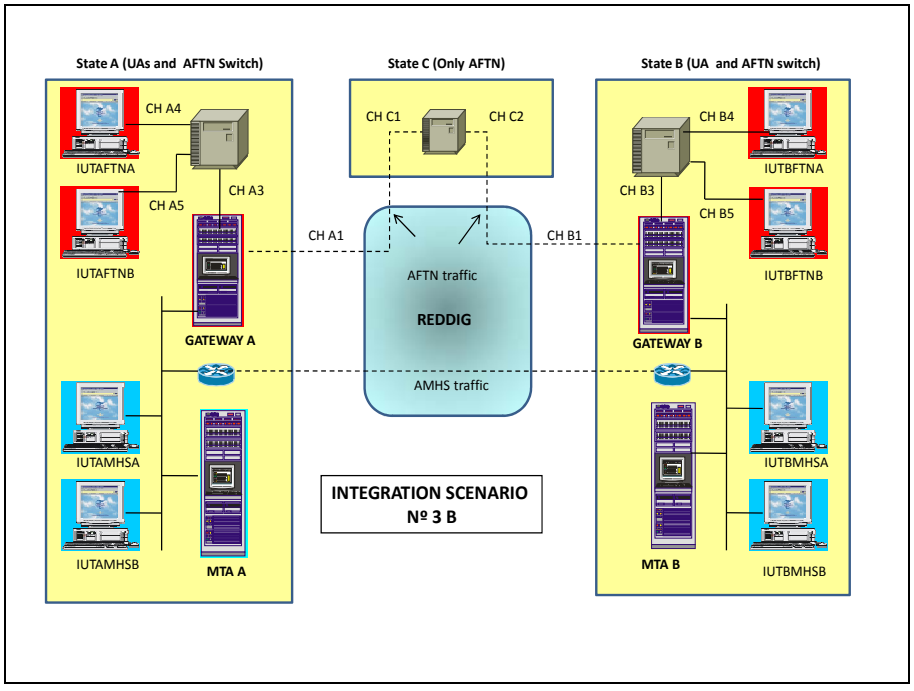
The situation in the States A and B is equal, since its context is identical, by which in addition to the cases of entrance of new users or the elimination of these, each migration of a terminal to AFTN to AMHS in its territory as much implied a modification in its own routing as in its Directory,

If although it will be remembered a periodic "refresh" between the DS, the action previously mentioned will commit to State B informs beforehand to the State A whenever B produces a modification in its internal frame; in this way A will adopt the necessary measures to update its own Directory in manual form, without waiting for automatic "refresh"

By another part, if State A decides to change of AFTN to AFTN (connection of Switch to Gateway), like previous step to happen of AFTN to AMHS, this action does not demand a warning to B, already that does not modify the Directory of A, and therefore about B, it only is a modification of routing AFTN in A.

If the one is B that decides to change of AFTN to AFTN (connection of Switch to Gateway), like previous step to happen of AFTN to AMHS, this action does not demand a warning to A, since it does not modify the Directory of B, and therefore of A, only is a modification of routing AFTN in B.

c) *Scenario subsequent to integration*: According to the adopted actions, the following graphical scheme and the tables from routing and directory are:



- For State A

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
A	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA	IUTAFTNA	A3		
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB	IUTAFTNB			
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB				
								IUTC ****	A1		
										IUTAFTNA	A4
										IUTAFTNB	A5

- For State B

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
B	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSA				
	BBB	XX	ICAO	SB	IUTB	IUTB	IUTBMHSB				
	BBB	XX	ICAO	SB	Gateway		IUTBFTNA	IUTBFTNA	B3		
	BBB	XX	ICAO	SB	Gateway		IUTBFTNB	IUTBFTNB			
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSA				
	AAA	XX	ICAO	SA	IUTA	IUTA	IUTAMHSB				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNA				
	AAA	XX	ICAO	SB	Gateway		IUTAFTNB				
								IUTC ****	B1		
										IUTBFTNA	B4
										IUTBFTNB	B5

- For State C

State	Routing and X.400 address							Routing AFTN			
	MTA	C	ADMD	PRMD	Or	OU1	Cnn	Gateway	CH	Switch	CH
C										IUTA ****	C1
										IUTB ****	C2

3.3 **Preparatory phase**

3.3.1 *Detailed analysis of the "Aspects to consider for integration*": delegates of the States to integrate his systems will have to meet to analyze, point by point, each one of the topics detailed in corresponding Chapter, in order to assure the nonexistence factors that jeopardize the future operations.

3.3.2 *Proposal of integration according to the type of scenario*: at the time of the integration decision, each State will have to present its definitive scheme of present operation, in order to determine the modality that better complies to the joint activity.

3.3.3 *Coordination of the operational procedures*: the operational procedures to develop will have a degree of greater or smaller complexity based on the integration scene, since:

3.3.3.1 Case 1: it allows simple procedures and without greater changes to future in both directories.

3.3.3.2 Case 2: it allows simple initial procedure, but subject to many changes in the future in the directory of B.

3.3.3.3 Case 3: it allows simple initial procedure, but subject to many changes to future in both directories.

3.3.4 *Plans of contingency*: it should develop Contingency Plans that assure the smaller possible resentment in the service before eventual inconveniences in the operational phase of integration.

3.3.5 *Development of the activities cronogram*: as it is obvious, a tentative Cronogram of predicted Activities will have to appear, in order to diminish the efforts that will have to practice the States to arrive at the operational phase

3.4 **Agreements for Integration**

3.4.1 *Type in agreement*: The agreement could be I saw or multilateral,

3.5 **Phase of operative Integration**

3.5.1 *Temporary suspension of the service*: for minor that is considered or foresee the duration of the operative transition of integration, it is unavoidable the interruption of the service for a lapse that will be minimized , which will be informed to all the international users to those that serve the States A and B.

3.5.2 I*ntegrated Operation*: after having concluded the transition, and already begun the integrated operation will owe himself:

3.5.2.1 To jealously watch the operation in both States, at least during a reasonable term that assures the normal continuity the service.

3.5.2.2 To remember that this State that must progressively change AFTN terminals to AMHS, beforehand will have to inform to the other State, so this makes the forecasts to refresh its DS with the new data of its pair.

APPENDIX A

IP ADDRESS REGIONAL PLAN
ALLOCATION BY REGION AND STATE

REGION SAM

Number	State/Territory	Network	Usable Addresses	Decimal Annotation
1	Argentina	10.0.0.0/19	First	10 . 0 . 0 . 1
			-	
			-	
			Last	10 . 0 . 31 . 254
2	Chile	10.0.32.0/19	First	10 . 0 . 32 . 1
			-	
			-	
			Last	10 . 0 . 63 . 254
3	Brazil	10.0.64.0/19	First	10 . 0 . 64 . 1
			-	
			-	
			Last	10 . 0 . 95 . 254
4	Uruguay	10.0.96.0/19	First	10 . 0 . 96 . 1
			-	
			-	
			Last	10 . 0 . 127 . 254
5	Paraguay	10.0.128.0/19	First	10 . 0 . 128 . 1
			-	
			-	
			Last	10 . 0 . 159 . 254
6	Bolivia	10.0.160.0/19	First	10 . 0 . 160 . 1
			-	
			-	
			Last	10 . 0 . 191 . 254
7	Peru	10.0.192.0/19	First	10 . 0 . 192 . 1
			-	
			-	
			Last	10 . 0 . 223 . 254
8	Ecuador	10.0.224.0/19	First	10 . 0 . 224 . 1
			-	
			-	
			Last	10 . 0 . 255 . 254
9	Colombia	10.1.0.0/19	First	10 . 1 . 0 . 1
			-	
			-	

			Last	10	.	1	.	31	.	254
10	Venezuela	10.1.32.0/19	First	10	.	1	.	32	.	1
			-							
			-							
			Last	10	.	1	.	63	.	254
11	Guyana	10.1.64.0/19	First	10	.	1	.	64	.	1
			-							
			-							
			Last	10	.	1	.	95	.	254
12	Surinam	10.1.96.0/19	First	10	.	1	.	96	.	1
			-							
			-							
			Last	10	.	1	.	127	.	254
13	French Guyana (France)	10.1.128.0/19	First	10	.	1	.	128	.	1
			-							
			-							
			Last	10	.	1	.	159	.	254
14	Panama	10.1.160.0/19	First	10	.	1	.	160	.	1
			-							
			-							
			Last	10	.	1	.	191	.	254
-	Vacancy	10.1.192.0/19	First	10	.	1	.	192	.	1
			-							
			-							
			Last	10	.	1	.	223	.	254
-	Vacancy	10.1.224.0/19	First	10	.	1	.	224	.	1
			-							
			-							
			Last	10	.	1	.	255	.	254
-	Vacancy	10.2.0.0/19	First	10	.	2	.	0	.	1
			-							
			-							
			Last	10	.	2	.	31	.	254
-	-	-	First	-						
			-	-						
			-	-						
			Last	-						
-	-	-	First	-						
			-	-						
			-	-						
			Last	-						
-	-	-	First	-						
			-	-						

			-	-								
			Last	-								
-	-	-	First	-								
			-	-								
			-	-								
			Last	-								
126 (It completes)	Reserved	10.15.224.0/19	First	10	.	15	.	224	.	1		
			-									
			-									
			Last	10	.	15	.	255	.	254		

APPENDIX B

ACTION PLAN FOR THE INTERCONNECTION OF AMHS SYSTEMS IN THE SAM REGION

ITEM	ACTIVITY	RESPONSIBLE	EXPECTED RESULT	STATUS	FINALIZATION DATE
1	2	3	4	5	6
1	Review of the ATN Regional Plan as regards AMHS implementation	Secretariat	Revised ATN ground ground applications plan (Table CNS 1Bb)	Completed	Jun 2009
2	Review and assignment of intra-regional routers IP addressing	Secretariat	Assignment of IP addressing	Completed	Jun 2009
3	Review of CAAAS addressing plan	SAM States	Revised CAAS addressing Plan	Completed	Jun 2009
4	Prepare interconnection protocol tests to determine bandwidth required for transmission of AMHS messages between MTAs through REDDIG	RLA/06/901 project CNS Expert	Protocol interconnection tests. A guide for the operational interconnection of AMHS systems was drafted	Completed	Dec 2009
5	Preparation of Guide for the Operational Interconnection of AMHS Systems in the SAM Region	RLA/06/901 project CNS Expert	Guide for the operational interconnection of AMHS systems in the SAM Region	Completed	Oct 2009
6	Drafting of a model MoU for the interconnection of AMHS	Argentina	Model MoU for the interconnection of AMHS	Completed	Oct 2009
7	MoU for the interconnection of AMHS currently implemented in the SAM Region: a) Argentina-Brazil b) Argentina-Chile c) Argentina-Peru d) Argentina-Paraguay e) Brazil-Colombia f) Brazil-Paraguay g) Brazil-Peru h) Chile-Peru i) Colombia-Perú	SAM States involved	MoU for interconnection of AMHS systems listed in column 2 of this table.	Valid a, d & f) Completed	Dec 2009
8	Phase I Interconnection trials between MTAs of: a) Argentina-Brasil b) Argentina-Paraguay c) Brasil-Paraguay Types of tests to carry out: Network transportation Network connectivity Message exchange Preparatory phase	Argentina, Brazil, Paraguay and REDDIG Administration	Interconnection trials between Argentina, Brazil and Paraguay MTAs	Valid a) network transportation and connectivity trials carried out b) network transportation and connectivity, and message exchanges trials carried out c) network transportation and connectivity trials carried out	Mar 2010

ITEM	ACTIVITY	RESPONSIBLE	EXPECTED RESULT	STATUS	FINALIZATION DATE
1	2	3	4	5	6
9	Phase II Interconnection trials between MTAs of: a) Argentina-Chile b) Argentina-Peru c) Brasil-Colombia d) Brasil-Paraguay e) Brasil-Peru f) Chile-Peru g) Colombia-Peru Types of tests: Network transportation Network connectivity Message exchange Preparatory phase	Chile, Colombia, Paraguay y Perú	Interconnection trials betwen AMHS systems listed in column 2 of this table.	Valid a) Network transportation tests carried out b) Network transportation and connectivity tests carried out c, d, e, f & g) Network transportation tests carried out	Jun 2011
10	Operational interconnection implementation at the following MTAs: a) Argentina-Paraguay b) Argentina-Brazil c) Argentina-Chile d) Argentina-Peru e) Argentina-Paraguay f) Brazil-Colombia g) Brazil-Paraguay h) Brazil-Peru i) Chile-Peru j) Colombia-Peru	Argentina, Brazil, Chile, Colombia Paraguay and Peru	Operational implementation of AMHS systems listed in column 2 of this table.	Valid	a) Dec 2009 b, c, d, e, f, g, h, i, & j) Dec 2011

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APPENDIX C

MEMORANDUM OF UNDERSTANDING FOR THE INTERCONNECTION OF AMHS SYSTEMS

Preface

This document defines the Memorandum of Understanding for the bilateral interconnection of AMHS systems between the States of the Region. The two States may revise this document when so required.

Approval
Memorandum of Understanding for the Interconnection of AMHS Systems

By **State A** By **State B**

Revisions

Revision / Date	Description	Pages changed
0 – 17/09/09		

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1. Section 1 - Introduction and Purpose

1.1. Introduction

The plans for the implementation of ATN ground-ground applications and the regional ATN router plans are defined in FASID Tables CNS 1Bb and CNS 1Ba, respectively, as formulated in conclusions 13/74 - *Proposed amendment to the Regional ATN Plan* and 13/75 - *Request for information on plans to implement ATN ground-air applications.*

Document: The body of this document contains ten (10) sections and one (1) appendix. The contents of the sections and the appendix are summarised below:

a) Section 1 - Presents a brief overview and a statement of purpose;

b) Section 2 – Describes the basic principles for drafting this document;

c) Section 3 – Considers the cases in which this Memorandum applies;

d) Section 4 – Describes the version control process;

e) Section 5 – Lists the references considered;

f) Section 6 – Establishes criteria and restrictions for the use of the information shared by two countries;

g) Section 7 – Presents the operational aspects that must be considered for the interconnection of automated systems;

h) Section 8 - Presents the technical aspects that must be considered for the interconnection of automated systems;

i) Section 9 - Presents the administrative aspects that must be considered for the interconnection of automated systems;

j) Section 10 - Presents the financial aspects that must be considered for the interconnection of automated systems;

k) Section 11 – Technical-operational agreement for the interconnection of AMHS systems.

1.2. Purpose

The goal of this MoU is to provide the planning for the interconnection of AMHS systems, establishing standard procedures that take into account the operational, technical, administrative, and financial aspects involved.

2. Section 2 - Principles

In preparing this document, the following aspects have been considered:

1. This Memorandum is a guide for States to enter into bilateral agreements; and

2. This document takes into account the aspects contained in documents dealing with AMHS interconnection, ICAO SARPs and documents, documents prepared by project RLA 06/901, and in GREPECAS recommendations.

3. Section 3 - Scope

This document only applies to the interconnection of AMHS systems between States A and B.

4. Section – Organisation

This is a document by virtue of which the participating States will agree to revise or modify its details as necessary.

The participating States will coordinate the revisions to this Memorandum, or changes to its paragraphs.

5. Section 5 - References

This Memorandum follows the ICAO recommendations contained in the following documents:

- Report of the SAM IG/2 meeting, Lima, Peru, 3-7 November 2008;
- Report of the SAM IG/3 meeting, Lima, Peru, 20-24 April 2009;
- Report of the sixth meeting of the CNS Committee of the ATM/CNS Subgroup (CNS/COMM/6), Santo Domingo, Dominican Republic, 30 June - 4 July 2008;
- Report of the GREPECAS 15 meeting (Rio de Janeiro, Brazil, 13 to 17 October 2008);
- Fifth meeting of the ATN Task Force of the CNS Committee of the ATM/CNS Subgroup (ATN/TF/5), Mexico City, Mexico, 12-13 June 2009; and
- SAM COM/MET/09 meeting, Lima, Peru, 10–12 August 2009.

6. Section 6 - Confidentiality

Each participating State must implement all the measures necessary to ensure the safety, integrity, and confidentiality of the information.

The dissemination of these data to other organisations not considered in this Memorandum can be done only if previously authorised by the participating States.

7. Section 7 - Operational Aspects

The application of this Memorandum may require adjustments to the operational agreements that exist between the participating States.

The Administrations undertake to provide training on the appropriate parts of this MOU to their personnel working in the systems involved.

8. Section 8 - Technical Aspects

The technical considerations for the establishment, by the States, of the interconnection scenarios, the implementation strategy, the implementation of the solution, the monitoring of the operation, and personnel training aspects that will best meet their needs are presented in Section 6 of the Appendix to this Memorandum.

9. Section 9 - Administrative Aspects

For the orderly implementation of the selected interconnection solution, the participating States agree to the creation of an administrative structure based on an Interconnection Management Committee, whose powers, composition, and activities are described in Section 7 of the Appendix to this Memorandum.

The States must designate representatives, members of their respective groups, to be part of the basic structure of the aforementioned Committee.

The States must choose a forum for discussing cases of non-compliance and for the resolution of possible conflicts.

This Memorandum is of a continuous nature, and may be interrupted at any time, by agreement of the parties involved.

10. Section 10 - Financial Aspects

The participating States, as individual administrations, will be responsible for any financial obligation to cover direct or indirect expenditures related to the implementation of this Memorandum, including those related to the procurement of equipment, spare parts, training of technical and operational personnel, lines of communications, and others.

Each State will be responsible for its respective portion of any expenses related to REDDIG upgrades to address increased traffic, in keeping with guidance provided by the REDDIG Administration.

The parties to this Memorandum understand that they shall not commit to any action that may result in a financial obligation for other parties without previously obtaining the written consent by all the other parties involved.

The States may establish financial mechanisms to carry out the interconnection, for example, through ICAO Technical Cooperation Projects.

11. Section 11 – Technical-Operational Agreement for the Interconnection of AMHS Systems

APPENDIX A

MEMORANDUM OF UNDERSTANDING

TECHNICAL-OPERATIONAL AGREEMENT FOR THE INTERCONNECTION OF AMHS SYSTEMS

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1. Purpose

To provide a detailed description of the technical, operational, and administrative aspects of the Memorandum of Understanding that are needed for the interconnection of AMHS systems between States A and B.

2. Summary

- The plans for the implementation of the ATN ground-ground application and the plans for regional ATN routers, as defined in FASID Tables CNS 1Bb and CNS 1Ba, respectively, were formulated through conclusions 13/74 - *Proposed amendment to the Regional ATN Plan* and 13/75 - *Request of information on plans for the implementation of ATN ground-air applications* and reviewed at the sixth meeting of the CNS Committee of the GREPECAS ATM/CNS Subgroup (ATM/CNS/SG/6). Tables CNS1Ba and CNS1Bb were reviewed at the ATN/TF/5 meeting, held in Mexico, on 12-13 June 2009.

- The regional AMHS addressing plan that the States should apply when implementing AMHS systems in the SAM Region was presented at the GREPECAS 15 meeting (Appendix M to agenda item 3) and reviewed by the COM/MET/09 meeting held in Lima, Peru, on 10-12 August 2009.

- The States that have implemented or are planning to implement AMHS systems should register before the ATS message transmission management centre (AMC), according to ICAO State letter AN 7/49.1-09/34 of 14 April 2009 on management and updating of information on addresses of the air traffic service (ATS) message handling system (AMHS), and the procedure for registering a State representative as user of the AMC.

- The ATN/TF/5 meeting reviewed the IPv4 addressing scheme and, in this respect, considered that, at the national level, the States, when implementing AMHS systems based on IP, could adopt the Ipv4 addressing scheme. The meeting also considered that, for intra-regional links between AMHS systems, the Ipv4 addressing scheme shall be used, and, accordingly, formulated conclusion 5/1 - *Proposed Ipv4 addressing scheme for ATN ground-ground applications at the intra-regional level*.
- For the interconnection of the AMHS systems installed in the Region, consideration has been given to conducting trials between MTAs to check the interoperability of AMHS systems, and a study of the bandwidth required for their interconnection.

3. Reference

This Agreement follows the recommendations contained in the following documents:

- Report of the SAM IG/2 meeting, Lima, Peru, 3-7 November 2008;
- Report of the SAM IG/3 meeting, Lima, Peru, 20-24 April 2009;
- Report of the sixth meeting of the CNS Committee of the ATM/CNS Subgroup (CNS/COMM/6), Santo Domingo, Dominican Republic, 30 June - 4 July 2008;
- Report of the GREPECAS 15 meeting (Río de Janeiro, Brazil, 13-17 October 2008).
- Fifth meeting of the ATN Task Force of the CNS Committee of the ATM/CNS Subgroup (ATN/TF/5), Mexico City, Mexico, 12-13 June 2009; and
- SAM COM/MET/09 meeting, Lima, Peru, 10–12 August 2009.

4. Safety

Each State must ensure that its communication networks involved in the interconnection have the required protection for this type of service, taking into account, at least, the following aspects:

- Protection against intrusion by unauthorised people and/or systems;
- Protection against attacks from computer viruses; and
- Use of the equipment exclusively for the interconnection of automated systems.

5. Operational Aspects

The Administrations undertake, within their respective jurisdiction, to provide direct training on the contents of this Memorandum of Understanding to the personnel working in the systems involved.

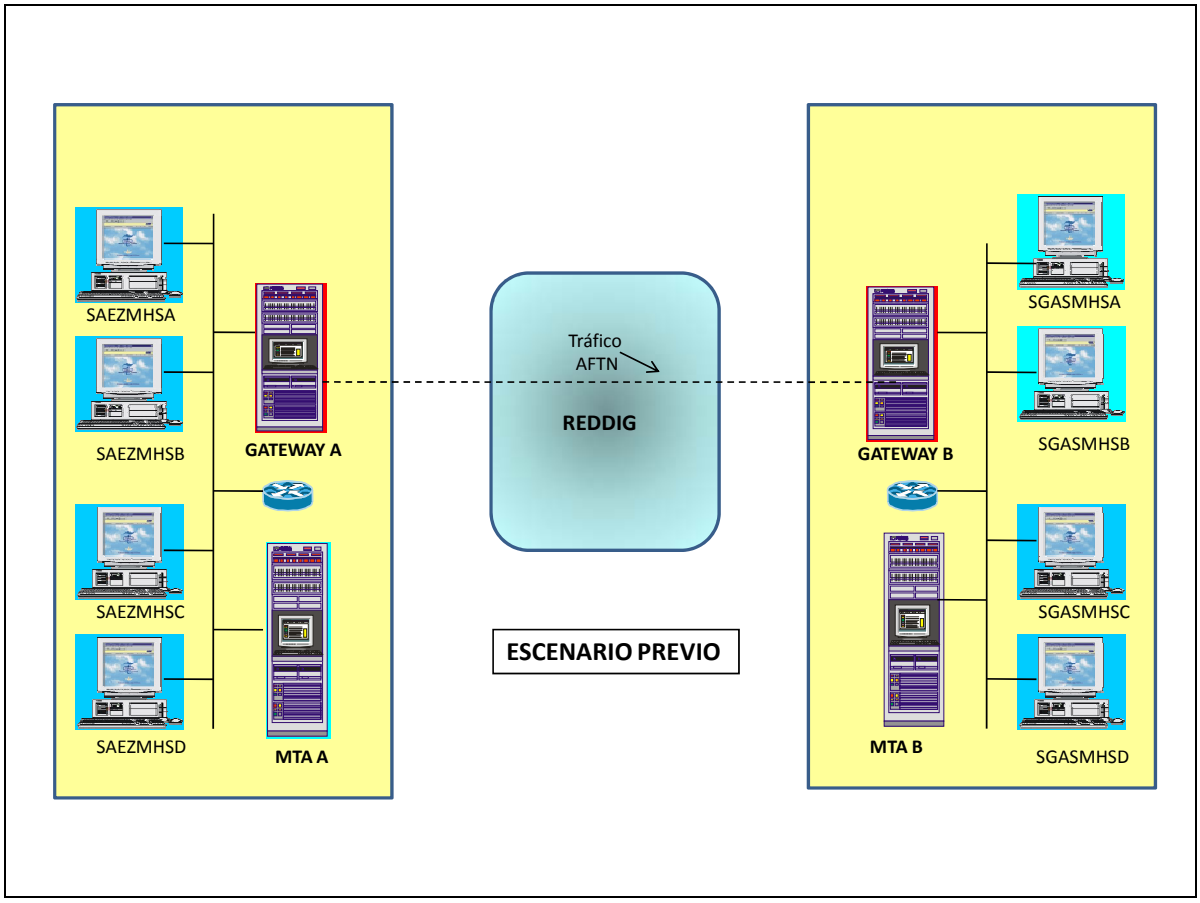
The selected interconnection option entails that States will have to establish specific operational procedures, taking into account the functionality available in each automated system.

6. Technical Aspects

The interconnection must permit the automatic transfer of messaging plans between the two States, using the respective MTAs;

The main aspects are:

1) Analysis of the current scenario: Currently, both States have completed the deployment of their AMHS systems at the national level, but the operating mode between the two is still AFTN, that is, using the gateway, as shown in the following graphical example:



2) Selection of the exchange scenario: the functional scenario can only be as follows, in which the exchange of traffic between States is already being carried out through the interconnection of the respective MTAs, leaving the gateway operational for the exchange of messages with those States that have not migrated to the AMHS:

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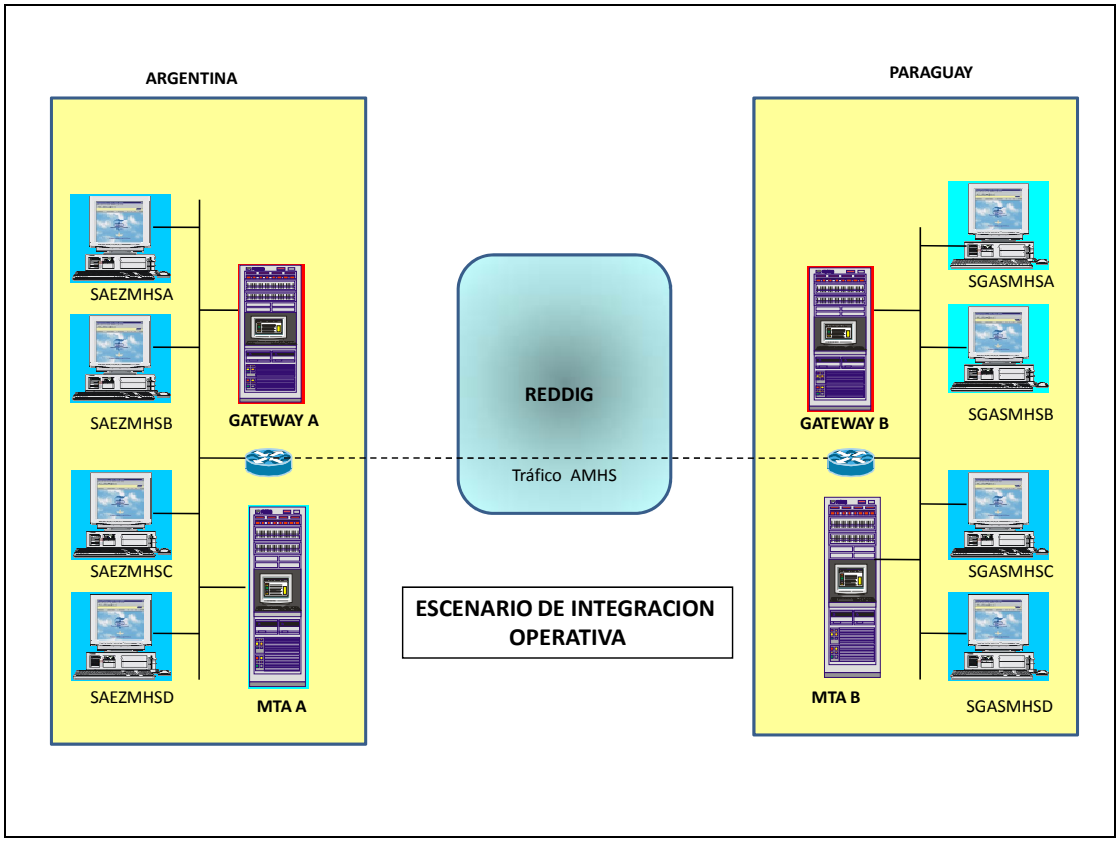

3) Implementation Strategy:

In order to achieve the desired objective, the following action must be taken, indicating, in each case, whether such action has already taken or the tentative date for its implementation:

- Data transportation network: Intra-regional IP ATN
- Means: REDDIG
- Channel: DLCI
- ATN boundary elements: routers provided by each State
- IP addressing of router link ports: to be configured according to the Regional IP Addressing Plan, Link Ports
- Serial interfaces: V.35

- Tests:
  - *Network transport*: by REDDIG administrator
  - *Network connectivity*: by *State A* and *State B*
  - *Message exchange*:
  - *Exchange of technicians between States*:
  - *Preparatory phase*:
- *Operational status*:

4) Implementation:

- The Interconnection Management Committee will be in charge of implementation management, and will be made up by personnel listed in Attachment A.
- This Interconnection Committee will perform its functions until three (3) months after the beginning of the Operational Phase; thereon, the integrated operation will be entrusted to the respective Communication Stations.

5) Operation Monitoring

Each State must be responsible for monitoring the operation of its systems, including the maintenance of its equipment and systems, ensuring the required availability, performance, safety, and efficiency.

All problems of uncertain origin must be analysed jointly by the States through the Interconnection Management Committee, which will coordinate the actions required for their resolution.

However, each State must do its best to carry out the actions under its responsibility, informing the Interconnection Management Committee about their implementation.

In any case, the Interconnection Management Committee must be constantly informed about the occurrence of anomalies, regardless of their origin.

6) Training

The participating States must develop training plans for the technical teams responsible for system maintenance, taking into account extent, periodicity, and technical evolution.

7) Maintenance

Teams must be prepared for contingencies and be technically capable of analysing anomalies.

Each State shall develop its own Action Plan, which will define the technical information required for the interconnection with adjacent ACCs, and will contain, at least:

1. The topology of the networks involved, with technical details about the bandwidth, availability, latency, and redundancy required;
2. The specifications of the equipment used;
3. Maintenance requirements;
4. Maintenance procedures: preventive, predictive, and corrective; and
5. All related technical documents;
7. The States agree that the means of communication for the implementation of the interconnection will be the REDDIG.

7. Administrative Aspects

This Agreement is a dynamic document that can be revised at any time, in keeping with the technological evolution of the systems and communication networks of the participating States.

Interconnection management will be entirely the responsibility of the Interconnection Management Committee established by the two (2) States, in accordance with the following:

1. Organisational Structure

In order to carry out its activities, the Committee will be organised as follows:

1. Coordinator

The coordinators for AMHS interconnection between States A and B are listed in **Annex A.**

Coordinators will be responsible for general coordination of all the activities of the technical and operational groups, and for maintaining contact with other organisations to address interconnection issues.

2. Technical Group

It must include technicians designated by the two States, with training in their respective fields, especially in communication networks and computer automation systems.

They will be responsible, in their respective country, for the implementation and/or coordination of the technical activities required for the implementation, maintenance, and support of automated systems, communication networks, and interconnection equipment.

3. Operational Group

It must include experts in the operation of electronic messaging systems.

2. Functions

The Committee is responsible for all the coordination required for the planning, implementation, maintenance, and operational support of the systems and equipment involved in the interconnection of AMHS systems.

It must also ensure the continued safety of the information to be transmitted between the automated systems involved in the interconnection.

Its functions include controlling and updating all technical and operational documentation.

It is also responsible for the network topology to be used for the interconnection, which must be approved by the two (2) States.

Interconnection implementation must be coordinated and controlled by the Committee, through action plans previously approved by the two (2) States.

The Committee must advise the States about the need for technological evolution of the equipment and systems involved in the interconnection.

Its teams must monitor the performance, stability, reliability, and integrity of the equipment and systems involved in the interconnection, and propose and monitor corrective action.

The Committee must establish the necessary procedures for correcting faults.

Also, together with the participating States, it must provide for the resolution of problems.

3. Management Process

In order to carry out its activities, the Interconnection Management Committee will apply the following management system:

1. Periodic meetings and discussions to identify requirements, preferred technical solutions, alternatives, and options for the interconnection of AMHS systems;
2. Exchange of technical reports and documentation, plans and schedules as required for a successful and timely culmination of these efforts.
3. Joint planning, technical coordination, and implementation of activities by the two (2) States.

8. Financial Aspects

Regarding financial aspects, the States agree to the following:

1. Acquisition of equipment, components, and systems;

The equipment necessary for the interconnection will be acquired by each State, according to the technical specifications approved by the Interconnection Management Committee;

2. Acquisition of spare parts

Spare parts for the equipment involved in the interconnection will be purchased by each State, according to its specific needs, but in keeping with the maintenance guidelines issued by the Interconnection Management Committee.

3. Acquisition of third-party services

Each State agrees to pay for incidental third-party services, such as software adjustments, projects, and implementation of communication networks.

Each State will be responsible for its share of the incidental cost of upgrades to the REDDIG to address traffic increases, in keeping with the guidance issued by the REDDIG Administration.

ANNEX A

AMHS SYSTEM INTERCONNECTION MANAGEMENT COMMITTEE

COORDINATORS OF THE MANAGEMENT GROUP

State A

Name:
Phone number:
Email:

State B

Name:
Phone number:
Email: