ATNP/WG3

WP/9-28

7/02/97

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL (ATNP)

WORKING GROUP 3 - APPLICATIONS AND UPPER LAYERS

Agenda Item 5.2: Review Validation Results/Report.

VALIDATION METHOD AND RESULTS OF SPANISH ATSMHS

Prepared by Aena.

Presented by Jesús Cid.

Summary

This document represents the way followed by Aena to validate the ATSMHS that will be implemented in Spain, for national use, with a gate to AFTN international telegraphic network. It has been used the combination of "black box" and "white box" trials for some requirements,as well as detailed checks for some others, all of them performed in different scenarios.

VALIDATION METHOD AND RESULTS

OF SPANISH ATSMHS

Version 2.0

Summary

This document represents the way followed by Aena to validate the ATSMHS that will be implemented in Spain, for national use, with a gate to AFTN international telegraphic network. It has been used the combination of “black box” and “white box” trials for some requirements, as well as detailed checks for some others, all of them performed in different scenarios.

1.- **INTRODUCTION**.-

During some years, Aena has been demanding the development of an MHS environment, as a policy of migrating all the existing AFTN users to these new services. The aditional requirement to that condition was to be in line with the recomendations from OACI in the subject.

Mainly, there were two limitations of that idea: the incomplete national coverage of an aeronautical WAN, and the inmature situation of the appropriate SARP's for AMHS application.

Once these constraints were considered, Aena obtained a first development of ATSMHS, ready to be validated, by means of the procedures agreed in OACI.

This system consists of:

- AMHS services provided by a "customized" OSIAM SW from Marben; and
- AFTN/AMHS gateway whose SW MTCU/ATN components have been based on Marben products.

For the HW, it has been used STRATUS platform to allocate the GW and other AMHS services, SUN workstations for MTA support and PC's for UA's.

In order to perform a unique test procedure, Aena has decided to choose the proposals for validation from OACI, as a guideline of aceptance trials plan.

2.- **DOCUMENTATION SUPPORT**.-

The agreed solution for validating the system consists of the following documents:

- a table comprising four groups of tests (annex 1) as a main body:
    * operational GW;
    * operational AMHS
    * functional AMHS;
    * functional GW.

- a table with the "shall" requirements (annex 2):

- a set of scenarios (annex 3).

- a set of results of the tests (annex 4).

3.- **DOCUMENTATION CONTENTS**.-

The above mentioned documents contain the following information:

Anex 1: Four groups of tests.

This table has 4 columns headed as:

· Test number: as identification purposes;
· Test type: one of the four groups of tests;
· Environment: the scenario to be used in this test; and
· Test name: short description of the test.

Anex 2: ICAO “shall” requirements.

This table has 10 columns headed as:

· Ref#: ordinal for the ICAO “shall” sequence
· Shall statement: shall description which, together with complements is the shall in SARP’s document
· SARPs Tag: ICAO “shall” identification number
· Complements to the shall statement: completes the part in Shall statement
· Section or clause: ICAO “shall” allocation in SARP’s document
· Environment: test used for validating the requirement
· Comments: any indication for clarification purposes.
· Results: any indication for the result of test.

Attach to this table is the list of the acronism used in the different columns.

Anex 3: Environment.

Set of scenarios used in the validation of ATSMHS:

· Scenario type 1: to test X.400 and X.500;
· Scenario type 2: to test GW;
· Scenario type 3: to test ICAO “shall” requirements.

Anex 4: Results of the tests.

This annex contains the results and the evaluation of these.

4.- **VALIDATION PROCEDURE**.-

The procedure to validate the ATSMHS was the following:

1.- The four groups of tests passed at a first stage in their corresponding scenarios. These “black box” tests allow to know if there is any global problem that will cancel the validation process. Besides, some of these tests are used to validate the corresponding ICAO “shall” requirements (for instance, requirement.[44] is tested with test nº 403) by checking the output of the system as a result to an specific input.

2.- After the success of the previous stage, the check of every ICAO “shall” requirement were performed using white-box tests. For each “shall” it was selected one among the possible tests indicated and, in the appropriate scenario and by means of the tool, the software module was checked, in order to verify the ICAO requirement The validation consited of the analisys of the value reflected in the attribute of the element under test.

3.- All the above results were collected in the ICAO “shall” requirements table, including SARP’s differences in behaviour, if any, (see WpP 29) of the product tested.

4.- All the results of this procedure are presented in the anex 4. In this anex are reflected the whole of the tests to be performed, the performed ones, and into these the passed tests and the pending ones, which will be passed in phase II. Besides it is commented the global evaluation of the tests.

5.- The final stage of the validation, called interoperability, was reached when the interchange of information between this development and the SITA one. was performed using a set of

tests, agreed between Aena /SITA and STNA acting as a coordinator. To see the results of these tests refer to the Interoperability Validation Test Plan Template.

5.- **VALIDATION SCHEDULE**.-

Spain will perform the trials described above in two phases:

1.- Phase I: based on version 1.0z.
2.- Phase II: based on final version.

According to the stages defined for the validation procedure, the up-to-date shedule for the phase I is the following:

\ Time **Item **		**December 96**					**February 97**				**Januery 97**			
" Black Box " Tests	———													
" White Box "Tests									———					
" Local Box " Tests												———		
Interoperability Tests													———	

(The schedule for the phase II will be similar to the above and will start in June, 1997).

As indicated in the table, the current status in the tests corresponds to the finishing the "local" results report. As a consecuence of initial tests it was added more tests to the original test plan, due to these two sub-items:

- feedback of results to be exhaustive; and
- correspondence check between "shall" requirements with, at least, one black box test.

6.- **PROPOSAL**

This document represents the procedure and results obtained by Spain, for the validation of ICAO SARP's in its GW development

For that, this document is endorsed to the meeting with the proposal of being assumed as a general procedure for the validation of the ATSMHS SARP's.

ANNEX 1

GROUPS OF TESTS

(PHASE I)

Test Number	Test Type	Environment	Test Name
101	operational GW	2.1	MTA start
102	id.	id.	MTA stop
103	id.	id.	GATEWAY start
104	id.	id.	GATEWAY stop
105	id.	id.	User address look-up table (inclusion)
106	id.	id.	User address look-up table (modification/deletion)
107	id.	id.	MD look-up table (inclusion)
108	id.	id.	MD look-up table (modification/deletion)
109	id.	id.	Incoming X.400 messages look-up using MTSI
110	id.	id.	Incoming X.400 messages look-up using TI
111	id.	id.	Transmitted X.400 messages look-up using MTSI
112	id.	id.	Transmitted X.400 messages look-up using TI
201	operational AMHS	1.1	Introduction of an X.400 user (MTA)
202	id.	id.	Modification of an X.400 user (MTA)
203	id.	id.	Deletion of an X.400 user (MTA)
204	id.	2.1	Introduction of an X.400 address in the X.500 directory
205	id	id.	Deletion of an X.400 address in the X.500 directory
206	id.	id.	Introduction of an X.400 address in the personal list
207	id.	1.2	Creation of an adjacent MTA
208	id.	id.	Creation of a route with an adjacent MTA
301	functional AMHS	1.1	Restricted access to an MS from a UA
302	id	id.	Send/receive X.400 messages
303	id.	id.	Send a message with Sensitivity option
304	id.	id.	Send a message with Priority option
305	id.	id.	Send a message with Importance option
306	id.	id.	Send a message with Authorizing users option
307	id.	id.	Send a message with Expiry date
308	id.	id.	Send a message with Reply request
Test Number	**Test Type**	**Environment**	**Test Name**

309	id.	id.	Send a reply message
310	id.	id.	Send a message with attached files to a local destination
311	id.	id.	Send a message with Delivery Report notification to a local destination
312	id.	id.	Send a message with Non Delivery Report notification
313	id.	id.	Send a message with Receipt Notification to a local destination
314	id.	id.	Send a message to a local distribution list
315	id.	1.2	Message Routing
316	id.	id.	Send a messages to multiple destinations
317	id.	id.	Incoming message Redirection
318	id.	id.	Redirection message Disallowed
319	id.	id.	Send a message with Deferred delivery date
320	id.	1.3	Multiple rerouting
321	id.	id.	Send a message to primary destinations and with a blind copy
322	id.	id.	Send attached files to multiple destinations
323	id.	id.	Send a message to multiple destinations with Delivery Report notifications
324	id.	id.	Send a message to multiple destinations with Delivery and Non Delivery Report notifications.
325	id.	id.	Send a mesage to multiple destinations with Read/Withdrawn option
326	id.	id.	Time sinchronization
327	id.	id.	Send a message to a remote distribution list
328	id.	id.	Distribution list with List Expansion Prohibited option
329	id.	id.	Dynamic routing in case of unavailability
401	functional GW	2.1	Send a message from AFTN to X.400
402	id.	id.	Send messages from AFTN to X.400 with different priorities
403	id.	id.	Send a message from AFTN to X.400 with Optional Heading Info
404	id.	id.	Send a message from AFTN to X.400 with SS priority
405	id.	id.	Send a message from AFTN to X.400 with unknown address in the GW
406	id.	id.	Send a message from AFTN to an X.400 user unknown by MTA
407	id.	id.	Send a message from AFTN to X.400 with originator unknown in Gw
408	id.	2.2	Send a message from an AFTN user to several X.400 users

Test Number	Test Type	Environment	Test Name
409	id.	id.	Send an AFTN message to several users, with one among them unknown to Gw
410	id.	2.1	Send a message from X.400 to AFTN
411	id.	id.	X.400 message rejection whose EIT is not IA5-text
412	id.	id.	X.400 message rejection with Conversion Flag to prohibited
413	id.	id.	X.400 message rejection with multiple bodies
414	id.	id.	X.400 message rejection with unsupported body part type
415	id.	id.	X.400 message rejection with erroneus text structure
416	id	id.	X.400 message rejection with the Conversion with loss parameter activated
417	id.	id.	X.400 message rejection whose originator was unable to convert in Gw
418	id	id.	Send a message to several AFTN users, with one among them unknown to Gw
419	id.	id.	Receipt Notification reception due to a message which did not pass the Gw
420	id.	id.	Non-Delivery Report reception due to a message which did not pass the Gw
421	id.	id.	Receipt of a correct Probe
422	id.	id.	Receipt of a Probe with an EIT different from IA5-text
423	id.	id.	Receipt of a Probe with Conversion to prohibited
424	id.	id.	Receipt of a Probe with originator unknown in Gw
425	id.	id.	Receipt of a Probe with destination unknown in Gw
426	id.	id.	Send a message from X.400 to an unknown AFTN destination in AFTN switch
427	id.	id.	Send a message from X.400 to AFTN with SS priority
428	id.	id.	Send a message from X.400 to AFTN with SS priority without Notification Request flag activated
429	id.	id.	Correction of an X.400 messsage with AFTN header in lower case
430	id.	id	Rejection of an X.400 message with wrong priority in the text
431	id.	id.	Conversion of no-ASCII characters introduced in the UA
432	id.	id.	Rejection of an X.400 message without priority in the AFTN header
433	id.	id.	Rejection of an X.400 message without filing time in the AFTN header
434	id.	id.	Send an X.400 message without text in the AFTN header
435	id.	id.	Send an X.400 message with more than 69 characters per line
436	id.	id.	Receipt of an ACK SS of a message which didn’t cross the gateway
437	id.	id.	Receipt of a service message which didn’t cross the gateway

Test Number	Test Type	Environment	Test Name
501	validation+B15 GW	2.3	Send a message from AFTN to a ficticious X.400 user
502	id.	id.	Send an SS message from AFTN to a ficticious X.400 user
503	id.	id.	Send an X.400 message with SS priority and flag activated to RN
504	id.	id.	Send an X.400 message with SS priority and without flag activation
505	id.	id.	Send an X.400 message to an AFTN address unknown in AFTN Switch
506	id.	id.	Send an X.400 message to an AFTN address unknown in the gateway
507	id.	id.	Receipt in the gateway of a service message with address unknown
508	id.	id.	Send an X.400 message to AFTN fromm the test scenario
509	id.	id.	Rejection of an X.400 message sent from a scenario with conversion flag set to "prohibited"
510	id.	id.	Rejection of an X.400 message whose EIT is not IA5-text
511	id.	id.	Rejection of an X.400 message with multiple bodies
512	id.	id.	Rejection of an X.400 message with incorrect body-type
513	id.	id.	Rejection of an X.400 message with incorrect text structure
514	id.	id.	Rejection of an X.400 message with conversion-with-loss parameter activated
515	id.	id.	Reception of an RN from a message that didn’t cross the gateway
516	id.	id.	Send an AFTN message to an X.400 user and receipt of an NDR
517	id.	id.	Receipt of a NDR from a message that didn’t cross the gateway
518	id.	id.	Receipt of a correct Probe from a test scenario
519	id.	id.	Receipt of a Probe with EIT different from IA5-text, from a test scenario
520	id.	id.	Receipt of a Probe with prohibited conversion, from a test scenario
521	id.	id.	Receipt of a Probe with unknown originator in gateway, from a test scenario
522	id.	id.	Receipt of a Probe with unknown user address in gateway

ANNEX 2

“SHALL” REQUIREMENTS

Reference	**Explanation**

Comments

**	Reference to other ICAO documents or is a recommendation
***	General or informative requirement. It is completed with other requirements of lower hierarchy.
DIF	Difference between requirements or requierements not supported or taken into account in the Spanish development
phase II	Requirement to be tested in phase II in the Spanish development
MHS	Requirement supported by standard X.400.
CRAMI	Requirement supported by the Spanish AFTN COM Center.
API	Requirement supported by API´s XMT of X.400 standard.

Results

T	Tested suceesfully.
NT	Not tested.
PT	Partially tested. The part tested, suceesfully.
INT	AMHS SARP validation test plan
phase II	Not tested. To be tested in the phase II in the Spanish development.

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
0	The ATS Message Service shall([1]) be implemented for conformance with 3.1.	1		3.1.2.1.		***	T
1	Direct AMHS users shall([2]) use the Basic ATS Message Service at an ATS Message User Agent.	2		3.1.2.1.1.1.		***	T
2	Indirect AMHS users shall([3]) use only that part of the Basic ATS Message Service which corresponds to AFTN functionalities, by using the interworking capability provided by an AFTN/AMHS Gateway as specified in 3.1.2.3.	3		3.1.2.1.1.2.		***	T
3	The systems comprising the AMHS shall([4]) themselves be comprised of the following functional objects, the general role of which is described in ISO/IEC 10021-2 :	4	a)_message transfer agent(s) (MTA), b)_user agent(s) (UA), c)_message store(s) (MS), and d)_access unit(s) (AU).	3.1.2.1.2.1.1.		***	T
4	An ATS Message Server shall([5]) include a MTA and optionally one or several MSs, as specified in 3.1.2.2.2.	5		3.1.2.1.2.1.2.		***	T
5	An ATS Message User Agent shall([6]) include a UA as specified in 3.1.2.2.1.	6		3.1.2.1.2.1.3.		***	T
6	An AFTN/AMHS Gateway shall([7]) include a MTA, which is part of the ATN Component of the AFTN/AMHS Gateway, and an AU, as specified in 3.1.2.3.	7		3.1.2.1.2.1.4.		***	T
7	The following three categories of AMHS information objects shall([8]) be used :	8	a)_messages ; b)_probes ; and c)_reports.	3.1.2.1.2.2.		***	T
8	In the Basic ATS Message Service, each AMHS message shall([9]) correspond unequivocally to an ATS Message.	9		3.1.2.1.2.2.1.	109-112		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
9	Only direct AMHS users shall([10]) be able to submit AMHS probes.	10		3.1.2.1.2.2.		not in MARBEN	NT
10	AMHS reports shall([11]) be delivered only to direct AMHS users.	11		3.1.2.1.2.3.	324/325-419-420-404-405-406-409		T
11	Recommendation.- In the Basic ATS Message Service, security should([12]) be obtained by procedural means rather than by technical features inherent to the AMHS.	12		3.1.2.1.2.3.	301		T
12	The AMHS shall([13]) be organisationally composed of AMHS Management Domains.	13		3.1.2.1.3.	prmd	***	T
13	The minimal set of systems implemented and operated by an AMHS Management Domain shall([14]) be one of the following :	14	a)_an ATS Message Server and one or several ATS Message User Agents ; b)_an AFTN/AMHS Gateway ; or c)_any combination of a) and b).	3.1.2.1.4.1.	400's		T
14	An interconnection between two AMHS Management Domains shall([15]) be implemented as one of the following :	15	a)_a connection between two ATS Message Servers ; b)_a connection between an ATS Message Server and an AFTN/AMHS Gateway ; or c)_a connection between two AFTN/AMHS Gateways.	3.1.2.1.4.2.	Server (foreseen)	***	T
15	For the support of the Basic ATS Message Service, the O/R (originator/recipient) name of an AMHS user shall([16]) comprise :	16	a)_the O/R address of the AMHS user, called an MF-address ; and b)_optionally the directory name of the AMHS user, if the policy of the AMHS Management Domain, to which the AMHS user belongs, includes the local support of directory-names.	3.1.2.1.5.1.1.	107/108, 201-206, 315-320		T
16	The MF-Address (MHS-form address) of an AMHS user shall([17]) comprise :	17	a)_a set of attributes as specified in 3.1.2.1.5.1.3, identifying the AMHS Management Domain of which the AMHS user, either direct or indirect, is a service-user ; and b)_a set of attributes as specified in 3.1.2.1.5.1.4, identifying uniquely the	3.1.2.1.5.1.2.	108, 201-206, 302,315,320		T

			AMHS us				

Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
17	The attributes identifying an AMHS Management Domain shall([18]) include the following standard attributes as specified in ISO/IEC 10021-2, section 18.3, depending on the status under which the AMHS Management Domain has elected to operate :	18	a)_country-name, b)_administration-domain-name, c)_private-domain-name, if the AMHS Management Domain has elected to operate as a PRMD.	3.1.2.1.5.1.3.	105-107, 201-204		T
18	The XF-Address (translated address) of a direct or indirect AMHS user shall([19]) be composed exclusively of the following :	19	a)_an AMHS Management Domain identifier as specified in 3.1.2.1.5.1.3 ; b)_an organization-name attribute : 1)_as specified in ISO/IEC 10021-2, Section 18.5, 2)_taking the 4-character value “AFTN”, and 3)_encoded as a Printable String ; and c)_an org	3.1.2.1.5.1.4.2.	204.205., 401, 410		T
19	Recommendation.- The Application Process Title of an ATS Message Server should([20]) be as specified in 4.3.3.2.	20		3.1.2.1.5.2.1.1.		**	phase II
20	Recommendation.- The Application Process Title of an AFTN/AMHS Gateway should([21]) be as specified in 4.3.3.2.	21		3.1.2.1.5.2.1.2.		**	phase II
21	Recommendation.- The Application Process Title of an ATS Message User Agent should([22]) be as specified in 4.3.3.2.	22		3.1.2.1.5.2.1.3.		**	phase II
22	Recommendation.- The Application Entity Qualifier of an ATS Message Server should([23]) be AMS (7).	23		3.1.2.1.5.2.2.1.		**	phase II
23	Recommendation.- The Application Entity Qualifier of an AFTN/AMHS Gateway should([24]) be GWB (8).	24		3.1.2.1.5.2.2.2.		**	phase II
24	Recommendation.- The Application Entity Qualifier of an ATS Message User Agent should([25]) be AUA (9).	25		3.1.2.1.5.2.2.3.		**	phase II
Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.

25	The TSAP (Transport Service Access Point) of an ATS Message Server or of an ATS Message User Agent shall([26]) comply with the provisions of 5.5.4.	26		3.1.2.1.5.2.3.		**	phase II
26	The definition of AMHS routing shall([27]) be subject to multilateral agreements.	27		3.1.2.1.6.1.		***	INT
27	The MTAs implemented by an AMHS Management Domain shall([28]) be collectively able to route on country-name, ADMD-name, PRMD-name, organization-name and organizational-units-name attributes.	28		3.1.2.1.6.2.	315, 320		T
28	An AMHS Management Domain shall([29]) be responsible for long-term logging of all messages in their entirety which are originated by its direct AMHS users, for a period of at least thirty days.	29		3.1.2.1.7.	(109-112)	phase II	PT
29	In an ATS Message User Agent, the content of the Inter-Personal Messages conveyed in support of the Basic ATS Message Service shall([30]) conform to the basic requirements of AMH21 as specified in Clause A.1 of ISO/IEC ISP 12062-2, Annex A and to the addi	30		3.1.2.2.1.1.1.		DIF	NT
30	For the support of the Basic ATS Message Service, the priority element of an AMHS Message generated at an ATS Message User Agent shall([31]) take the value « urgent » if, and only if, the value of the priority-indicator in the ATS-Message-Priority as spec	31		3.1.2.2.1.1.2.		DIF	NT
31	In an ATS Message Server, the Message Transfer (P1) implementation of the IPM Service in support of the Basic ATS Message Service shall([32]) conform to :	32	a)_the basic requirements of AMH22 as specified in Clause B.1 of ISO/IEC ISP 12062-2, Annex B ; and b)_the additional requirements described in Clause B.2.2. for the support of the IPM Distribution List Functional Group.	3.1.2.2.2.1.1.		***	T
32	The Basic ATS Message Service shall([33]) make use of the Connection Mode Transport Service as specified in 5.5.5.	33		3.1.2.2.2.1.2.1.		**	phase II
33	For the support of the Basic ATS Message Service, transport connections shall([34]) be established over the ATN Transport Service between systems belonging to the AMHS using the Residual Error Rate (RER) abstract-value « high ».	34		3.1.2.2.2.1.2.2.		**	phase II

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
34	For the support of the Basic ATS Message Service, transport connections shall([35]) be established over the ATN Transport Service between systems belonging to the AMHS using the Transport Connection Priority abstract-value « 6 », which corresponds to the	35		3.1.2.2.2.1.2.3.		**	phase II
35	For the support of the Basic ATS Message Service, transport connections shall([36]) be established over the ATN Transport Service between systems belonging to the AMHS using the value of the ATN Security Label as specified in 5.5.6, which corresponds to :	36	a)_the ATN Traffic Type « ATN Operational Communications » ; b)_the Sub-Type « Air Traffic Services Communications » (ATSC) ; and c)_« No Traffic Type Policy Preference ».	3.1.2.2.2.1.2.4.		**	phase II
36	The ATS Message Server shall([37]) perform a long-term logging, for a period of at least thirty days, of the actions taken with respect to every message received at the ATS Message Server, whether from an ATS Message User Agent or from another ATS Message	37		3.1.2.2.2.2.1.		phase II	phase II
37	For the long-term logging of information related to a message submitted to or received by an ATS Message Server, the following parameters related to the message shall([38]) be logged :	38	a)_message-identifier ; b)_priority ; c)_content-type ; d)_originator-name ; e)_recipient-name elements on responsibility list ; f)_message-content-size ; g)_last element of the trace-information (if any) ; h)_arrival-time or submission-time ; i)_	3.1.2.2.2.2.2.		phaseII	phase II

Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
38	For the long-term logging of information related to a report generated or received by an ATS Message Server, the following parameters related to the report shall([39]) be logged :	39	a)_report-identifier ; b)_subject-identifier ; c)_actual-recipient-name elements ; d)_report-type elements ; e)_report-destination-name ; f)_last element of the trace-information (if any) ; g)_arrival-time in the ATS Message Server or generation ti	3.1.2.2.2.2.3.		phase II	phase II
39	In the AMHS, the O/R address of a direct AMHS user belonging to an AMHS Management Domain shall([40]) be a MF-Address	40		3.1.2.2.3.1.	201/410		T
40	The body of an Inter-Personal Message (IPM) shall([41]) comprise a single body part carrying IA5 characters and structured as depicted in Table 3.1.2-2.	41		3.1.2.2.3.2.	401-404,408,409,413		T
41	Each message shall([42]) be assigned to one of five priority groups which are designated, and have the value of, the priority indicators SS, DD, FF, GG and KK.	42		3.1.2.2.3.2.1.	402,404		T
42	Each message shall([43]) include a filing-time element, designated as a date-time group consisting of six numerical characters, the first two digits representing the date of the month and the last four digits the hours and minutes in UTC.	43		3.1.2.2.3.2.2.	401-409,428		T
43	It shall([44]) be possible to associate an optional heading information with each message.	44		3.1.2.2.3.2.3.1.	403		T
44	The value of the optional-heading-information element shall([45]) comprise a character string with a maximum length of 54 characters.	45		3.1.2.2.3.2.3.2.	403		T
45	The ATS-Message-Text element shall([46]) be composed of IA5 characters with no further restriction.	46		3.1.2.2.3.2.4.	401-404,408,409		T

Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
46	The notification-requests element in a RecipientSpecifier in an IPM Heading shall([47]) take the abstract-value « rn » if, and only if, the value of the priority-indicator is « SS ».	47		3.1.2.2.3.3.		DIF	NT
47	An AFTN/AMHS Gateway shall([48]) provide for an interworking between the AFTN and the ATN such that communication with other AFTN/AMHS Gateways and with ATS Message Servers is possible.	48		3.1.2.3.1.1.		***	INT
48	An AFTN/AMHS Gateway shall([49]) consist of the four following logical components :	49	a)_AFTN Component ; b)_ATN Component ; c)_Message Transfer and Control Unit ; and d)_Control Position.	3.1.2.3.1.2.		***	T
49	An AFTN/AMHS Gateway shall([50]) be able to perform actions upon receipt of any category of AMHS information object by its ATN Component.	50		3.1.2.3.1.3.	405,407,417-420,424-425		T
50	An AFTN/AMHS Gateway shall([51]) be able to perform actions upon receipt of any type of AFTN message by its AFTN Component.	51		3.1.2.3.1.4.	401-410,418		T
51	The AFTN component shall([52]) handle the interface to the AFTN and provide an interface to the Message Transfer and Control Unit, implementing :	52	a)_all the applicable requirements of Annex 10, Volume II in a manner so as to be indistinguishable from an operational AFTN station by the AFTN centre to which the gateway is connected ; and b)_additional requirements which are necessary due to the AFTN	3.1.2.3.2.1.1.	401-410,418,426-428		T
52	If an AFTN/AMHS Gateway is connected to an AFTN centre which is capable of using only ITA-2 (International Telegraph Alphabet No 2) format, the AFTN component shall([53]) convert messages to/from the IA-5 format.	53		3.1.2.3.2.1.2.	401-425		T
53	The AFTN Component shall([54]) incorporate an AFTN procedure handler providing for all AFTN functions prescribed for the interface to the AFTN.	54		3.1.2.3.2.1.3.	401-410,428		T
Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.

54	When received by the AFTN Component, AFTN service messages as generally specified in Annex 10, Volume II, 4.4.1.1.9 and subclauses, shall([55]) be handled by the AFTN Component of the Gateway in one of four mutually exclusive manners, depe	55	a)_transfer to the Message Transfer and Control Unit to be processed as specified in 3.1.2.3.4 if the service message is an AFTN acknowledgement message, as specified in Annex 10, Volume II, 4.4.10.1.6.1 and 4.4.16.6 ; b)_transfer to the Message Transfer	3.1.2.3.2.1.4.	426-428		T
55	When received by an AFTN/AMHS Gateway, AFTN channel-check transmissions as specified in Annex 10, Volume II, 4.4.9.3 and 4.4.16.5 shall([56]) :	56	a)_be handled by the AFTN Component in compliance with the provisions of Annex 10, Volume II ; and b)_be prevented from being passed to the Message Transfer and Control Unit.	3.1.2.3.2.1.5.		CRAMI	T
56	The AFTN Component shall([57]) pass all messages, other than those referred to in 3.1.2.3.2.1.4 c) and d), and in 3.1.2.3.2.1.5, received from the AFTN to the Message Transfer and Control Unit for processing as specified in 3.1.2.3.4, and provided that th	57		3.1.2.3.2.1.6.	426-428		T
57	The processing by the AFTN Component shall([58]) ensure that all messages and service messages received from the AFTN and passed to the Message Transfer and Control Unit for further processing by the AFTN/AMHS Gateway are constructed in strict accordance	58		3.1.2.3.2.1.7.		CRAMI	T
58	The AFTN Component shall([59]) perform short-term retention of all messages transmitted towards the AFTN in a manner equivalent to that specified for an AFTN communication centre in Annex 10, Volume II, 4.4.1.7.	59		3.1.2.3.2.1.8.		CRAMI	T
59	The AFTN Component shall([60]) perform long-term retention of the heading, address and origin parts of all messages received from the AFTN, with the message receipt-time and the action taken thereon, for a period of at least thirty days.	60		3.1.2.3.2.1.9.		CRAMI	T
60	The AFTN Component shall([61]) perform long-term retention of all AFTN messages, in their entirety, that it generates, for a period of at least thirty days.	61		3.1.2.3.2.1.10.		CRAMI	T
61	The AFTN Component shall([62]) perform long-term retention of the heading, address and origin parts of all messages received from the Message Transfer and Control Unit and the action taken thereon, for a period of at least thirty days.	62		3.1.2.3.2.1.11.		CRAMI	T
62	Upon reception by an AFTN/AMHS Gateway of an AFTN service message requesting repetition by the originator of an incorrectly received message as specified in Annex 10, Volume II, 4.4.11.1 or 4.4.17.2.2, the AFTN Component shall([63]) perfo	63	a)_terminate the procedure and report an error situation to a control position if the referenced subject AFTN message did not pass through the gateway or if the AFTN Component is not in possession of an unmutilated copy of the subject AFTN message ; or b	3.1.2.3.2.1.12.	426		T

Ref #	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.

63	If, for any reason, the Message Transfer and Control Unit is unable to accept AFTN messages passed by the AFTN Component, then the AFTN Component shall([64]) handle this situation in compliance with the provisions of Annex 10, Volume II,	64		3.1.2.3.2.1.13.		CRAMI	T
64	The AFTN Component shall([65]) ensure that all information objects constructed by the Message Transfer and Control Unit for transmission over the AFTN are handled in accordance with the AFTN procedure, in application of 3.1.2.3.2.1.3 above.	65		3.1.2.3.2.1.14.		CRAMI	T
65	If the AFTN Component is unable to handle an AFTN service message or an AFTN channel-check transmission in compliance with the provisions of Annex 10, Volume II, as specified in 3.1.2.3.2.1.4 d) or 3.1.2.3.2.1.5, then the an error condition shall([66]) be	66		3.1.2.3.2.1.15.		CRAMI	T
66	An AFTN address shall([67]) be allocated to the AFTN Component.	67		3.1.2.3.2.1.16.	101-104		T
67	The ATN Component shall([68]) allow the AFTN/AMHS Gateway to function as an end system on the ATN.	68		3.1.2.3.2.2.1.	401-404,406,408-429		T
68	The ATN Component shall([69]) handle the interface to the AMHS, and provide an interface to the Message Transfer and Control Unit as specified in 3.1.2.3.2.4, implementing a MTA complying with the profile specification included in 3.1.2.2.2.1 so as to be	69		3.1.2.3.2.2.2.	401-404,406,408-429		T
69	If, for any reason, the Message Transfer and Control Unit is unable to accept messages or probes passed by the ATN Component, then the ATN Component shall([70]) behave as follows :	70	a)_attempt to reroute the message or probe as specified in ISO/IEC 10021-4, 14.3.4.4 ; b)_if no alternate route is available in the MTA-routing tables or all such routes cannot be succesfully used, reject the message for all the message recipients, whose	3.1.2.3.2.2.3.		MHS	T
70	If the AMHS Management Domain operating an AFTN/AMHS Gateway desires to implement Message Handling System optional functional groups in addition to the specification of 3.1.2.3.2.2.2 above, this shall([71]) be performed in the ATN Componen	71		3.1.2.3.2.2.4.		MHS	T
71	The ATN Component shall([72]) ensure that all information objects constructed by the Message Transfer and Control Unit for transfer in the AMHS are handled in accordance with the procedures specified in the base standards for a relaying MTA implementing t	72		3.1.2.3.2.2.5.		MHS	T
72	The ATN Component shall([73]) implement a traffic logging function identical to that of the MTA included in an ATS Message Server as specified in 3.1.2.2.2.2.	73		3.1.2.3.2.2.6.		phase II	phase II

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.

73	The ATN Component shall([74]) ensure that all AMHS information objects passed to the Message Transfer and Control Unit comply with the base standards.	74		3.1.2.3.2.2.7.		MHS	T
74	The Message Transfer and Control Unit in an AFTN/AMHS Gateway shall([75]) provide a bi-directional conversion facility between the AFTN component and the ATN component, consisting of :	75	a)_a set of general functions as specified in 3.1.2.3.3 ; and b)_AFTN/AMHS conversion functions as respectively specified in 3.1.2.3.4 for the AFTN to AMHS conversion and in 3.1.2.3.5 for the AMHS to AFTN conversion.	3.1.2.3.2.3.1.		***	T
75	The Message Transfer and Control Unit shall([76]) use IA-5 characters internally.	76		3.1.2.3.2.3.2.	401-425		T
76	The Message Transfer and Control Unit in an AFTN/AMHS Gateway shall([77]) pass all the AMHS information objects which it constructs in application of 3.1.2.3.4 and 3.1.2.3.5.6 to the ATN Component of the gateway, for further conveyance in the AMHS.	77		3.1.2.3.2.3.3.	401-409.411-419,412-428		T
77	For the generation of AMHS information objects, and for the processing of received AMHS information objects, the Message Transfer and Control Unit shall([78]) have the capability to interpret the semantics and to perform actions related to	78		3.1.2.3.2.3.4.		API	T
78	The Message Transfer and Control Unit in an AFTN/AMHS Gateway shall([79]) pass all the AFTN messages which it constructs in application of 3.1.2.3.5 and 3.1.2.3.4.2.1.4.2 to the AFTN Component of the AFTN/AMHS Gateway, for further conveyance in the AFTN.	79		3.1.2.3.2.3.5.	105-108,401-410,418,426-428		T
79	The Message Transfer and Control Unit shall([80]) ensure that all the AMHS information objects which it constructs comply with section 7 (for IPMs) and section 8 (for RNs) of ISO/IEC 10021-7, complemented with the additional requirements included in Table	80		3.1.2.3.2.3.6.		***	T
80	The Message Transfer and Control Unit shall([81]) ensure that all the AFTN information objects which it constructs comply with Annex 10, Volume II, 4.4.16.	81		3.1.2.3.2.3.7.		CRAMI	T
81	The ATN Component shall([82]) exchange information objects with the Message Transfer and Control Unit via its MTA transfer-port as specified in ISO/IEC 10021-4, section 12.2.	82		3.1.2.3.2.4.1.		API	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
82	The ATN Component shall([83]) invoke the Message-transfer, Report-transfer and Probe-transfer abstract operations, respectively, to pass AMHS messages, probes and reports to the Message Transfer and Control Unit.	83		3.1.2.3.2.4.2.		API	T
83	The Message Transfer and Control Unit shall([84]) invoke the Message-transfer and Report-transfer abstract operations, respectively, to pass AMHS messages and reports to the ATN Component.	84		3.1.2.3.2.4.3.		API	T
84	An AFTN message or service message passed by the AFTN Component to the Message Transfer and Control Unit in application of 3.1.2.3.2.1.4 items a) and b), 3.1.2.3.2.1.6 and 3.1.2.3.2.1.7 shall([85]) be :	85	a)_transferred according to the table of priorities as specified in Annex 10, Volume II, 4.4.1.2.1 ; and b)_passed as received by the AFTN Component from the adjacent AFTN centre, with the possible exception of an ITA-2 to IA-5 conversion performed in ap	3.1.2.3.2.5.1.		CRAMI	T
85	An AFTN message or service message passed by the Message Transfer and Control Unit to the AFTN Component in application of 3.1.2.3.2.3.5 shall([86]) be :	86	a)_transferred according to the table of priorities as specified in Annex 10, Volume II, 4.4.1.2.1 ; and b)_passed as constructed by the Message Transfer and Control Unit, and thus without message heading as specified in Annex 10, Volume II, 4.4.16.1.1.	3.1.2.3.2.5.2.		CRAMI	T
86	The AFTN Component shall([87]) return to the Message Transfer and Control Unit, as the result of the transfer operation described in 3.1.2.3.2.5.2, the Transmission Identification, if any, constructed by the AFTN Component for the transmission of the mess	87		3.1.2.3.2.5.3.		CRAMI	T
87	The AFTN/AMHS Gateway Control Position shall([88]) be used as the place where errors which occurred in the AFTN/AMHS Gateway are reported for appropriate action.	88		3.1.2.3.2.6.1.		phase II	PT
88	The appropriate action to be undertaken on reporting of an error to an AFTN/AMHS Gateway control position shall([89]) be either :	89	a)_a matter of policy which is local to the AMHS Management Domain operating the AFTN/AMHS Gateway ; or b)_subject to multilateral agreements.	3.1.2.3.2.6.2.		***	T
89	When the action chosen to handle the error situation includes the generation of an AMHS information object, the category of information object used for this purpose shall([90]) be an IPM conveying appropriate service information.	90		3.1.2.3.2.6.3.		phase II	phase II

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
90	The Message Transfer and Control Unit shall([91]) perform long-term logging, as specified in 3.1.2.3.3.1.2 to 3.1.2.3.3.1.6, for a period of at least thirty days, of information related to the following exchanges of information objects with the ATN Compon	91	a)_AMHS message transfer out (to the ATN Component) ; b)_AMHS report transfer out (to the ATN Component) ; c)_AMHS message transfer in (from the ATN Component) ; d)_AMHS report transfer in (from the ATN Component) ; e)_AFTN message conveyance out (to	3.1.2.3.3.1.1.		phase II	phase II
91	For the long-term logging of information related to an AMHS Message Transfer In and AFTN message conveyance out, the following parameters, relating to the messages, shall([92]) be logged by the Message Transfer and Control Unit :	92	a)_input message-identifier ; b)_IPM-identifier, if any ; c)_common-fields and either receipt-fields or non-receipt-fields of IPN (Inter-Personal Notification), if any ; d)_action taken thereon (reject with non-delivery-reason-code and non-delivery-dia	3.1.2.3.3.1.2.		phase II	phase II
92	For the long-term logging of information related to AFTN message conveyance in and AMHS Message Transfer Out, the following parameters, relating to the messages, shall([93]) be logged by the Message Transfer and Control Unit :	93	a)_Origin line of AFTN message (or AFTN acknowledgement message) ; b)_transmission identification of AFTN message or service message, if any ; c)_action taken thereon (reject with rejection cause, convert as IPM, convert as RN, AFTN service message indi	3.1.2.3.3.1.3.		phase II	phase II
93	For the long-term logging of information related to an AMHS Message Report In and/or AFTN Service Message indicating an unknown addressee indicator conveyance out, the following parameters, relating to the report and/or service message, sh	94	a)_report-identifier (if report in) ; b)_subject-identifier (if report in) ; c)_action taken thereon if report in (discard, convert into AFTN service message) ; d)_event date/time ; e)_Origin line of converted AFTN service message (if service message	3.1.2.3.3.1.4.		phase II	phase II
94	For the long-term logging of information related to an AFTN Service Message indicating an unknown addressee indicator conveyance in and/or to an AMHS Message Report Out, the following parameters, relating to the service message and/or repo	95	a)_Origin line of converted AFTN service message (if service message in) ; b)_Origin line of subject AFTN message (if service message in) ; c)_transmission identification of AFTN message or service message, if any ; d)_action taken thereon if AFTN serv	3.1.2.3.3.1.5.		phase II	phase II

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
95	The Message Transfer and Control Unit shall([96]) include look-up tables used for address conversion, covering two aspects :	96	a)_a MD look-up table as specified in 3.1.2.3.3.2.1, for the algorithmic conversion of an AF-Address to an XF-Address ; and b)_a user address look-up table of individual users as specified in 3.1.2.3.3.2.2, for the conversion of an AF-Address to and from	3.1.2.3.3.2.	105/108		T
96	The MD (Management Domain) look-up table maintained by in the Message Transfer and Control Unit shall([97]) include a list of entries identifying an organizational entity, which either is an AMHS Management Domain, or collectively uses t	97	a)_a string of characters identifying one of the following : 1)_a country (two-letter designator as specified in ICAO Document 7910) ; 2)_a location (four-letter designator as specified in ICAO Document 7910) ; 3)_an organization within a country (comb	3.1.2.3.3.2.1.1.	201		T
97	It shall([98]) be possible to derive unambiguously a single item b) from item a) by a search operation in the MD look-up table.	98		3.1.2.3.3.2.1.2.	107-108		T
98	The user address look-up table maintained by the Message Transfer and Control Unit shall([99]) include a list of entries, each of them comprising :	99	a)_the AF-Address of either an indirect AMHS user who also has a MF-Address, or of a direct AMHS user who has an AF-Address for communication with indirect AMHS users ; and b)_the MF-Address of that AMHS user, either direct or indirect, including all its	3.1.2.3.3.2.2.1.	105-106		T
99	It shall([100]) be possible to derive unambiguously item b) from item a), and vice-versa, by a searching operation in the user address look-up table.	100		3.1.2.3.3.2.2.2.	105-106		T
100	In order not to restrict the potential form of an MF-Address, a user address look-up table shall([101]) support in the attributes included under item b) all the general attribute types authorized in ISO/IEC 10021-2, section 18.5, Table 1	101		3.1.2.3.3.2.2.3.		DIF	NT
101	Upon reception by the Message Transfer and Control Unit of a message passed from the AFTN Component, as the result of the provisions of 3.1.2.3.2.1.4 items a) and b), and of 3.1.2.3.2.1.6, the received message shall([102]) be processed in	102	a)_processing as specified in 3.1.2.3.4.3, if the received message is an AFTN acknowledgement message as specified in Annex 10, Volume II, 4.4.16.6 ; b)_processing as specified in 3.1.2.3.4.4, if the received message is an AFTN service message requesting	3.1.2.3.4.1.1.	401-409,426-428		T
102	Upon completion of the processing specified in 3.1.2.3.4.1.1, the following transfers shall([103]) take place :	103	a)_transfer of the resulting AMHS information objects, if any, to the ATN Component for conveyance in the AMHS ; and b)_transfer of the resulting AFTN service messages, if any, to the AFTN Component for conveyance over the AFTN.	3.1.2.3.4.1.2.	401-409,426-428		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
103	If, for any reason, the processing specified in clauses 3.1.2.3.4.1.1 and 3.1.2.3.4.1.2 cannot be properly achieved, the procedure shall([104]) unsuccessfully terminate, resulting in :	104	a)_logging of the error situation and reporting to a control position ; and b)_discarding of the AFTN message.	3.1.2.3.4.1.3.	405-407,409		T
104	Upon reception by the Message Transfer and Control Unit of an AFTN message passed from the AFTN Component to be conveyed over the AMHS, this AFTN message shall([105]) be converted into an IPM conveyed with a Message Transfer Envelope to be transferred and	105	a)_the specification of how the components of the AFTN Message are used for mapping onto the AMHS message parameters, as included in 3.1.2.3.4.2.1 ; b)_the specification of how the IPM is generated, as included in 3.1.2.3.4.2.2 ; and c)_the specificatio	3.1.2.3.4.2.		***	T
105	Each component of an AFTN Message shall([106]) be processed as specified in the column « action » of Table 3.1.2-3.	106		3.1.2.3.4.2.1.1.		***	T
106	These components which are classified as « T » or « T1 » in the column « action » of Table 3.1.2-3 shall([107]) be translated into the AMHS parameter specified in the column « AMHS parameter » of Table 3.1.2-3 and according to the specifi	107		3.1.2.3.4.2.1.2.		***	T
107	The value of the priority indicator of an AFTN message shall([108]) be :	108	a)_mapped into the abstract-value of the priority element of the message transfer envelope of the converted AMHS message as specified in the second column of Table 3.1.2-4 ; and b)_conveyed as the value of the priority-indicator in the ATS-Message-Priori	3.1.2.3.4.2.1.3.	402-404,501,502		T
108	The value of an AFTN address included in an AFTN message shall([109]) be converted into an MF-Address as respectively specified in 3.1.2.3.4.2.1.4.1 and 3.1.2.3.4.2.1.4.2 depending whether it is an originator indicator or an addressee indicator.	109		3.1.2.3.4.2.1.4.	401-409,426-428 ,501		T
109	The following actions shall([110]) be performed in order to translate the originator indicator of an AFTN Message into the MF-Address included in the originator-name of the converted AMHS message :	110	a)_translation into the single MF-Address matching exactly the AF-Address of the originator, if such an MF-Address can be determined from the User address look-up table maintained in the Message Transfer and Control Unit ; or b)_if a) cannot be achieved,	3.1.2.3.4.2.1.4.1.	401-409 ,501		T
110	Each addressee indicator of an AFTN Message shall([111]) be translated into the MF-Address included in a recipient-name of the converted AMHS message in the same way as an originator indicator, with the exception that the unsuccessful termination for one	111		3.1.2.3.4.2.1.4.2.	401-409 ,501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
111	The value of the Filing Time of an AFTN message shall([112]) be conveyed as the value of the filing-time element in the ATS-Message-Filing-Time element of the IPM text of the converted AMHS message.	112		3.1.2.3.4.2.1.5.	401-404,406,408,501		T
112	The ATS-Message-Optional-Heading-Info element of the IPM text in the converted AMHS message shall([113]) either :	113	a)_convey the value of the Optional Heading Information of the AFTN message as the value of its optional-heading-information element, if the Optional Heading Information element is present in the AFTN message; or b)_be omitted in the converted AMHS mess	3.1.2.3.4.2.1.6.	403, 501		T
113	The content of the Text of an AFTN message, shall([114]) be conveyed in its entirety as the value of the ATS-Message-Text element in the IPM text of the converted AMHS message.	114		3.1.2.3.4.2.1.7.	401-404,406,408,409, 501		T
114	Each of the elements composing the IPM resulting from the conversion of an AFTN message in the Message Transfer and Control Unit shall([115]) be processed as specified in the column « action » of Table 3.1.2-5.	115		3.1.2.3.4.2.2.1.		***	T
115	These elements which are classified as « G » or « T » in the column « action » of Table 3.1.2-5 shall([116]) be either generated or translated according to the specification in the clause referred to in the column « mapping » of Table 3.	116		3.1.2.3.4.2.2.2.		***	T
116	The originator heading field shall([117]) :	117	a)_identify the indirect AMHS user who originated the AFTN message ; and b)_be structured as specified in Table 3.1.2-5/ Part 4/2.	3.1.2.3.4.2.2.3.	401-404,406,408,409 ,501		T
117	The primary-recipients heading field shall([118]) :	118	a)_include the identification of the recipient(s) of the AFTN message ; and b)_be structured as specified in Table 3.1.2-5/ Part 4/1.	3.1.2.3.4.2.2.4.	401-404,406,408,409 ,501		T
118	The element repertoire shall([119]) take the abstract value « ia5 ».	119		3.1.2.3.4.2.2.5.	401-404,406,408,409 ,501		T
119	The element(s) recipient in the primary-recipients heading field shall([120]) :	120	a)_identify the recipient(s) of the AFTN message ; and b)_be structured as specified in Table 3.1.2-5/ Part 4/2.	3.1.2.3.4.2.2.6.	401-404,406,408,409 ,501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
120	The values « rn » and « nrn » shall([121]) be taken simultaneously by the element notification-requests if, and only if the element priority-indicator included in the message, as specified Table 3.1.2-5 / Part 5/1.2.2, has the value « SS ».	121		3.1.2.3.4.2.2.7.	401-404,406,408,409 ,501,502		T
121	The element formal-name shall([122]) :	122	a)_take the form of an MF-Address ; and b)_be converted as specified in 3.1.2.3.4.2.1.4.	3.1.2.3.4.2.2.8.	401-404,406,408,409 ,501		T
122	The element user in the this-IPM heading field shall([123]) :	123	a)_be the MF-Address of the indirect AMHS user who originated the AFTN message ; and b)_be converted as specified in 3.1.2.3.4.2.1.4.1.	3.1.2.3.4.2.2.9.	401-404,406,408,409 ,501		T
123	Each of the elements composing the Message Transfer Envelope conveyed with an IPM resulting from the conversion of an AFTN message shall([124]) be processed as specified in the column « action » of Table 3.1.2-6.	124		3.1.2.3.4.2.3.1.		***	T
124	These elements which are classified as « G », « G1 » and « T » in the column « action » of Table 3.1.2-6 shall([125]) be handled according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-6.	125		3.1.2.3.4.2.3.2.		***	T
125	The value of the element originator-name shall([126]) :	126	a)_be the address of the indirect AMHS user who originated the AFTN message ; b)_take the form of an MF-Address ; and c)_be converted as specified in 3.1.2.3.4.2.1.4.1.	3.1.2.3.4.2.3.3.	401-404,406,408,409 ,501		T
126	The element original-encoded-information-types shall([127]) :	127	a)_take the abstract-value « ia5-text », which is a value of type BuiltInEncodedInformationTypes ; and b)_be formed as specified in Table 3.1.2-6/ Part 2/ 3.	3.1.2.3.4.2.3.4.	401-404,406,408,409 ,501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
127	The element content-type shall([128]) :	128	a)_take the abstract-value « interpersonal-messaging-1984 », which is a value of type BuiltInContentType ; and b)_be formed as specified in Table 3.1.2-6/ Part 2/ 8.	3.1.2.3.4.2.3.5.	401-404,406,408,409, 501		T
128	The generation of this element shall([129]) be optional, as a matter of policy local to the AMHS Management Domain operating the AFTN/AMHS Gateway.	129		3.1.2.3.4.2.3.6.		OPTIONAL	NT
129	The element per-domain-bilateral-information shall([130]) be :	130	a)_optionally generated, as a matter of policy local to the AMHS Management Domain operating the AFTN/AMHS Gateway ; and b)_if present, structured as specified in Table 3.1.2-6/ Part 2/ 5.	3.1.2.3.4.2.3.7.		OPTIONAL	NT
130	The only extensions used shall([131]) :	131	a)_belong to the type « standard-extension » ; b)_contain the following elements : 1)_recipient-reassignment-prohibited ; 2)_dl-expansion-prohibited ; and 3)_conversion-with-loss-prohibited elements ; c)_take a criticality value as specified in ISO/I	3.1.2.3.4.2.3.8.	501		T
131	The element recipient-reassignment-prohibited shall([132]) take its default abstract-value, which is « recipient-reassignment-allowed ».	132		3.1.2.3.4.2.3.9.	401-404,406,408,409, 501		T
132	The element dl-expansion-prohibited shall([133]) take its default abstract-value, which is « DL-expansion-allowed ».	133		3.1.2.3.4.2.3.10.	401-404,406,408,409, 501		T
133	The element conversion-with-loss-prohibited shall([134]) take its default abstract-value, which is « conversion-with-loss-allowed ».	134		3.1.2.3.4.2.3.11.	401-404,406,408,409, 501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
134	The value of the element recipient-name in each of the per-recipient-fields elements shall([135]) :	135	a)_be the address of each addressee indicated in the AFTN message, respectively ; b)_take the form of a MF-Address ; and c)_be converted as specified in 3.1.2.3.4.2.1.4.2.	3.1.2.3.4.2.3.12.	401-404,406,408,409, 501		T
135	The value of the element originally-specified-recipient-number in each of the per-recipient-fields elements shall([136]) be generated by the Message Transfer and Control Unit as specified in ISO/IEC 10021-4, 12.2.1.1.1.5.	136		3.1.2.3.4.2.3.13.	401-404,406,408,409 ,501		T
136	The components of the element per-recipient-indicators in each of the per-recipient-fields elements shall([137]) be generated taking the following abstract-values :	137	a)_« responsible » for the responsibility element ; b)_« non-delivery-report » for the originating-MTA-report-request element ; and c)_« non-delivery-report » for the originator-report-request element.	3.1.2.3.4.2.3.14.	401-404,406,408,409 ,501		T
137	The element global-domain-identifier in the MTS-identifier shall([138]) :	138	a)_identify the AMHS Management Domain operating the AFTN/AMHS Gateway ; and b)_be composed as specified in Table 3.1.2-6 / Part 2/2.	3.1.2.3.4.2.3.15.	401-404,406,408,409, 501		T
138	The element local-identifier in the MTS-identifier shall([139]) be generated locally so as to ensure that it distinguishes the message from all other messages, probes or reports generated in the AMHS Management Domain operating the AFTN/AMHS Gateway.	139		3.1.2.3.4.2.3.16.	401-404,406,408,409 ,501		T
139	The element country-name in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([140]) :	140	a)_be part of the identification of the AMHS Management Domain operating the AFTN/AMHS Gateway by taking one of the following values : 1)_the two-character alphabetical country-indicator as specified in ISO 3166 for the country, or for one of the countri	3.1.2.3.4.2.3.17.	401-404,406,408,409, 501		T
140	The element administration-domain-name in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([141]) :	141	a)_be part of the identification of the AMHS Management Domain operating the AFTN/AMHS Gateway by taking one of the following values, depending on its status : 1)_the name of the ADMD under which the AMHS Management Domain has been registered, either nat	3.1.2.3.4.2.3.18.	401-404,406,408,409 ,501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
141	The element private-domain-identifier in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([142]) be handled in one of the following manners, depending on the status under which	142	a)_generation of the element, with the value of the name of the PRMD, encoded as a Printable String, if the AMHS Management Domain operates as an PRMD ; or b)_omission in the global-domain-identifier if the AMHS Management Domain operates as an ADMD.	3.1.2.3.4.2.3.19.	401-404,406,408,409 ,501		T
142	The element disclosure-of-other-recipients shall([143]) take its default abstract-value, which is « disclosure-of-other-recipients-prohibited ».	143		3.1.2.3.4.2.3.20.	401-404,406,408,409, 501		T
143	The element implicit-conversion-prohibited shall([144]) take its default abstract-value, which is « implicit-conversion-allowed ».	144		3.1.2.3.4.2.3.21.	401-404,406,408,409, 501		T
144	The element alternate-recipient-allowed shall([145]) take the abstract-value « alternate-recipient-allowed ».	145		3.1.2.3.4.2.3.22.	401-404,406,408,409, 501		T
145	The elements country-name, administration-domain-name and private-domain-identifier shall([146]) together identify the AMHS Management Domain for which the bilateral-information is intended if, and only if, the element bilateral-informa	146		3.1.2.3.4.2.3.23.		OPTIONAL	NT
146	The generation of this element shall([147]) be optional, as a matter of bilateral agreement between the AMHS Management Domain operating the AFTN/AMHS Gateway and an other AMHS Management Domain.	147		3.1.2.3.4.2.3.24.		OPTIONAL	NT
147	The element global-domain-identifier in the trace-information or in the internal-trace-information shall([148]) :	148	a)_identify the AMHS Management Domain operating the AFTN/AMHS Gateway ; and b)_be composed as specified in Table 3.1.2-6 / Part 2/2.	3.1.2.3.4.2.3.25.	401-404,406,408,409 ,501		T
148	The element arrival-time in the first element of trace-information or of internal-trace-information shall([149]) take the semantic value of the time when the message was received by the Message Transfer and Control Unit for conveyance i	149		3.1.2.3.4.2.3.26.	401-404,406,408,409 ,501		T
149	The element routing-action in the first element of trace-information or of internal-trace-information shall([150]) take the abstract-value « relayed ».	150		3.1.2.3.4.2.3.27.	401-404,406,408,409 ,501		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
150	The element mta-name in the first element of internal-trace-information shall([151]) be the mta-name assigned to the Message Transfer and Control Unit included in the AFTN/AMHS Gateway.	151		3.1.2.3.4.2.3.28.	401-404,406,408,409, 501		T
151	Upon reception by the Message Transfer and Control Unit of an AFTN acknowledgement message, passed from the AFTN Component to be conveyed in the AMHS, the received message shall([152]) be processed in one of the following manners dependi	152	a)_processing as specified in 3.1.2.3.4.3.1.2, if the subject AFTN message, as identified in the text of AFTN acknowledgement message, previously passed through the Message Transfer and Control Unit ; or b)_unsuccessful termination of the procedure, if t	3.1.2.3.4.3.1.1.	427-428, 503,504		T
152	If the subject AFTN message previously passed through the Message Transfer and Control Unit, the AFTN acknowledgement message shall([153]) then be processed in one of the following manners depending on whether the subject IPM was receive	153	a)_processing as follows, if the subject IPM was received from the AMHS without receipt-notification-request : 1)_conversion into an IPM conveyed with a Message Transfer Envelope as specified in 3.1.2.3.4.2 ; and 2)_logging of the error situation and re	3.1.2.3.4.3.1.2.	427-428, 503		T
153	If the subject IPM had been received from the AMHS with receipt-notification-request, the AFTN acknowledgement message shall([154]) be converted by the AFTN/AMHS Gateway into an Interpersonal Notification (IPN) taking the form of a Recei	154		3.1.2.3.4.3.1.3.	427, 503		T
154	When the provisions of 3.1.2.3.4.3.1.3 apply, the generation of the RN and of the Message Transfer Envelope shall([155]) be performed in compliance with the following :	155	a)_the specification of how the components of the AFTN Service Message are used, as included in 3.1.2.3.4.3.2 ; b)_the specification of how the RN is generated, as included in 3.1.2.3.4.3.3 ; and c)_the provisions of 3.1.2.3.4.2.3 concerning the generat	3.1.2.3.4.3.1.4.		***	T
155	Each component of an AFTN acknowledgement message shall([156]) be processed for the generation of a RN as specified in the column « action » of Table 3.1.2-7.	156		3.1.2.3.4.3.2.1.		***	T
156	These components which are classified as « T » or « T1 » in the column « action » of Table 3.1.2-7 shall([157]) be translated into the AMHS parameter specified in the column « AMHS parameter » of Table 3.1.2-7 and according to the specifi	157		3.1.2.3.4.3.2.2.		***	T
157	Upon generation of a RN as the result of the receipt of an AFTN acknowledgement message by the Message Transfer and Control Unit, the originator indicator element of the AFTN acknowledgement message shall([158]) be translated into the ip	158		3.1.2.3.4.3.2.3.	427, 503		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
158	Upon generation of a RN as the result of the receipt of an AFTN acknowledgement message by the Message Transfer and Control Unit, the filing time of the AFTN acknowledgement message shall([159]) be converted into the receipt-time element	159	a)_generation by the Message Transfer and Control Unit of the YY figures identifying the year (characters 1 and 2 of the string) in the receipt-time element ; b)_generation by the Message Transfer and Control Unit of the MM figures identifying the month	3.1.2.3.4.3.2.4.	427, 503		T
159	Each of the elements composing the RN resulting from the receipt of an AFTN acknowledgement message in the Message Transfer and Control Unit shall([160]) be processed as specified in the column « action » of Table 3.1.2-8.	160		3.1.2.3.4.3.3.1.		***	T
160	These elements are classified as « G » or « T » in the column « action » of Table 3.1.2-8 shall([161]) be either generated or translated according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-8.	161		3.1.2.3.4.3.3.2.		***	T
161	The element subject-ipm shall([162]) take the value of the this-IPM heading field of the subject IPM.	162		3.1.2.3.4.3.3.3.	427, 503		T
162	The element ipm-preferred-recipient shall([163]) :	163	a)_be present if, and only if : 1)_it would be different from the ipn-originator specified in 3.1.2.3.4.3.2.3 ; and 2)_it would not be the result of a DL-expansion ; b)_if present, identify the recipient of the subject IPM which caused the receipt of t	3.1.2.3.4.3.3.4.		DIF	NT
163	The element conversion-eits shall([164]) :	164	a)_be present if, and only if, this encoded-information-types is different of the originally-encoded-information-types included in the subject IPM ; and b)_if present, take the value of the encoded-information-types of the subject IPM received by the Mes	3.1.2.3.4.3.3.5.		DIF	NT
164	The element acknowledgement-mode shall([165]) take the abstract-value « manual », which is its default value.	165		3.1.2.3.4.3.3.6.	427, 503		T
165	The element formal-name in an ORDescriptor shall([166]) take the form of an O/R address and be converted from the originator indicator of the AFTN acknowledgement message as specified in 3.1.2.3.4.2.1.4.1.	166		3.1.2.3.4.3.3.7.	427, 503		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
166	The elements composing the Message Transfer Envelope which is conveyed with a RN resulting from the receipt of an AFTN acknowledgement message by the Message Transfer and Control Unit, which are different from the specification of 3.1.2.	167		3.1.2.3.4.3.4.1.		***	T
167	An element subject to the provisions of 3.1.2.3.4.3.4.1 shall([168]) be processed as specified in the column « action » of Table 3.1.2-9, and in accordance with the specification referred to in the column « mapping » of Table 3.1.2-9.	168		3.1.2.3.4.3.4.2.		***	T
168	The element priority shall([169]) take the same value as that of the subject IPM.	169		3.1.2.3.4.3.4.3.	427, 503	DIF	NT
169	The element recipient-name shall([170]) :	170	a)_identify the originator of the subject IPM ; and b)_take the form of an MF-Address.	3.1.2.3.4.3.4.4.	427, 503		T
170	The components of the element per-recipient-indicators shall([171]) be generated taking the following abstract-values :	171	a)_« responsible » for the responsibility element ; b)_« non-delivery-report » for the originating-MTA-report-request element ; and c)_« no-report » for the originator-report-request element.	3.1.2.3.4.3.4.5.	427, 503		T
171	The element implicit-conversion-prohibited shall([172]) take the abstract-value « implicit-conversion-prohibited ».	172		3.1.2.3.4.3.4.6.	427, 503		T
172	Upon reception by the Message Transfer and Control Unit of an unknown address AFTN service message, passed from the AFTN Component to be conveyed in the AMHS, the received message shall([173]) be processed in one of the following manners	173	a)_processing as specified in 3.1.2.3.4.4.1.2, if the subject AFTN message, as identified in the unknown address AFTN service message text, previously passed through the Message Transfer and Control Unit ; or b)_unsuccessful termination of the procedure,	3.1.2.3.4.4.1.1.	426,505		T
173	If the subject AMHS message previously passed through the Message Transfer and Control Unit, the received message shall([174]) be processed in either of the following manners depending on whether or not the unknown addressee indicator(s)	174	a)_processing as specified in 3.1.2.3.4.4.1.3, if at least one valid addressee indicator which caused the generation of the unknown address AFTN service message can be found ; or b)_unsuccessful termination of the procedure, if no such valid addressee in	3.1.2.3.4.4.1.2.	426, 505, 506		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
174	For each valid addressee indicator determined as causing the generation of the unknown address AFTN service message, as the result of 3.1.2.3.4.4.1.2, the received message shall([175]) be processed in one of the following manners, depend	175	a)_processing as specified in 3.1.2.3.4.4.1.4, for each unknown addressee indicator which can be succesfully translated into an MF-Address ; or b)_unsuccessful termination of the procedure, for each unknown addressee indicator which cannot be succesfully	3.1.2.3.4.4.1.3.	426, 505, 506		T
175	For each unknown recipient MF-Address determined as the result of 3.1.2.3.4.4.1.3, the received message shall([176]) be processed in one of the following manners, depending on the abstract-values of the originator-report-request and of t	176	a)_processing as specified in 3.1.2.3.4.4.1.5, if, for a given recipient : 1)_the abstract-value of the originator-report-request differs from « report » ; and 2)_the abstract-value of the originating-MTA-report-request differs from « report » and from	3.1.2.3.4.4.1.4.	426, 507		T
176	For each unknown recipient MF-Address which has not been subject to the generation of a delivery-report, the received message shall([177]) be processed in one of the following manners :	177	a)_processing as specified in 3.1.2.3.4.4.1.6, if, for a given recipient, no non-delivery report has been generated yet in relation with the same subject AMHS message and with the same message recipient ; or b)_discarding of the unknown address AFTN serv	3.1.2.3.4.4.1.5.	426, 505	DIF	T
177	A non-delivery report related to the unknown recipient MF-Addresses which have not been discarded as the result of 3.1.2.3.4.4.1.4 and 3.1.2.3.4.4.1.5 shall([178]) be generated in compliance with :	178	a)_the specification of 3.1.2.3.5.6 using the elements of the subject AMHS message ; and b)_the following specification of abstract-values : 1)_« unable-to-transfer » for the non-delivery-reason-code ; and 2)_« unrecognised-OR-name » for the non-delive	3.1.2.3.4.4.1.6.	426, 505		T
178	Upon reception by the Message Transfer and Control Unit of an AMHS message passed by the ATN Component, the received message shall([179]) be processed in one of the following manners, depending on the abstract-value of the content-type ele	179	a)_processing as specified in 3.1.2.3.5.1.2 if the abstract-value of the element is either « interpersonal-messaging-1984 », or « interpersonal-messaging-1988 » ; or b)_if the abstract-value of the element is neither « interpersonal-messaging-1984 », nor	3.1.2.3.5.1.1.	410-428		T
179	Upon reception by the Message Transfer and Control Unit of an AMHS message whose content-type is either « interpersonal-messaging-1984 » or « interpersonal-messaging-1988 » passed from the ATN Component, the message shall([180]) be process	180	a)_processing for conversion into an AFTN message as specified in 3.1.2.3.5.2, if the content is an IPM ; b)_processing for conversion into an AFTN service message as specified in 3.1.2.3.5.3, if the content is an IPN which is a Receipt Notification (RN)	3.1.2.3.5.1.2.	410-428		T
180	Upon reception by the Message Transfer and Control Unit of an AMHS non-delivery report passed from the ATN Component, the report shall([181]) be processed as specified in 3.1.2.3.5.4.	181		3.1.2.3.5.1.3.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
181	Upon reception by the Message Transfer and Control Unit of an AMHS probe passed by the ATN Component, the received probe shall([182]) be processed in one of the following manners, depending on the abstract-value of the content-type element	182	a)_processing for conveyance test as specified in 3.1.2.3.5.5 if the abstract-value of the element is either « interpersonal-messaging-1984 », or « interpersonal-messaging-1988 » ; or b)_if the abstract-value of the element is neither « interpersonal-mes	3.1.2.3.5.1.4.	421		T
182	Upon reception by the Message Transfer and Control Unit of an ISO/IEC 10021 information object other than those referred to in clauses 3.1.2.3.5.1.1 to 3.1.2.3.5.1.4 above, the processing by the Message Transfer and Control Unit shall([183	183	a)_logging of the error situation and reporting to a control position ; and b)_discarding of the information object.	3.1.2.3.5.1.5.	411-420,426,428		T
183	Upon completion by the Message Transfer and Control Unit of the processing specified in clauses 3.1.2.3.5.1.1 to 3.1.2.3.5.1.4 above, the resulting AFTN message(s) or AFTN service message(s), if any, shall([184]) be passed to the AFTN component, for conve	184		3.1.2.3.5.1.6.	410-428		T
184	If the generation of a report is required in relation with the result of the processing specified in clauses 3.1.2.3.5.1.1 or 3.1.2.3.5.1.4 above, either due to message rejection or probe test failure by the Message Transfer and Control Un	185		3.1.2.3.5.1.7.		***	T
185	Upon reception by the Message Transfer and Control Unit of an IPM conveyed with a Message Transfer Envelope passed from the ATN Component to be conveyed over the AFTN, this message shall([186]) be converted into an AFTN message in compliance with the foll	186	a)_the specification of the initial processing to be performed by the Message Transfer and Control Unit to determine the ability to convert the message and to split it into individually convertible messages, as included in 3.1.2.3.5.2.1 ; b)_the specific	3.1.2.3.5.2.		***	T
186	Upon reception by the Message Transfer and Control Unit of an IPM conveyed with a Message Transfer Envelope, the received message shall([187]) be processed in one of the following manners :	187	a)_processing as specified in 3.1.2.3.5.2.1.2 if the abstract-value of the implicit-conversion-prohibited in the per-message-indicators element in the Message Transfer Envelope differs from « prohibited » ; or b)_if the abstract-value of the element is «	3.1.2.3.5.2.1.1.	411-420,426-428, 509		T
187	A message which was not rejected as the result of 3.1.2.3.5.2.1.1 shall([188]) be processed in one of the following manners, depending on the abstract-value of the current encoded-information-types, determined as either the abstract-value of the latest co	188	a)_processing as specified in 3.1.2.3.5.2.1.3 if the abstract-value of the current encoded-information-types is « ia5-text » or extended « ia5-text » ; or b)_if the abstract-value differs from built-in « ia5-text » and from extended « ia5-text » : 1)_re	3.1.2.3.5.2.1.2.	411, 510		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
188	A message which was not rejected as the result of 3.1.2.3.5.2.1.2 shall([189]) be processed in one of the following manners :	189	a)_processing as specified in 3.1.2.3.5.2.1.4 if there is one single body part in the IPM body ; or b)_if there are multiple body parts in the IPM body : 1)_rejection of the message for all the message recipients ; and 2)_generation of a non-delivery r	3.1.2.3.5.2.1.3.	413, 511		T
189	A message which was not rejected as the result of 3.1.2.3.5.2.1.3 shall([190]) be processed in one of the following manners :	190	a)_processing as specified in 3.1.2.3.5.2.1.5 if the body part type is one of the following : 1)_a basic body part type « ia5-text » ; 2)_a standard extended body part type « ia5-text-body-part » ; 3)_a standard extended body part type « general-text-b	3.1.2.3.5.2.1.4.	414, 512	DIF	T
190	A message not rejected as the result of 3.1.2.3.5.2.1.4 shall([191]) then be processed in one of the following manners :	191	a)_processing as specified in 3.1.2.3.5.2.1.6 if the text structure in the body part in the body part complies with the requirements of 3.1.2.2.3.2 ; or b)_if the text structure does not comply with the requirements of 3.1.2.2.3.2 : 1)_rejection of the	3.1.2.3.5.2.1.5.	415, 513		T
191	A message which was not rejected as the result of 3.1.2.3.5.2.1.5 shall([192]) be processed in one of five mutually exclusive manners :	192	a)_processing as specified in 3.1.2.3.5.2.1.7 if the abstract-value of the conversion-with-loss-prohibited element in the extensions of the per message fields is »allowed » ; b)_if the abstract-value of the element conversion-with-loss-prohibited is « pr	3.1.2.3.5.2.1.6.	416, 514	DIF	T
192	A message which was not rejected as the result of 3.1.2.3.5.2.1.6 shall([193]) be processed in one of three mutually exclusive manners :	193	a)_if the length of the ATS-Message-Text element exceeds 1800 characters, and if, due to system resource limitation, the procedure proposed in Annex 10, Volume II, Attachment D cannot be properly achieved by the AFTN/AMHS Gateway : 1)_rejection of the me	3.1.2.3.5.2.1.7.		CRAMI	T
193	A message resulting from the situations in items b) and c) of 3.1.2.3.5.2.1.7 above shall([194]) be processed in one of three manners, depending on the number of message recipients towards which the Message Transfer and Control Unit is responsible for con	194	a)_if this number exceeds 21 message recipients : 1)_attempt to split the message, internally to the Message Transfer and Control Unit, into several messages, each of them with no more than 21 message recipients : i)_each of the resulting messages havin	3.1.2.3.5.2.1.8.		CRAMI	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
194	Each message resulting from the processing specified in 3.1.2.3.5.2.1 above shall([195]) be converted by the Message Transfer and Control Unit into an AFTN Message composed of elements as specified in Table 3.1.2-10.	195		3.1.2.3.5.2.2.1.	410, 508		T
195	Those components which are classified as « G » in the column « action » of Table 3.1.2-10 shall([196]) be generated in compliance with the provisions of Annex 10, Volume II referred to in the column « mapping ».	196		3.1.2.3.5.2.2.2.		***	T
196	Those components which are classified as « T » or « T1 » in the column « action » of Table 3.1.2-10 shall([197]) be converted from the AMHS parameter specified in the column « converted from AMHS parameter » of Table 3.1.2-10 and accordin	197		3.1.2.3.5.2.2.3.		***	T
197	As specified in 3.1.2.3.2.5.3, the element transmission identification shall([198]) be :	198	a)_generated by the AFTN Component rather than by the Message Transfer and Control Unit ; and b)_returned to the Message Transfer and Control Unit as the result of the operation transferring the generated AFTN Message from the Message Transfer and Contro	3.1.2.3.5.2.2.4.	410, 508		T
198	The value of the priority indicator of the converted AFTN message shall([199]) be the value of the priority-indicator in the ATS-message-priority element of the AMHS message.	199		3.1.2.3.5.2.2.5.	410, 508		T
199	The value of an AF-Address included in the converted AFTN message shall([200]) be converted from an MF-Address as respectively specified in 3.1.2.3.5.2.2.6.1 and 3.1.2.3.5.2.2.6.2 depending whether it is an originator MF-Address or a recipient MF-Address.	200		3.1.2.3.5.2.2.6.	410, 508		T
200	The originator MF-Address included in an AMHS message shall([201]) be processed for translation into the originator indicator of the converted AFTN Message in one of three mutually exclusive manners, depending on the value of the organization-name attribu	201	a)_allocation of the value of the first element of the organizational-unit-names attribute to the originator indicator of the converted AFTN Message, if this value is a syntactically valid AF-Address and if the organization-name attribute has the value «	3.1.2.3.5.2.2.6.1.	410, 508		T
201	To build the address part of the converted AFTN Message as specified in Annex 10, Volume II, 4.4.16.2.1, each of the recipient MF-Addresses included in an AMHS message shall([202]) be processed for translation into an addressee indicat	202	a)_allocation of the value of the first element of the organizational-unit-names attribute, converted from lower case IA5IRV characters, if any, to upper case IA5IRV characters, to an addressee indicator in the converted AFTN Message, if this value is a s	3.1.2.3.5.2.2.6.2.	410, 508		T
202	The value of the filing time of a converted AFTN message shall([203]) be the value of the filing-time component in the ATS-Message-Filing-Time element of the AMHS message.	203		3.1.2.3.5.2.2.7.	410, 508		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
203	The Optional Heading Information of a converted AFTN message shall([204]) either :	204	a)_take the value of the optional-heading-information in the ATS-Message-Optional-Heading-Info element, if this element is present ; or b)_be omitted in the converted AFTN message, if the ATS-Message-Optional-Heading-Info element is absent from the AMHS	3.1.2.3.5.2.2.8.	410		T
204	The content of the Text part of a converted AFTN message shall([205]) be derived from the value of the ATS-Message-Text element of the IPM text of the AMHS message, in compliance with the following procedure :	205	a)_conversion of each character which is not in the IA5IRV character repertoire, into an IA5IRV character according to the locally defined conversion rules ; b)_conversion of each IA5IRV character, if it is in lower case, into the equivalent upper case c	3.1.2.3.5.2.2.9.	410, 508		T
205	Each of the elements composing the IPM in an AMHS message to be converted into an AFTN message in the Message Transfer and Control Unit shall([206]) be processed as specified in the column « action » of Table 3.1.2-11.	206		3.1.2.3.5.2.3.1.		***	T
206	The elements composing the IPM shall([207]) be used according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-11.	207		3.1.2.3.5.2.3.2.		***	T
207	If the priority-indicator of a received AMHS message has the value « SS » and if the notification-requests element of either a primary-recipient, or a copy-recipient, or a blind-copy-recipient element has an abstract-value different from	208		3.1.2.3.5.2.3.3.		DIF	NT
208	If the body-part type of the IPM included in an AMHS message is « message », then the AMHS message shall([209]) be converted as if the body of the innermost IPM included in the data component of the « message » body part were the body of	209		3.1.2.3.5.2.3.4.	410,418.426-428		T
209	The components of a general-text body part shall([210]) be used as follows for the conversion of the IPM body into the text of the AFTN Message :	210	a)_the parameters component identify the character set used for the message, as specified in ISO/IEC 10021-7, B.2 ; and b)_the data component of a general-text body part are used for the generation of the converted AFTN message as specified in Part 6 of	3.1.2.3.5.2.3.5.		DIF	NT
210	Each of the elements composing the Message Transfer Envelope of an AMHS message to be converted into an AFTN message in a Message Transfer and Control Unit shall([211]) be processed as specified in the column « action » of Table 3.1.2-12	211		3.1.2.3.5.2.4.1.		***	T
211	The elements composing the Message Transfer Envelope shall([212]) be handled according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-12.	212		3.1.2.3.5.2.4.2.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
212	The elements alternate-recipient-allowed and originator-requested-alternate-recipient shall([213]) be discarded by the Message Transfer and Control Unit, since the optional Redirection Functional Group, if implemented in an AFTN/AMHS Gateway, is supported	213		3.1.2.3.5.2.4.3.	410, 508		T
213	The element deferred-delivery-time shall([214]) be discarded by the Message Transfer and Control Unit, since this functionality, if implemented in an AFTN/AMHS Gateway, is supported by the ATN Component and not by the Message Transfer and Control Unit.	214		3.1.2.3.5.2.4.4.		MHS	
214	For mapping purposes the whole per-domain-bilateral-information element shall([215]) be discarded.	215		3.1.2.3.5.2.4.5.		MHS	
215	If any extension-field is present in the extensions of the Message Transfer Envelope and not semantically understood by the Message Transfer and Control Unit, then the element shall([216]) either :	216	a)_cause the following actions to be performed if its criticality is set to « CRITICAL FOR TRANSFER » or to « CRITICAL FOR DELIVERY » : 1)_message rejection of the message for either : i)_all the message recipients if the extension is part of the per-me	3.1.2.3.5.2.4.6.		MHS	
216	The element dl-expansion-prohibited shall([217]) be discarded by the Message Transfer and Control Unit, since the DL-expansion capability of an AFTN/AMHS Gateway is supported by the ATN Component and not by the Message Transfer and Control Unit.	217		3.1.2.3.5.2.4.7.		MHS	
217	If the latest-delivery-time element is present, and if, when the AMHS message is handled by the Message Transfer and Control Unit, the current time exceeds the value of the latest-delivery-time, then the following actions shall([218]) be	218	a)_message rejection for all the message recipients ; and b)_generation of a non-delivery report as specified in 3.1.2.3.5.6 with the following elements taking the following abstract-values in the appropriate per-recipient-fields of the report : 1)_« tr	3.1.2.3.5.2.4.8.	410,416,418,426-428		T
218	The Message Transfer and Control Unit does not implement Security Elements of Service. Thus, if any security-related extension-field set to « CRITICAL FOR DELIVERY » is present in the extensions of the Message Transfer Envelope, the foll	219	a)_message rejection of the message for either : 1)_all the message recipients if the extension is part of the per-message-fields ; or 2)_the considered message recipient if the extension is part of the per-recipient-fields ; and b)_generation of a non	3.1.2.3.5.2.4.9.		DIF	NT
219	The element requested-delivery-method shall([220]) be discarded by the Message Transfer and Control Unit.	220		3.1.2.3.5.2.4.10.			NT

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
220	The Message Transfer and Control Unit does not implement Physical Delivery Elements of Service. Thus, if any physical delivery-related extension-field set to « CRITICAL FOR DELIVERY » is present in the extensions of the Message Transfer	221	a)_message rejection of the message for either : 1)_all the message recipients if the extension is part of the per-message-fields ; or 2)_the considered message recipient if the extension is part of the per-recipient-fields ; and b)_generation of a non	3.1.2.3.5.2.4.11.		DIF	NT
221	Upon reception by the Message Transfer and Control Unit of a RN conveyed with a Message Transfer Envelope passed from the ATN Component, for the acknowledgement of a SS message, this message shall([222]) be converted into an AFTN acknowledgement message i	222	a)_the specification of the initial processing performed to determine the Message Transfer and Control Unit ability to convert the RN, as included in 3.1.2.3.5.3.1 ; b)_the specification of how the AFTN service message is generated and how the AFTN servi	3.1.2.3.5.3.	404,419, 502		T
222	Upon reception by the Message Transfer and Control Unit of a RN, passed from the ATN Component to be potentially converted into an AFTN acknowledgement message, the received RN shall([223]) be processed in one of the following manners :	223	a)_processing as specified in 3.1.2.3.5.3.1.2, if the subject IPM has been previously generated by the Message Transfer and Control Unit ; or b)_unsuccessful termination of the procedure, if the subject IPM has not been previously generated by the Messa	3.1.2.3.5.3.1.1.	419, 515		T
223	For an AMHS RN passed from the ATN Component to the Message Transfer and Control Unit and not rejected as the result of 3.1.2.3.5.3.1.1, the received RN shall([224]) be processed in one of the following manners :	224	a)_processing as specified in 3.1.2.3.5.3.1.3, if the value of the priority indicator of the subject AFTN message was « SS » ; or b)_unsuccessful termination of the procedure, if the value of the priority indicator was different from « SS », resulting in	3.1.2.3.5.3.1.2.		DIF	NT
224	An AMHS RN passed from the ATN Component to the Message Transfer and Control Unit and not rejected as the result of 3.1.2.3.5.3.1.2 shall([225]) be processed as specified in 3.1.2.3.5.3.2.	225		3.1.2.3.5.3.1.3.		***	T
225	An AMHS RN received by the Message Transfer and Control Unit and not rejected as the result of 3.1.2.3.5.3.1 shall([226]) be converted into an AFTN acknowledgement message in compliance with :	226	a)_the specification of 3.1.2.3.5.2.2 with the exception of the components listed in Table 3.1.2-13 ; and b)_the classification of the components included in Table 3.1.2-13, as specified in the column « action » of Table 3.1.2-13.	3.1.2.3.5.3.2.1.	404, 502		T
226	These components which are classified as « G » shall([227]) be generated in compliance with the clause referred to in the column « mapping » of Table 3.1.2-13.	227		3.1.2.3.5.3.2.2.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
227	These components which are classified as « T » shall([228]) be converted from the AMHS parameter specified in the column « converted from AMHS parameter » of Table 3.1.2-13 and according to the specification in the clause referred to in the column « mappi	228		3.1.2.3.5.3.2.3.		***	T
228	In an AFTN acknowledgement message, generated as the result of the conversion of an AMHS RN message, the priority indicator component shall([229]) take the value SS.	229		3.1.2.3.5.3.2.4.	404, 502		T
229	In an AFTN acknowledgement message, generated as the result of the conversion of an AMHS RN message, the filing time component shall([230]) :	230	a)_be a date-time group as specified in Annex 10, Volume II, 4.4.16.2.2.1 ; and b)_take the value of the six characters between the fifth and tenth position from the receipt-time element of the RN.	3.1.2.3.5.3.2.5.	404, 502		T
230	In an AFTN acknowledgement message, generated as the result of the conversion of an AMHS RN message, the value of the Text component shall([231]) be generated as specified in Annex 10, Volume II, 4.4.16.6 using the origin of the subject	231		3.1.2.3.5.3.2.6.	404, 502		T
231	Each of the elements composing the RN to be converted into an AFTN acknowledgement message in an AFTN/AMHS Gateway shall([232]) be processed as specified in the column « action » of Table 3.1.2-14.	232		3.1.2.3.5.3.3.1.		***	T
232	The elements composing the RN shall([233]) be handled according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-14.	233		3.1.2.3.5.3.3.2.		***	T
233	The elements composing the Message Transfer Envelope conveyed with a RN to be converted into an AFTN acknowledgement message shall([234]) be used in compliance with :	234	a)_the specification of 3.1.2.3.5.2.4 with the exception of those elements included in Table 3.1.2-15 ; and b)_the specification included in the clause referred to in the column « Mapping » of Table 3.1.2-15.	3.1.2.3.5.3.4.1.		***	T
234	The elements related to the encoded-information-types in the Message Transfer Envelope conveyed with a RN shall([235]) be discarded when converting the RN into an AFTN acknowledgement message.	235		3.1.2.3.5.3.4.2.	404		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
235	The recipient-name element in the Message Transfer Envelope conveyed with a RN shall([236]) be discarded when converting the RN into an AFTN acknowledgement message.	236		3.1.2.3.5.3.4.3.	404		T
236	Upon reception by the Message Transfer and Control Unit of an AMHS Non-Delivery Report passed from the ATN Component, this report shall([237]) be processed in compliance with the following :	237	a)_the specification of the initial processing performed to determine the Message Transfer and Control Unit ability to convert the report, as included in 3.1.2.3.5.4.1 ; b)_the specification of how the AFTN service message is generated, if any, and how t	3.1.2.3.5.4.		***	T
237	Upon reception by the Message Transfer and Control Unit of a non-delivery report, passed from the ATN Component to be potentially converted into an AFTN service message, the received non-delivery report shall([238]) be processed in one o	238	a)_processing as specified in 3.1.2.3.5.4.1.2, if the subject AMHS message has been previously generated by the Message Transfer and Control Unit ; or b)_unsuccessful termination of the procedure, if the subject AMHS message has not been previously gener	3.1.2.3.5.4.1.1.	420, 516, 517		T
238	If the subject AMHS message had been generated by the Message Transfer and Control Unit, the report shall([239]) be processed by the Message Transfer and Control Unit in one of the following manners :	239	a)_conversion of the report into an AFTN service message as specified in 3.1.2.3.5.4.2, if the non-delivery-diagnostic-code has the abstract-value « unrecognised-OR-name » ; or b)_discarding of the report, if the non-delivery-diagnostic-code has any othe	3.1.2.3.5.4.1.2.	420, 516		T
239	A non-delivery report received by the Message Transfer and Control Unit which was not discarded as the result of 3.1.2.3.5.4.1.2 shall([240]) be processed by the Message Transfer and Control Unit in one of three mutually exclusive manner	240	a)_processing as specified in 3.1.2.3.5.4.2 if there is no originally-intended-recipient-name element with a value different of the actual-recipient-name in any of the per-recipient-fields elements of the report ; b)_discarding of the per-recipient-field	3.1.2.3.5.4.1.3.	420, 516		T
240	An AMHS Non-Delivery Report received by the Message Transfer and Control Unit and not discarded as the result of 3.1.2.3.5.4.1 shall([241]) be converted into an AFTN service message to the originator of the subject AFTN message, indicati	241	a)_the specification of Annex 10, Volume II, 4.4.11.13.3 ; and b)_the classification of the components included in Table 3.1.2-16, as specified in the column « action » of Table 3.1.2-16 in accordance with the definition in 3.1.1.	3.1.2.3.5.4.2.1.		***	T
241	These components which are classified as « G » shall([242]) be generated in compliance with the provisions of Annex 10, Volume II or with the clause referred to in the column « mapping » of Table 3.1.2-16.	242		3.1.2.3.5.4.2.2.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
242	These components which are classified as « T » shall([243]) be converted from the AMHS parameter specified in the column « converted from AMHS parameter » of Table 3.1.2-16 and according to the specification in the clause referred to in the column « mappi	243		3.1.2.3.5.4.2.3.		***	T
243	The priority indicator component shall([244]) take the value of the priority indicator of the subject AFTN message.	244		3.1.2.3.5.4.2.4.	406, 516		T
244	The addressee indicator(s) component shall([245]) contain a single AF-Address which is the originator indicator of the subject AFTN message.	245		3.1.2.3.5.4.2.5.	406, 516		T
245	The filing time component, expressed as a date-time group in compliance with Annex 10, Volume II, 4.4.16.2.2.1, shall([246]) take the value of the time at which the AFTN service message is generated by the Message Transfer and Control Un	246		3.1.2.3.5.4.2.6.	406, 516		T
246	The originator indicator shall([247]) be the AFTN Address of the AFTN Component of the AFTN/AMHS Gateway, as specified in 3.1.2.3.2.1.16.	247		3.1.2.3.5.4.2.7.	406, 516		T
247	The value of the message text component shall([248]) be structured as follows :	248	a)_a first line composed as specified in Annex 10, Volume II, 4.4.11.13.3, items 1) to 4), using the origin of the subject AFTN message ; b)_a second line composed as specified in Annex 10, Volume II, 4.4.11.13.3, items 5) and 6), using the line-followin	3.1.2.3.5.4.2.8.	406, 516		T
248	Each actual-recipient-name element used to generate an unknown address AFTN service message as specified in item c) of 3.1.2.3.5.4.2.8 above shall([249]) be processed for translation into an AF-Address in one of three mutually exclusive	249	a)_allocation of the value of the first element of the organizational-unit-names attribute to the AF-Address, if this value is a syntactically valid AF-Address and if the organization-name attribute has the value « AFTN » ; b)_determination of an AF-Add	3.1.2.3.5.4.2.9.	406, 516		T
249	Each of the elements composing the Report Transfer Envelope and Report Transfer Content of an AMHS report to be converted into an AFTN service message in the Message Transfer and Control Unit shall([250]) be processed as specified in the	250		3.1.2.3.5.4.3.1.		***	T
250	These elements shall([251]) be handled according to the specification in the clause referred to in the column « mapping » of Table 3.1.2-17.	251		3.1.2.3.5.4.3.2.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
251	Upon reception by the Message Transfer and Control Unit of an AMHS probe which content type is either « interpersonal-messaging-1984 » or « interpersonal-messaging-1988 », the received probe shall([252]) be processed in one of the followin	252	a)_processing as specified in 3.1.2.3.5.5.2 if the abstract-value of the current encoded-information-types is « ia5-text » or extended « ia5-text » ; or b)_if the abstract-value differs from built-in « ia5-text » and from extended « ia5-text » : 1)_reje	3.1.2.3.5.5.1.	421-425, 518, 519		T
252	A probe which was not rejected as the result of 3.1.2.3.5.5.1 shall([253]) be processed in one of the following manners :	253	a)_processing as specified in 3.1.2.3.5.5.3 if the abstract-value of the implicit-conversion-prohibited in the per-message-indicators element in the Probe Transfer Envelope differs from « prohibited » ; or b)_if the abstract-value of the element is « pr	3.1.2.3.5.5.2.	421-425, 518,520		T
253	A probe which was not rejected as the result of 3.1.2.3.5.5.2 shall([254]) be processed in one of three mutually exclusive manners :	254	a)_if, due to system resource limitation, the value of the element content-length in the Probe Transfer Envelope exceeds the conversion capability of the Message Transfer and Control Unit, then : 1)_rejection of the message for all the message recipients	3.1.2.3.5.5.3.			T
254	A probe which was not rejected as the result of 3.1.2.3.5.5.3 shall([255]) be processed in one of three mutually exclusive manners, depending on the number of probe recipients towards which the Message Transfer and Control Unit is responsible for conveyan	255	a)_if this number exceeds 21 probe recipients : 1)_attempt to split the probe, internally to the Message Transfer and Control Unit, into several probes, each of them with no more than 21 probe recipients : i)_each of the resulting probes having for conv	3.1.2.3.5.5.4.			T
255	A probe which was not rejected as the result of 3.1.2.3.5.5.4 shall([256]) be processed in one of the following manners, depending on the ability of the Message Transfer and Control Unit to translate the originator-name element of the Probe Transfer Envel	256	a)_processing as specified in 3.1.2.3.5.5.6 if either of the following conditions is met : 1)_if, after conversion from lower case IA5IRV characters, if any, to upper case IA5IRV characters, the organization-name attribute has the value « AFTN » and if t	3.1.2.3.5.5.5.	421-425, 521		T
256	For each probe recipient, a probe which was not rejected as the result of 3.1.2.3.5.5.5 shall([257]) be processed in one of the following manners, depending on the ability of the Message Transfer and Control Unit to translate the considered recipient-name	257	a)_processing as specified in 3.1.2.3.5.5.7 if either of the following conditions is met : 1)_if, after conversion from lower case IA5IRV characters, if any, to upper case IA5IRV characters, the organization-name attribute has the value « AFTN » and if t	3.1.2.3.5.5.6.	421-425, 522		T
257	For the probe recipients which were not rejected as the result of 3.1.2.3.5.5.6, a delivery-report shall([258]) be generated as specified in 3.1.2.3.5.6,, if requested, to indicate the successful result of the probe conveyance test.	258		3.1.2.3.5.5.7.	421, 518		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
258	A non-delivery report shall([259]) be generated by the Message Transfer and Control Unit :	259	a)_for each message or probe which was rejected as the result of the procedures described in 3.1.2.3.5.1.1, 3.1.2.3.5.1.4, 3.1.2.3.5.2 and 3.1.2.3.5.5, either for all the recipients or for certain recipients ; and b)_as the result of the conversion of an	3.1.2.3.5.6.1.1.	422-425, 519, 522		T
259	Recommendation.- When the generation of a non-delivery report is required in relation with the rejection of the subject AMHS message for more than one recipient of the subject AMHS message, a single non-delivery report should([260]) be	260		3.1.2.3.5.6.1.2.		DIF	NT
260	For each AMHS message which was converted by the Message Transfer and Control Unit as the result of the procedures specified in 3.1.2.3.5.2.2 to 3.1.2.3.5.2.4 and then succesfully passed to the AFTN Component as specified in 3.1.2.3.5.1.	261	a)_the originating-MTA-report-request element has the abstract-value « report » or « audited-report » ; or b)_the originator-report-request element has the abstract-value « report » ; or c)_both conditions a) and b) above are met.	3.1.2.3.5.6.1.3.	411-419,421,426	DIF	T
261	Recommendation.- When the generation of a delivery report is required as specified in 3.1.2.3.5.6.1.3 for more than one recipient of the subject AMHS message, a single delivery report should([262]) be generated to report on the conveyance towards multipl	262		3.1.2.3.5.6.1.4.		DIF	NT
262	When the generation of a delivery report is required in relation with the result of a probe conveyance test as specified in 3.1.2.3.5.5, the clauses 3.1.2.3.5.6.1.3 to 3.1.2.3.5.6.1.4 above shall([263]) apply with the difference that the	263		3.1.2.3.5.6.1.5.	421, 518		T
263	A report resulting from the clauses above shall([264]) be generated as specified in 3.1.2.3.5.6.2.	264		3.1.2.3.5.6.1.6.		***	T
264	Each report resulting from the specification of 3.1.2.3.5.6.1 shall([265]) be generated by the Message Transfer and Control Unit, in the form of an AMHS Report Transfer Envelope and Report Transfer Content, composed of elements as specified in the column	265		3.1.2.3.5.6.2.1.		***	T
265	These elements which are classified as « G » or « G2 » shall([266]) be either generated or conditionally generated according to the specification in the clause referred to in the column « generation action » of Table 3.1.2-18.	266		3.1.2.3.5.6.2.2.		***	T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
266	The element report-identifier in the Report Transfer Envelope shall([267]) :	267	a)_be generated locally so as to ensure that it distinguishes the report from all other messages, probes or reports generated in the AMHS, as specified in ISO/IEC 10021-4, 12.2.1.3.1.1 ; and b)_be composed as specified in Table 3.1.2-18/Part 2/1.	3.1.2.3.5.6.2.3.	411-419,421-426, 518		T
267	The element global-domain-identifier in the report-identifier, or in the trace-information, or in the internal-trace-information shall([268]) :	268	a)_identify the AMHS Management Domain operating the AFTN/AMHS Gateway ; and b)_be composed as specified in Table 3.1.2-18/Part 2/2.	3.1.2.3.5.6.2.4.	411-419,421-426, 518		T
268	The element local-identifier in the report-identifier shall([269]) be generated locally so as to ensure that it distinguishes the report from all other messages, probes or reports generated in the AMHS Management Domain operating the AFTN/AMHS Gateway.	269		3.1.2.3.5.6.2.5.	411-419,421-426, 518		T
269	The report-destination-name element in the Report Transfer Envelope shall([270]) be one of the following :	270	a)_the last OR-name in the DL-expansion-history element, if present, of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.11.11 ; or b)_the originator-name of the subject AMHS message, as specified in Table 3.1.2-12/Part 1/1.1.2, if ther	3.1.2.3.5.6.2.6.	411-419,421-426, 518	DIF	T
270	The first trace-information-element in the trace-information of the Report Transfer Envelope shall([271]) be generated as specified in Table 3.1.2-18/Part 2/6.	271		3.1.2.3.5.6.2.7.	411-419,421-426, 518		T
271	Only extensions of type « standard-extension » as defined in the base standards shall([272]) be used, as further specified in the classification of Table 3.1.2-18.	272		3.1.2.3.5.6.2.8.		***	T
272	If a DL-expansion-history element as specified in Table 3.1.2-12/Part 1/1.1.11.11 was present in the subject AMHS message, the originator-and-DL-expansion-history element shall([273]) be generated as the sequence of the originator-name o	273		3.1.2.3.5.6.2.9.	411-419,421-426	DIF	T
273	The first internal-trace-information-element in the internal-trace-information of the Report Transfer Envelope shall([274]) be generated as specified in Table 3.1.2-18/Part 3/5.	274		3.1.2.3.5.6.2.10.	411-419,421-426, 518		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
274	The subject-identifier element in the Report Transfer Content shall([275]) take the value of the message-identifier element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.1.	275		3.1.2.3.5.6.2.11.	411-419,421-426, 518		T
275	The subject-intermediate-trace-information element in the Report Transfer Content shall([276]) take the value which the trace-information element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.10 had when the subject AMHS message en	276		3.1.2.3.5.6.2.12.	411-419,421-426, 518	DIF	T
276	The original-encoded-information-types element in the Report Transfer Content shall([277]) take the value of the original-encoded-information-types element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.3.	277		3.1.2.3.5.6.2.13.	411-419,421-426, 518	DIF	T
277	The content-type element in the Report Transfer Content shall([278]) take the value of the content-type element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.4.	278		3.1.2.3.5.6.2.14.	411-419,421-426, 518		T
278	The content-identifier element in the Report Transfer Content shall([279]) either :	279	a)_take the value of the content-identifier element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.5, if present ; or b)_be omitted in the report if there is no such element in the subject AMHS message.	3.1.2.3.5.6.2.15.	411-419,421-426	DIF	T
279	The content-identifier element in the Report Transfer Content shall([280]) optionally take the value of the content of the subject AMHS message, if and only if the content-return-request element in the per-message-indicators of the subject AMHS message in	280		3.1.2.3.5.6.2.16.		DIF	NT
280	The content-correlator element in the Report Transfer Content shall([281]) either :	281	a)_take the value of the content-correlator element of the subject AMHS message as specified in Table 3.1.2-12/Part 1/1.1.11.10, if present ; or b)_be omitted in the report if there is no such element in the subject AMHS message.	3.1.2.3.5.6.2.17.		DIF	NT
281	The actual-recipient-name element in a per-recipient-fields element of the Report Transfer Content shall([282]) take the value of the corresponding recipient-name element in the per-recipient-fields of the subject AMHS message as specif	282		3.1.2.3.5.6.2.18.	411-419,421-426, 518		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
282	The originally-specified-recipient-number element in a per-recipient-fields element of the Report Transfer Content shall([283]) take the value of the corresponding originally-specified-recipient-number element in the per-recipient-field	283		3.1.2.3.5.6.2.19.	411-419,421-426, 518		T
283	The per-recipient-indicators element in a per-recipient-fields element of the Report Transfer Content shall([284]) take the value of the corresponding per-recipient-indicators element in the per-recipient-fields of the subject AMHS mess	284		3.1.2.3.5.6.2.20.	411-419,421-426	DIF	T
284	The arrival-time element in the last-trace-information of a per-recipient-fields element shall([285]) take the value of the time at which the subject AMHS message entered the AMHS Management Domain operating the AFTN/AMHS Gateway, as fo	285		3.1.2.3.5.6.2.21.	411-419,421-426, 518		T
285	The converted-encoded-information-types element in the last-trace-information of a per-recipient-fields element shall([286]) either :	286	a)_take the last value of the converted-encoded-information-types element in the trace-information of the subject AMHS message, as specified in Table 3.1.2-12/Part 2/6.1.2.4.2, if this element exists ; or b)_be omitted in the report, if no such element i	3.1.2.3.5.6.2.22.	411-419,421-426	DIF	T
286	If the report is a delivery-report, the message-delivery-time element in the last-trace-information of a per-recipient-fields element shall([287]) be the time at which the subject AMHS message has been successfully passed to the AFTN Co	287		3.1.2.3.5.6.2.23.	421, 518		T
287	If the report is a delivery-report, the type-of-MTS-user element in the last-trace-information of a per-recipient-fields element shall([288]) take the abstract-value « other ».	288		3.1.2.3.5.6.2.24.	421, 518		T
288	If the report is a non-delivery-report, the non-delivery-reason-code and non-delivery-diagnostic-code elements in the last-trace-information of a per-recipient-fields element shall([289]) take the abstract-values specified in the clause	289		3.1.2.3.5.6.2.25.	411-419,422-426		T
289	The originally-intended-recipient-name element in a per-recipient-fields element shall([290]) either :	290	a)_take the value of the first O/R name found in the redirection-history element of the subject AMHS message, if present, as specified in Table 3.1.2-12/Part 1/1.2.5.13 ; or b)_be omitted in the report if there is no redirection-history element in the su	3.1.2.3.5.6.2.26.	411-419,422-426	DIF	T
290	The supplementary-information element in a per-recipient-fields element shall([291]) take one of the following values :	291	a)_the value « This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient » if the report is a delivery-report ; or b)_the value, if any, specified in the clause which caused the generation of the report if it is a	3.1.2.3.5.6.2.27.	411-419,422-426, 518		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
291	The redirection-history element in a per-recipient-fields element shall([292]) either :	292	a)_take the value of the redirection-history element of the subject AMHS message, if present, as specified in Table 3.1.2-12/Part 1/1.2.5.13 ; or b)_be omitted in the report if there is no redirection-history element in the subject AMHS message.	3.1.2.3.5.6.2.28.		DIF	NT
292	The element country-name in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([293]) :	293	a)_be part of the identification of the AMHS Management Domain operating the AFTN/AMHS Gateway by taking one of the following values : 1)_the two-character alphabetical country-indicator as specified in ISO 3166 for the country, or for one of the countri	3.1.2.3.5.6.2.29.	411-419,422-426, 518		T
293	The element administration-domain-name in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([294]) :	294	a)_be part of the identification of the AMHS Management Domain operating the AFTN/AMHS Gateway by taking one of the following values, depending on its status : 1)_the name of the ADMD under which the AMHS Management Domain has been registered, either nat	3.1.2.3.5.6.2.30.	411-419,422-426, 518		T
294	The element private-domain-identifier in the global-domain-identifier element of the MTS-identifier and of the first trace-information-element shall([295]) be handled in one of the following manners, depending on the status under which	295	a)_generation of the element, with the value of the name of the PRMD, encoded as a Printable String, if the AMHS Management Domain operates as an PRMD ; or b)_omission in the global-domain-identifier if the AMHS Management Domain operates as an ADMD.	3.1.2.3.5.6.2.31.	411-419,422-426, 518		T
295	The element global-domain-identifier in the trace-information or in the internal-trace-information shall([296]) :	296	a)_identify the AMHS Management Domain operating the AFTN/AMHS Gateway ; and b)_be composed as specified in Table 3.1.2-18 / Part 2/2.	3.1.2.3.5.6.2.32.	411-419,422-426, 518		T
296	The element arrival-time in the first element of trace-information or of internal-trace-information shall([297]) take the semantic value of the time when the report was generated by the Message Transfer and Control Unit for conveyance i	297		3.1.2.3.5.6.2.33.	411-419,422-426, 518		T
297	The element routing-action in the first element of trace-information or of internal-trace-information shall([298]) take the abstract-value « relayed ».	298		3.1.2.3.5.6.2.34.	411-419,422-426, 518		T

Ref#	Shall Statement	SARPs Tag	Complements to the shall statement	Section or clause	Environment	Comments	Res.
298	The element mta-name in the first element of internal-trace-information shall([299]) be the mta-name assigned to the Message Transfer and Control Unit included in the AFTN/AMHS Gateway.	299		3.1.2.3.5.6.2.35.	411-419,422-426, 518		T

ANNEX 3

ENVIRONMENT

1. General

In this annex it can be found a short description of the environment and different scenarios used for the set of tests.

The HW environment used for the support of the different scenarios corresponds to the figure 1

In it, it is remarkable to see the CRAMI switching System, and a CONTINUUM computer and SUN Sparc 20 stations for ATSMHS, all of them interconnected by LAN.

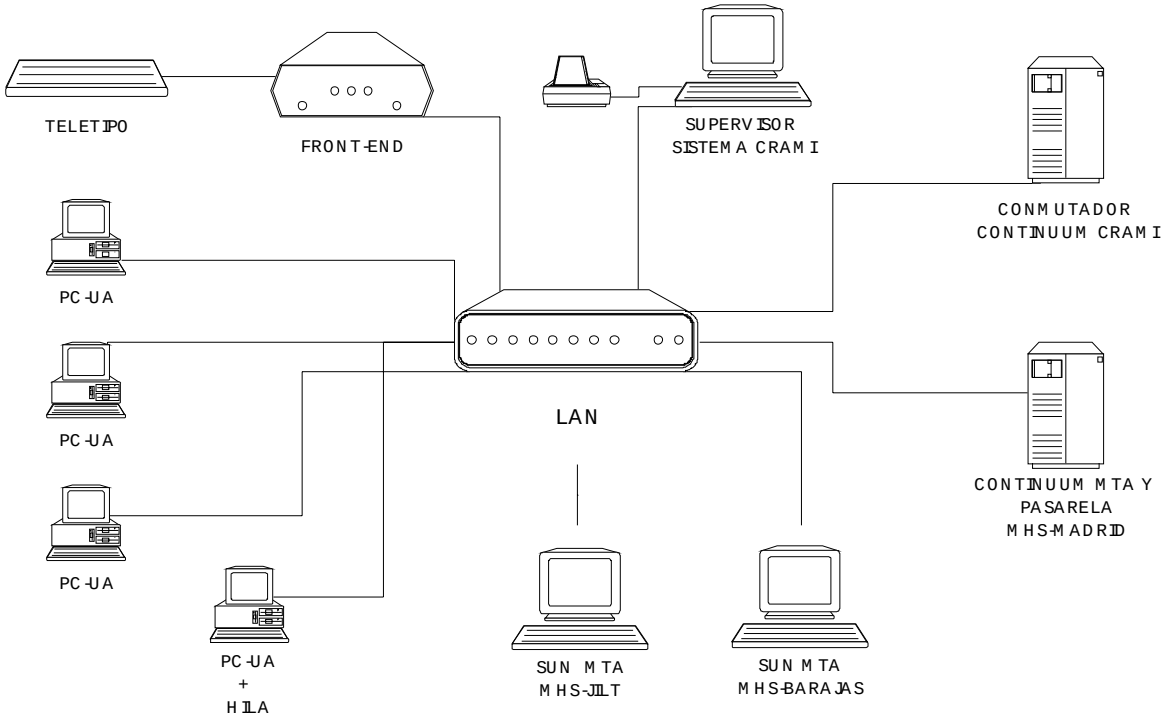

Figure 1.

For the SW configuration, the scenarios have been structured in two groups:

1.- “Black box” group scenario.
2.- “White box” group scenario.

2. “BLACK BOX” GROUP SCENARIOS.

The “black box” group scenarios comprises two types of scenarios:

2.1. SW scenario Type 1.

This type of scenario will be used to test X.400 Message Service and X.500 Directory Service according to the standards ITU X.400/ISO 10021 e ITU X.500/ISO 9594 resp..

With this scenario they will also be tested operational aspects and management of the system, as user administration, paths, etc..

2.1.1. Scenario 1.1

The processes and HW corresponding of this SW scenario are reflected in figure 2. This scenario is used to test edition and invoice of messages between X.400 users belonging to the same server.

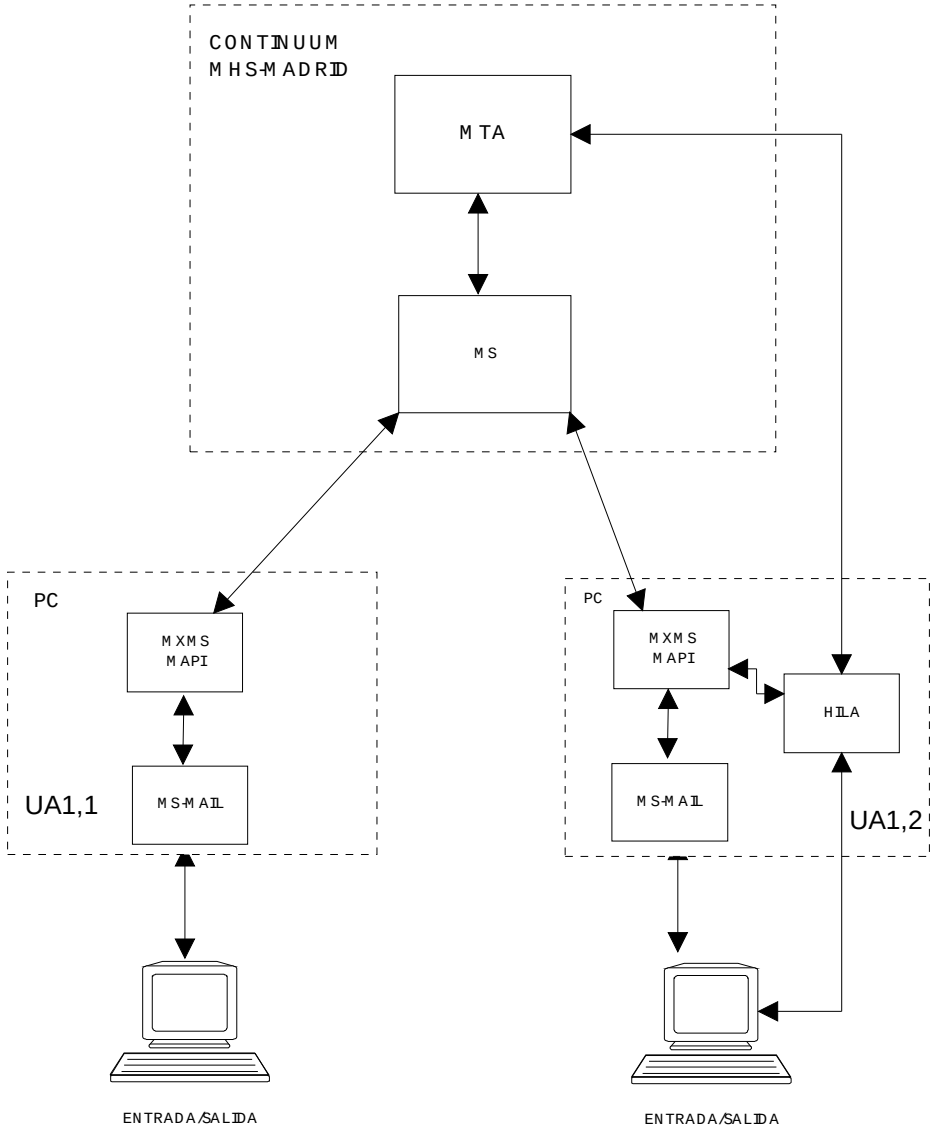

Figure 2. SW Scenario 1.1.

2.1.2. Escenario 1.2

The processes and HW corresponding of this SW scenario are reflected in figure 3. This scenario is used to test edition and invoice of messages between X.400 users belonging to two different servers

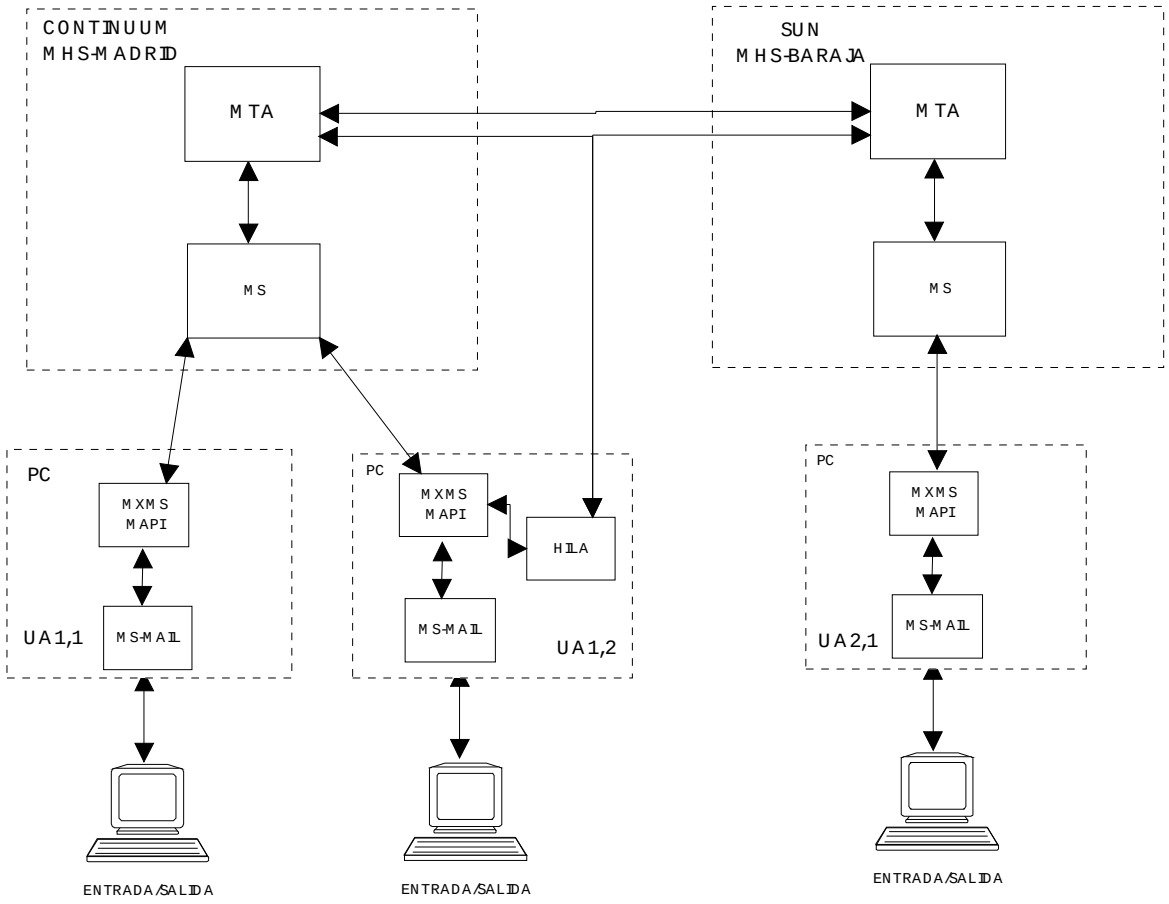

Figure 3. SW Scenario1.2

2.1.3. Escenario 1.3

The processes and HW corresponding of this SW scenario are reflected in figure 4. This scenario is used to test edition, invoice and routing of messages between X.400 users belonging to three different servers

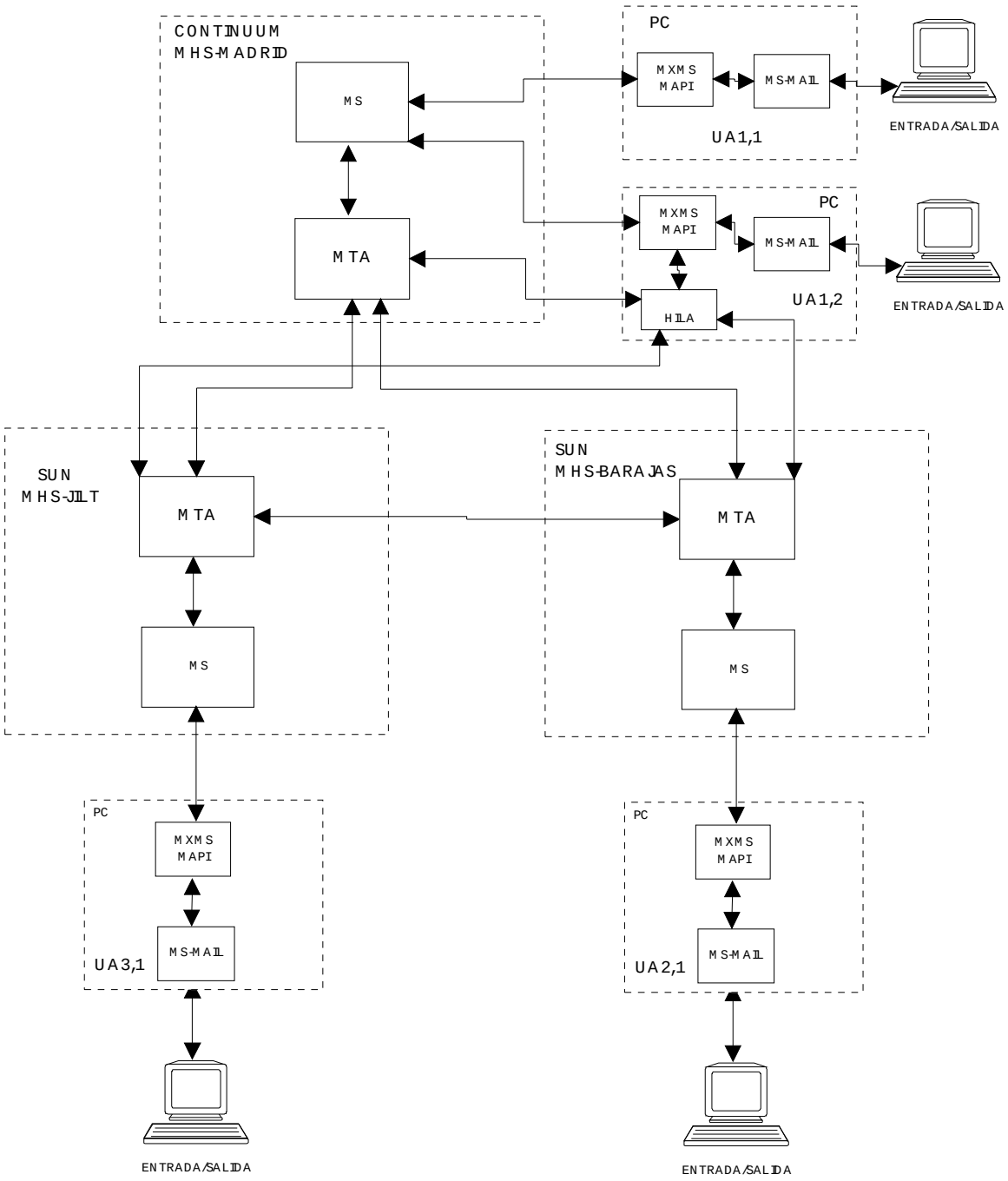

Figure 4. SW Scenario 1.3

2.2. SW Scenario Type 2.

This type of scenario will be used to perform tests corresponding to the AMHS/AFTN gateway in which it is obliged the cooperation of both AFTN and MHS systems

2.2.1. Scenario 2.1

The processes and HW corresponding of this SW scenario is reflected in figure 5. This scenario is used to test edition and invoice of messages between X.400 users belonging to the server that includes the gateway and AFTN users connected to the CRAMI switching system.

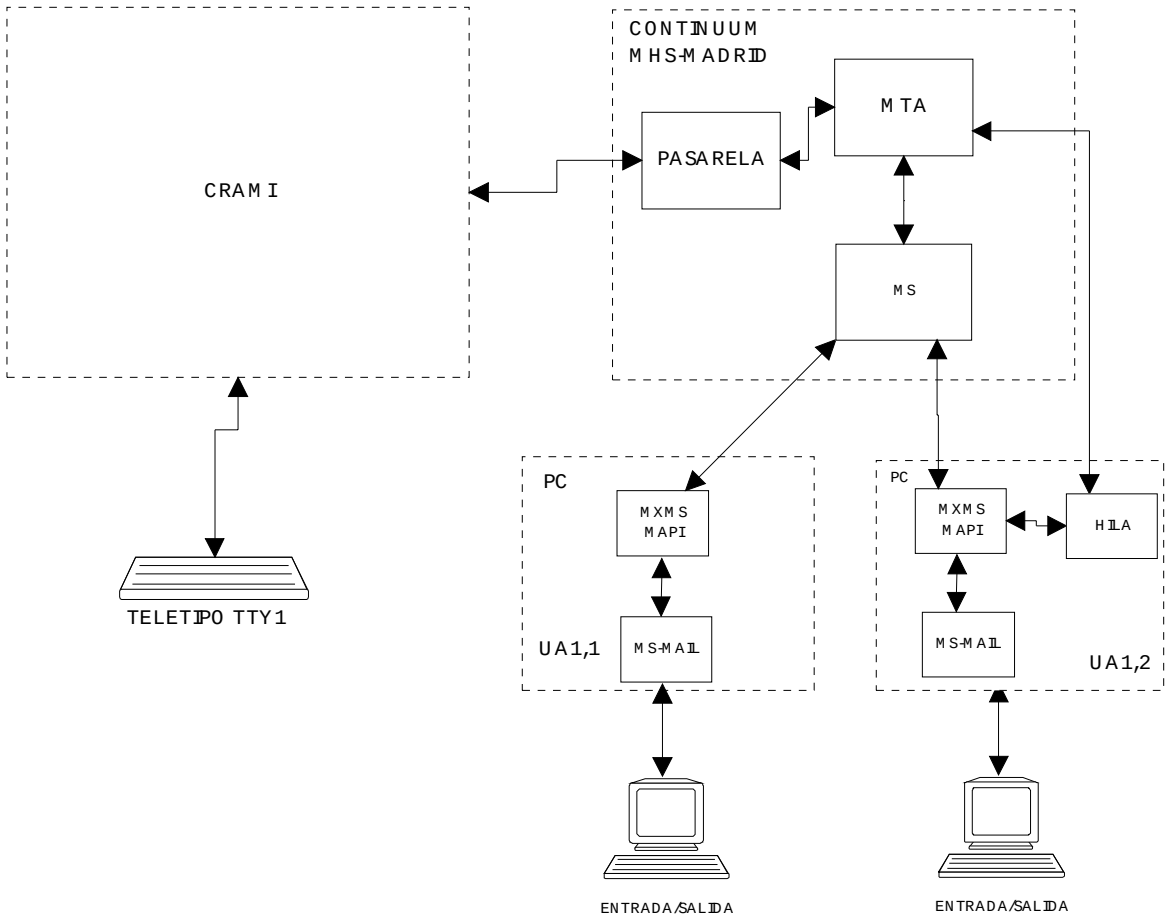

Figure 5. SW Scenario 2.1

2.2.2. Scenario 2.2

The processes and HW corresponding of this SW scenario is reflected in figure 6. This scenario is used to test edition and invoice of messages between X.400 users belonging to two different servers and AFTN users connected to the AFTN switching system.

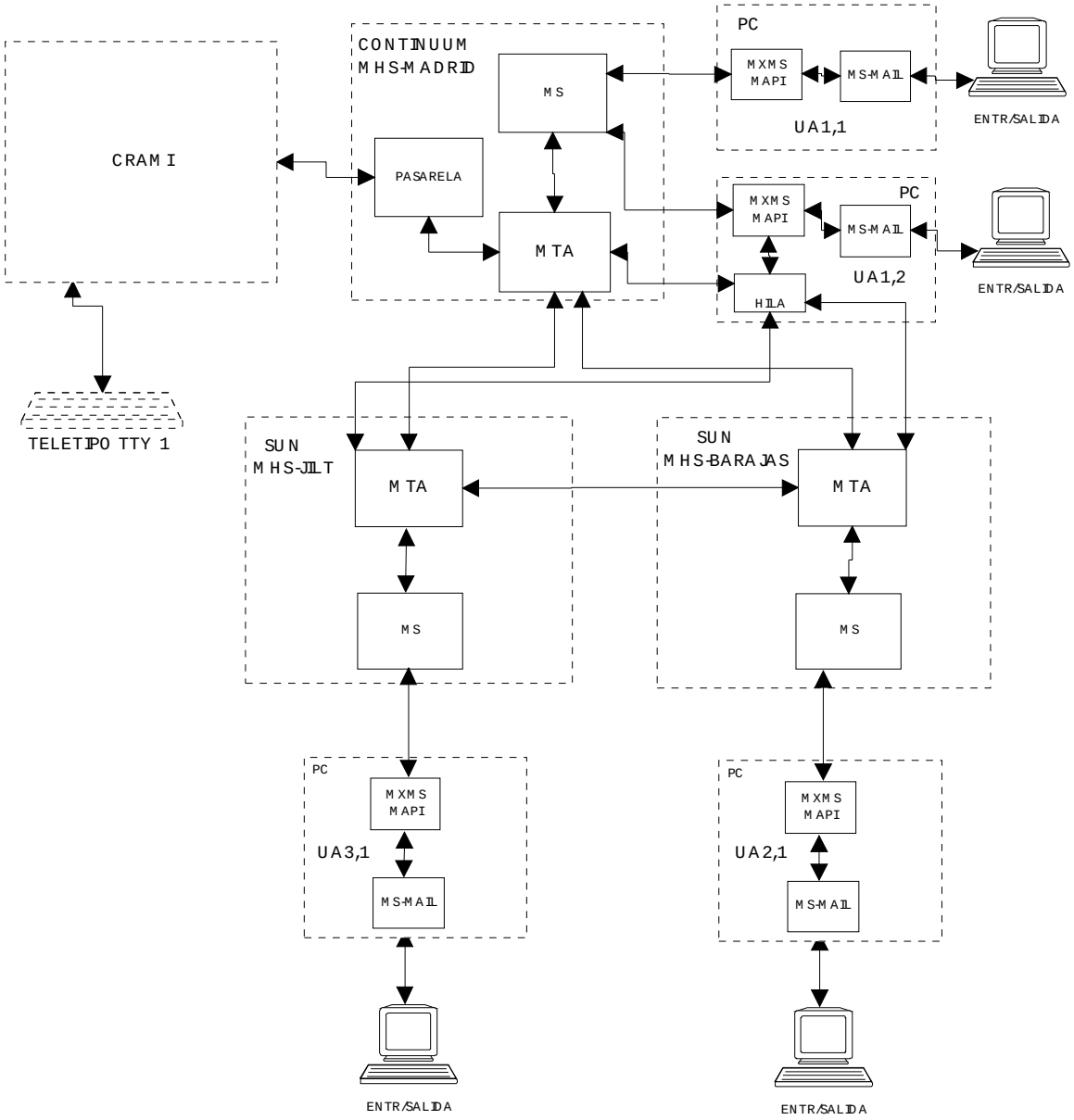

Figure 6. SW Scenario 2.2.

3. “WHITE BOX” GROUP SCENARIOS.

The “white box” group scenario comprise one types of scenarios:

3.1. SW Scenario type 3

This type of scenario will be used to perform tests corresponding to the AMHS/AFTN gateway in which it is obliged the cooperation of both AFTN and MHS systems

3.1.1. Scenario 3.1

The restricted scenario represented in figure 7 can be considered as a subset of the scenarios 2.1 and 2.2. This means that a particular MTA of the mentioned scenarios will be configured to create special users in it, in order to insert the tool and examine the corresponding value of the attribute specified in the SARP’s requirement.

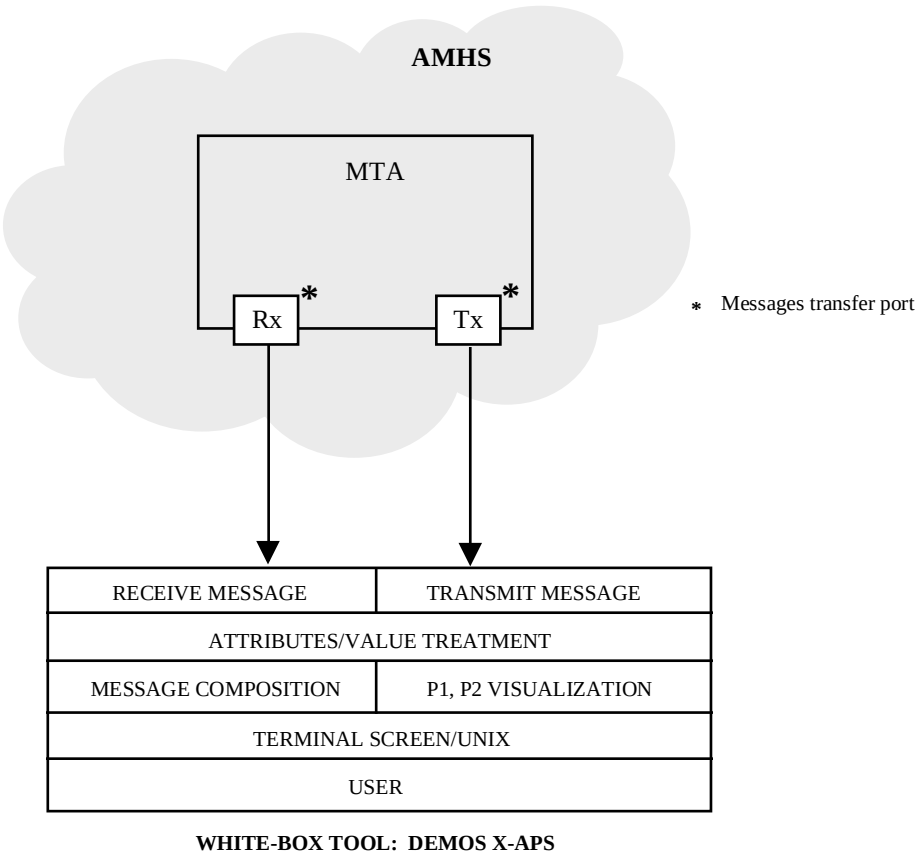

Figure 7. Scenario 3.1 (White-Box)

ANNEX 4

LOCAL RESULTS OF TESTS

(PHASE I)

1. General.

This annex shows the results of the validation of the Spanish Gateway. The results are the corresponding to the phase I of Spanish Gateway project development. The next phase II will gather the last “shalls” included in the SARP to be approved in WGW, in Thailand. The procedure of validation of the development of the phase II will be approach in the same way as indicated in the main part of this document.

2. RESULTS.

The results are showed in the following table.

REFERENCE	TOTAL NUMBER
TOTAL AMOUNT OF TESTS	108
TESTS PERFORMED	108
PASSED TESTS	108
TOTAL AMOUNT OF “SHALLS”	298
“SHALLS” TESTED	250
“SHALLS” NON TESTED	48

2.1. Table contents description:

Total amount of tests: This reference shows the sum of the Black and White Box tests, as described in point 4 of the main document. With these tests we tried to validate all the “shalls” (shown in the annex 2 table), as well as the functional and operational behaviour of our gateway and AMHS development

Test performed: This reference shows the total number of tests performed (white and black box), shown in the annex 1 table.

Passed Tests: This reference shows the total number of tests passed (white and black box), shown in the annex 1 table.

Total amount of "shalls": This reference shows the total number of "shalls" described in the SARP´s document (version 1.0z), and shown in the annex 2 table.

"Shalls" Tested: This reference shows the total number of "shalls" tested with the 108 tests shown above.

"Shalls" Non Tested: This reference shows the total number of "shalls" non tested with the 108 tests shown above. This number represents three categories od tests shown in the annex 2 table:

DIF: Shall currently implemented but with difference between Spanish development and the SARP´s.

OPTIONAL: Shall not mandatory

phase II: Shall to be implemented in the Spanish development.

All the "shalls" not tested must be tested in the phase II of the development plan of the Spanish Gateway . For this reason news tests will be added to the original Tests Plan shown in the anex 1 table.

3. Evaluation of the results.

With these tests it has been tested the current Spanish Gateway development which is aligned with the SARP version 1.0z.

The results **meets the expected behaviour** of the current development. And for that reason the evaluation of the result of the trials is **consider satisfactory.**

However, there are some differences between the functionality of the development and the SARP's that need to be clarified; these differences are shown in the annex 2 , along the table, in the "comments" column (with DIF indication). This subject will be considered in WPs presented by Aena about diffects and differents above indicated.