



**Cuestión 2 del  
Orden del Día:**

**Seguimiento a la implantación regional del proyecto de implantación de la arquitectura de la ATN y de las Aplicaciones tierra-tierra de la ATN en la Región SAM (sistemas AMHS y la interconexión de los mismos)**

**Seguimiento en la implantación de la interconexión AMHS**

(Presentada por la Secretaría)

<b>RESUMEN</b>	
Esta nota de estudio presenta información actualizada sobre el estado de implantación de la interconexión AMHS en la Región SAM.	
<b>Referencias:</b>	
<ul style="list-style-type: none"><li>• Reunión sobre el intercambio de la información OPMET (Lima, Perú, del 27 al 29 de octubre de 2014).</li><li>• Informe final del Décimo Quinto Taller/Reunión del Grupo de Implantación SAM (SAM/IG/15) - Proyecto Regional RLA/06/901 (Lima, Perú, del 11 al 15 de junio de 2015).</li><li>• Informe de la Tercera Reunión del Comité de Revisión de Programas y Proyectos del GREPECAS (Ciudad de México, México, del 21 al 23 de julio de 2015).</li></ul>	
<b>Objetivos estratégicos de la OACI:</b>	<i>A - Seguridad operacional</i> <i>B - Capacidad y eficiencia de la navegación aérea</i>

**1. Introducción**

1.1 En lo que respecta a la implantación de la interconexión AMHS, desde la Reunión sobre el intercambio OPMET los mayores avances se produjeron en las pruebas positivas entre *Brasil – España*, *Brasil – Perú* y *Brasil – Argentina*.

1.2 La Reunión SAM/IG/14 consideró la necesidad de completar las pruebas para las interconexiones AMHS entre *Perú – Argentina*, y *Brasil – Paraguay*, haciendo uso de la lista de procedimientos utilizado en las pruebas AMHS realizadas entre Brasil y España, formulándose al respecto la conclusión SAM/IG/14 - *Procedimientos para pruebas de interconexión AMHS*. La lista de procedimiento se presenta como **Apéndice A** de esta nota de estudio.

## 2. **Análisis**

2.1 Desde la SAM/IG/14 hasta la fecha no se han podido completar las interconexiones AMHS previstas para finales de 2014, Brasil-Perú, Brasil-Argentina, Argentina-Perú y Brasil-Paraguay. El motivo principal fueron los trabajos de implantación de la nueva red digital REDDIG II.

2.2 Los trabajos de implantación de la REDDIG II requirieron por parte de todos sus Estados miembros realizar los respectivos preparativos locales durante prácticamente todo el último trimestre de 2014, así como el apoyo durante el periodo de instalación de la misma desde el mes de enero de 2015 hasta mediados de febrero de 2015. Una vez en operación la REDDIG II se presentaron también problemas en los circuitos AMHS existentes los cuales fueron resueltos por la empresa instaladora después de un periodo de casi un mes.

2.3 De esta forma se retrasan las fechas de las implantaciones de las interconexiones AMHS, el Apéndice B de esta nota de estudio presenta las nuevas fechas de implantación propuestas. Se recuerda a la Reunión el compromiso asumido por los Estados para cumplir la implantación de las interconexiones AMHS para el 2016 a través de la declaración de Bogotá.

2.4 El 16 de julio de 2015 se realizó una teleconferencia para dar seguimiento a la implantación de la interconexión AMHS entre Brasil- Perú, Brasil Argentina, Brasil -España, Argentina-Perú y Brasil-Paraguay.

2.5 Como resultado de esta teleconferencia Brasil informó que en el mes de abril de 2015 se habían reiniciado pruebas de interconexión AMHS entre Argentina y Brasil, las pruebas se efectuaron en el circuito entre Manaus y Ezeiza utilizado para la transferencia de control entre el NCC de Manaus con el NCC de Ezeiza en caso de fallo durante la operación de la REDDIG I, considerando que la REDDIG I se ha desactivado para dar cabida a la REDDIG II y que la REDDIG II ya no requiere el circuito mencionado. Las pruebas no pudieron completarse en vista que se requería la instalación de un router del lado de Argentina. Se espera que las pruebas se reactiven en el mes de agosto de 2015. Asimismo Brasil informó que las pruebas AMHS entre Brasil y España se reiniciarían en el mes de septiembre en vista del periodo de vacaciones en España.

2.6 La Reunión CRPP/3 al analizar la implantación de los sistemas AMHS y la interconexión de los mismos en las Regiones CAR y SAM, observó que la aplicación AMHS no se está aprovechando en todo su potencial, y que la misma opera como el AFTN, solo con caracteres alfanuméricos y no hace uso del envío de anexos a los mensajes, que pueden contener información variada como tablas y gráficos.

2.7 Al mismo tiempo la Reunión concordó que se requiere que los Estados de la Región aprovechen las facilidades del AMHS, así como el establecimiento de redes de comunicaciones de mayor capacidad y velocidad, enviando mensajes con anexos, previa coordinación entre las dependencias que intercambien estos mensajes con el fin de incrementar la información requerida por las dependencia y lograr una mejor conciencia situacional. Al hacer uso pleno del AMHS se disminuiría el uso del AFTN a través de Gateway, incrementándose de esa forma la interconexión AMHS a nivel regional e interregional.

2.8 Finalmente, la Reunión CRPP/3 consideró la necesidad de crear un grupo para que inicie el desarrollo e implementación de una estrategia para lograr una utilización efectiva del AMHS. El grupo estaría conformado por Brasil, Estados Unidos, Republica Dominicana y los coordinadores de los programas D de las Regiones CAR/SAM formulando el siguiente proyecto de Decisión:

**PROYECTO DE DECISIÓN CRPP/3/6 - ESTABLECIMIENTO DE UN GRUPO DE TRABAJO PARA LOGRAR UN MEJOR USO OPERACIONAL DEL AMHS**

Con el fin de explotar la potencialidad del AMHS y su aprovechamiento en el uso operacional:

- a) Se establece un grupo de trabajo conformado por Brasil, Estados Unidos, Republica Dominicana y los coordinadores de los programas D de las Regiones CAR y SAM de Infraestructura de comunicaciones tierra-tierra y tierra-aire.
- b) El grupo trabajará por medio de reuniones virtuales y preparará una estrategia para asegurar el uso operacional del AMHS, poniéndola a disposición de la Región a la brevedad posible.

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**Acciones sugeridas:**

Se invita a la Reunión a:

- b) tomar nota de la información contenida en la nota de estudio;
- c) analizar los aspectos contenidos en la sección 2 de esta nota de estudio y proponer acciones para dar cumplimiento a las actividades propuestas en la sección; y
- d) analizar otras consideraciones al respecto que la Reunión considere necesario.

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APÉNDICE A

Aena- ASA

AMHS INTEROPERABILITY TRIALS



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**SPAIN – BRASIL  
AMHS INTEROPERABILITY TRIALS**

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## Document Control Log

Edition	Date	Comments	section/pages affected
1.0	12/07/2012	Creation of the document.	all
1.1	02/01/2013	General Parameter Information table	5 & 6
1.2	27/08/2014	Rewording of the document	all

### 1. Objective

The aim of this document is to describe the technical solution pertaining to the installations to be affected between AENA and ASA for the settlement of AMHS service, collecting the information to set the AMHS trials to be performed in order to ensure the end to end interoperability of the implementations under test.

These trials will not affect current aeronautical message exchange services or any other system already operative with other Comm Centers.

AMHS Service will be settled and operated following EUR AMHS MANUAL documentation. Parts may agree modifications on the procedures provided that no contradiction may arise with EUR AMHS Manual and appendixes.

The set of trials that will be made:

- Performing all the bilateral interoperability trials collected in the EUR AMHS Manual appendix E.
- If were possible, performing also the trilateral trials collected in the same appendix.
- If agreed, performing a subset of conformance trials, described in appendix D. The conformance tests that have to be performed are listed below:
  1. CT304– Reject a message, if DL expansion is prohibited
  2. CT306– Generate a NDR, if transfer fails
  3. CT407 – Convert or reject an IPM, if the ATS-message-text contains lines with more than 69 Characters
  4. CT418 – Convert an AFTN SVC “Unknown Addressee Indicator” to a NDR

## 2. Common Infrastructure

Aena and DECEA will perform the Interoperability trials over test equipment, not affecting current operational services, following EUR AMHS MANUAL Appendix E structure.

CAFSAT will be used to perform AMHS Interoperability Trials

Once successfully tested parts will coordinate and perform the Preoperational Trials over Operational Systems and Network, following EUR AMHS MANUAL Appendix F structure.

### 2.1 Systems Description

#### 2.1.1 Short Description of Brasil Messaging System

DECEA's Messaging TEST System is a ISODE integrated AFTN/AMHS switch which serves as the operational system in the DECEA COM CENTRE in Brasilia.

Component	Release
UA	
MTA	
MTCU	

#### 2.1.2 Short Description of Spain Messaging System

AENAs Messaging TEST System (MACRAM) is a Telefónica integrated AFTN/CIDIN/AMHS switch which serves as the operational system in the Aena COM CENTRE in Madrid.

Component	Release
CRAM Integrated AFTN/CIDIN/AFTN gateway	Version 3.5 (November 2013)
CRAM UA/DUA Server	Version 4.2 (November 2013)
AMHS Server	Isode 14.6v16 (May 2010)
Red Hat Linux	Enterprise Advanced Server 4.8 (May 2009)
AMHS User Agent	AMHS message composer integrated in CRAM
AFTN Station	AFTN message composer integrated in CRAM

## 2.2 Test Infrastructure

In this section there is included a scheme with the common test infrastructure and the main network information:

## 2.3 Communication Channels

Once put into operational, first line on contact is the telephone. Basic English is considered as the co-ordination speech to be employed by the correspondents. A technical specific glossary ought to be defined for this purpose. Telefax is always considered as a second line of contact E-mail could also be used.

While testing configuration and trials, first line on contact is email and telephone. Basic English is considered as the co-ordination speech to be employed by the correspondents

## 2.4 Correspondants

- AENA

	Availability	Phone	e-mail
Test Coordinator	8:00 – 15:00 CET Monday - Friday	Gabriel García +34 91 3213210	ggarodriguez@aena.es
Technical Permanent	H24	+34 91 6785135	lecm_cgr@aena.es
Technical Service	9:00 – 17:00 CET Monday - Friday	Same	
Technical service escalate	9:00 – 17:00 CET Monday - Friday	Teresa Barberá Lado +34 916785190 Javier Lores Riesgo +34 916785297	<a href="mailto:tbarbera@aena.es">tbarbera@aena.es</a> <a href="mailto:jlores@aena.es">jlores@aena.es</a>

- DECEA (test platform)

	Availability	Phone	e-mail
Test Coordinator	8:00 – 15:00 Monday - Friday	Lucio Cavalcante +55 61 3364 8375	<a href="mailto:luciolac@cindacta1.aer.mil.br">luciolac@cindacta1.aer.mil.br</a>
Technical Permanent	H24	+55 61 3364 8377	
Technical Service Test issues	8:00 – 15:00 Monday - Friday		
Technical service escalate	8:00 – 15:00 Monday - Friday	Lucio Cavalcante +55 61 3364 8375	<a href="mailto:luciolac@cindacta1.aer.mil.br">luciolac@cindacta1.aer.mil.br</a>

### 3. General Parameter Information

Parameter	Default Values		Remarks
	DECEA (TEST)	AENA (TEST)	
IP addresses	192.168.69.37	57.235.201.75	In line with the EUROCONTROL IP address allocation plan
TCP Port	102	102	Doc 9896, section 1.3
MTA name	MTA-SBBR-3	MTA-LEEE-1	As per AMHSM section 8.2
MTA password	PLAT-3	ICAO-LEEE-1	As per AMHSM section 8.2
Calling Presentation Address		Yes	Yes or No Depending on SW implementation, parameter may have to be Yes
Authentication requirements	Simple	Simple	Simple, strong or bilateral. Not mandated but may be agreed among test partners.
TSAP addresses	0x35 0x39 0x31 Text "591"	0x35 0x39 0x31 Text "591"	Hex e.g. '544350' ("TCP") or '4D4853' ("MHS")
Protocol type	X.400/1988	X.400/1988	IPM 1984 phased out (AMHSM App.B)
Type of associations	Monologue	Monologue	Monologue or Two-way alternate (AMHSM App. B)
Number of associations incoming		5 max.	The number of incoming associations should be equal to the number of outgoing ones.
Number of associations outgoing		5 max.	
Connection		Dynamic (5 sec hold time)	Permanent or Dynamic
Minimum message size supported	2Mbytes	2Mbytes	(AMHSM App. B)
Addressing scheme	CAAS with single O	CAAS with single O	XF or CAAS with single or multiple O
	C = XX ADMD = ICAO PRMD = SB O = SBBR OU1 = SBBR CN = SBBRPLTC	C = XX ADMD = ICAO PRMD = SPAIN O = LEEE OU1 = LEEE CN = LEEEXXXX	
Type of body part used in IPMs by UA	general-text body part with ISO646 repertoire	general-text body part with ISO646 repertoire	general-text body part with ISO646 repertoire



Aena- DECEA  
AMHS INTEROPERABILITY TRIALS

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## APÉNDICE A

Aena- ASA

AMHS INTEROPERABILITY TRIALS



#### 4. Interoperability Trials TEST RESULTS

TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
<b>6,2 Submission, Transfer and Delivery Operation (AMHS to AMHS)</b>				
<b>IT101</b>	<b>Submit, transfer and deliver an IPM (UA IUT-A to UA IUT-B)</b>			
IT101/TC01	A KK priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.			
IT101/TC02	A GG priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.			
IT101/TC03	An FF priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.			
IT101/TC04	A DD priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.			
IT101/TC05	An SS priority message will be submitted from the UA of IUT-A and delivered to the UA of IUT-B.			
<b>IT102</b>	<b>Submit, transfer and deliver an IPM (UA IUT-B to UA IUT-A)</b>			
IT102/TC01	A KK priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.			
IT102/TC02	A GG priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.			
IT102/TC03	An FF priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.			
IT102/TC04	A DD priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.			
IT102/TC05	An SS priority message will be submitted from the UA of IUT-B and delivered to the UA of IUT-A.			
<b>6,3 Gateway Operations (AFTN to AMHS)</b>				
<b>IT201</b>	<b>Convert an AFTN message to AMHS format (IUT-A)</b>			
IT201/TC01	A KK priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.			
IT201/TC02	A GG priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.			
IT201/TC03	An FF priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.			
IT201/TC04	A DD priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.			
IT201/TC05	An SS priority message will be sent from the AFTN terminal of IUT-A, converted to AMHS and received at the UA of IUT-B.			
<b>IT202</b>	<b>Convert an AFTN message to AMHS format (IUT-B)</b>			

TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
IT202/TC01	A KK priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.			
IT202/TC02	A GG priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.			
IT202/TC03	An FF priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.			
IT202/TC04	A DD priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.			
IT202/TC05	An SS priority message will be sent from the AFTN terminal of IUT-B, converted to AMHS and received at the UA of IUT-A.			
<b>6,4 Gateway Operations (AMHS to AFTN)</b>				
<b>IT301</b>	<b>Convert an IPM to AFTN format (IUT-B)</b>			
IT301/TC01	A KK priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.			
IT301/TC02	A GG priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.			
IT301/TC03	An FF priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.			
IT301/TC04	A DD priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.			
IT301/TC05	An SS priority message will be submitted from the UA of IUT-A, converted to AFTN in IUT-B and received at the AFTN terminal of IUT-B.			
<b>IT302</b>	<b>Convert an IPM to AFTN format (IUT-A)</b>			
IT302/TC01	A KK priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.			
IT302/TC02	A GG priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.			
IT302/TC03	An FF priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.			
IT302/TC04	A DD priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.			
IT302/TC05	An SS priority message will be submitted from the UA of IUT-B, converted to AFTN in IUT-A and received at the AFTN terminal of IUT-A.			
<b>6,5 Gateway Operations (AFTN to AMHS to AFTN)</b>				

TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
<b>IT401</b>	<b>Convert an AFTN message to AMHS and back to AFTN format (IUT-A to IUT-B)</b>			
IT401/TC01	An AFTN message with KK priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.			
IT401/TC02	An AFTN message with GG priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.			
IT401/TC03	An AFTN message with FF priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.			
IT401/TC04	An AFTN message with DD priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.			
IT401/TC05	An AFTN message with SS priority will be sent from the AFTN terminal of IUT-A to the AFTN terminal of IUT-B.			
<b>IT402</b>	<b>Convert an AFTN message to AMHS and back to AFTN format (IUT-B to IUT-A)</b>			
IT402/TC01	An AFTN message with KK priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.			
IT402/TC02	An AFTN message with GG priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.			
IT402/TC03	An AFTN message with FF priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.			
IT402/TC04	An AFTN message with DD priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.			
IT402/TC05	An AFTN message with SS priority will be sent from the AFTN terminal of IUT-B to the AFTN terminal of IUT-A.			
<b>6.6 Gateway Operations – special cases</b>				
<b>IT501</b>	<b>Distribute an IPM to AMHS and AFTN users</b>			
IT501/TC01	A message will be sent from a UA on IUT-A to IUT-B with Primary Recipients addressing an AFTN terminal and a UA in IUT-B.			
IT501/TC02	A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients addressing an AFTN terminal and a UA in IUT-A.			
IT501/TC03	A message will be sent from a UA on IUT-A to IUT-B with PrimaryRecipients and Copy Recipients, addressing AFTN terminals and UAs in IUT-B.			
IT501/TC04	A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients and Copy Recipients, addressing AFTN terminals and UAs in IUT-A.			
IT501/TC05	A message will be sent from a UA on IUT-A to IUT-B with Primary Recipients, Copy Recipients and Blind Copy Recipients, addressing AFTN terminals and UAs in IUT-B.			

TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
IT501/TC06	A message will be sent from a UA on IUT-B to IUT-A with Primary Recipients, Copy Recipients and Blind Copy Recipients, addressing AFTN terminals and UAs in IUT-A.			
<b>IT502</b>	<b>Expand a DL addressing both AMHS and AFTN users</b>			
IT502/TC01	The message will be sent from a UA on IUT-A addressing a local DL which contains addresses of AFTN terminals and the UA in IUT-B.			
IT502/TC02	The message will be sent from a UA on IUT-B addressing a local DL which contains addresses of AFTN terminals and the UA in IUT-A.			
IT502/TC03	The message will be sent from a UA on IUT-A addressing a remote DL in IUT-B which contains addresses of AFTN terminals and the UA in IUT-B.			
IT502/TC04	The message will be sent from a UA on IUT-B addressing a remote DL in IUT-A which contains addresses of AFTN terminals and the UA in IUT-A.			
<b>IT503</b>	<b>Convert or reject an IPM, if the ATS-message-text contains more than 1800 characters</b>			
IT503/TC01	A message with normal priority and length of about 4500 characters is sent from the IUT-A to the IUT-B.			
IT503/TC02	A message with normal priority and length of about 4500 characters is sent from the IUT-B to the IUT-A			
<b>IT504</b>	<b>Split an incoming IPM addressing more than 21 AFTN users</b>			
IT504/TC01	A message with normal priority containing 50 recipients is sent from the IUT-A to the IUT-B.			
IT504/TC02	A message with normal priority containing 50 recipients is sent from the IUT-B to the IUT-A.			
<b>IT505</b>	<b>Probe Conveyance Test</b>			
IT505/TC01	The probe will be sent from a UA on IUT-A to IUT-B, addressing AFTN terminals and UAs in IUT-B.			
IT505/TC02	The probe will be sent from a UA on IUT-B to IUT-A, addressing AFTN terminals and UAs in IUT-A.			
IT505/TC03	The probe will be sent from a UA on IUT-A to IUT-B, containing the address of an AFTN terminal of IUT-B and two MF addresses which cannot be translated by the MTCU of IUT-B.			
IT505/TC04	The probe will be sent from a UA on IUT-B to IUT-A, containing the address of an AFTN terminal of IUT-A and two MF addresses which cannot be translated by the MTCU of IUT-A.			
<b>6,7 Stress traffic situations</b>				
<b>IT601</b>	<b>Stress load</b>			
IT601/TC01	After queuing of an amount of messages both IUTs start sending a burst of 100 messages.			
IT601/TC02	After queuing of an amount of messages both IUTs start sending a burst of 200 messages.			
IT601/TC03	After queuing of an amount of messages both IUTs start sending a burst of 400 messages.			

TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
IT601/TC04	After queuing of an amount of messages both IUTs start sending a burst of 4000 messages.			
<b>IT602</b>	<b>Stress load with long messages</b>			
IT602/TC01	After queuing of an amount of messages both IUTs start sending a burst of 400 "long" messages.			
IT602/TC02	After queuing of an amount of messages both IUTs start sending a burst of 4000 "long" messages.			
<b>7,1 Submission/Transfer/Delivery and Relay operations</b>				
<b>IT701</b>	<b>Submission / Transfer / Delivery between the partner MTAs</b>			
IT701/TC01	An IPM submitted in IUT-A is transferred to IUT-B, IUT-C and delivered to the UAs of IUT-B, IUT-C.			
IT701/TC02	An IPM submitted in IUT-B is transferred to IUT-C, IUT-A and delivered to the UAs of IUT-C, IUT-A.			
IT701/TC03	An IPM submitted in IUT-C is transferred to IUT-A, IUT-B and delivered to the UA of IUT-A, IUT-B.			
<b>IT702</b>	<b>Relay operations</b>			
IT702/TC01	An IPM is routed via an intermediate MTA, transferred from IUT-A to IUT-C via "relay" IUT-B.			
IT702/TC02	An IPM is routed via an intermediate MTA, transferred from IUT-B to IUT-A via "relay" IUT-C.			
IT702/TC03	An IPM is routed via an intermediate MTA, transferred from IUT-C to IUT-B via "relay" IUT-A.			
<b>7,2 Test of special situations</b>				
<b>IT801</b>	<b>Alternate MTA routing</b>			
IT801/TC01	An ATS message (IPM) queued in one MTA (IUT-A) due to outage of the primary X.400 routing path is routed via an alternate MTA (IUT-C).			
IT801/TC02	An ATS message (IPM) queued in one MTA (IUT-B) due to outage of the primary X.400 routing path is routed via an alternate MTA (IUT-A).			
IT801/TC03	An ATS message (IPM) queued in one MTA (IUT-C) due to outage of the primary X.400 routing path is routed via an alternate MTA (IUT-B).			
<b>IT802</b>	<b>Loop detection</b>			
IT802/TC01	IUT-A detects that a message submitted in IUT-A is traversing a loop.			
IT802/TC02	IUT-A detects that a message submitted in IUT-B is traversing a loop.			
IT802/TC03	IUT-A detects that a message submitted in IUT-C is traversing a loop.			
IT802/TC04	IUT-B detects that a message submitted in IUT-A is traversing a loop.			
IT802/TC05	IUT-B detects that a message submitted in IUT-B is traversing a loop.			
IT802/TC06	IUT-B detects that a message submitted in IUT-C is traversing a loop.			
IT802/TC07	IUT-C detects that a message submitted in IUT-A is traversing a loop.			



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AMHS INTEROPERABILITY TRIALS



TEST CASE	TESTED FUNCTIONALITY	RESULT	DATE	REMARKS
IT802/TC08	IUT-C detects that a message submitted in IUT-B is traversing a loop.			
IT802/TC09	IUT-C detects that a message submitted in IUT-C is traversing a loop.			



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## APÉNDICE B

## REQUERIMIENTOS DE INTERCONEXIÓN AMHS Y FECHAS DE IMPLEMENTACIÓN

ESTADO	REQUERIMIENTO DE INTERCONEXIÓN AMHS	FECHA IMPLEMENTACIÓN	OBSERVACIONES
Argentina	Bolivia	Mar 2016	
	Brasil	Dic 2015	Falta implantación operacional
	Chile	TBD	Informado por delegado de Chile durante SAM/IG/13. Se implantará dentro de las consideraciones indicadas en la declaración de Bogotá (diciembre 2016).
	Paraguay	Mar 2012	Implantado
	Perú	Jul 2015	
	Uruguay	Dic 2015	
	Bolivia	Argentina	Mar 2016
Brasil		Abr 2016	
Perú		May 2016	
Brasil	Argentina	Dic 2015	Falta implantación operacional
	Bolivia	Abr 2016	
	Colombia	Dic 2015	
	Guyana	Mar 2016	
	Guyana Francesa	TBD	Falta Implantación AMHS
	Paraguay	Dic 2015	
	Perú	Jul 2015	
	Surinam	Dic 2016	
	Uruguay	Dic 2015	
	Venezuela	Dic 2015	
Chile	Argentina	TBD	Informado por delegado de Chile durante SAM/IG/13. Se implantará dentro de las consideraciones indicadas en la declaración de Bogotá (Diciembre 2016).
	Perú	TBD	Informado por delegado de Chile durante SAM/IG/13. Se implantará dentro de las consideraciones indicadas en la declaración de Bogotá (Diciembre 2016). Chile procedió a la firma del MoU para la implantación de la interconexión AMHS con Perú.

ESTADO	REQUERIMIENTO DE INTERCONEXIÓN AMHS	FECHA IMPLEMENTACIÓN	OBSERVACIONES
Colombia	Brasil	Dic 2015	
	Ecuador	Dic 2015	
	Panamá	Dic 2015	
	Perú	Sep 2010	Implantado
	Venezuela	Jun 2016	
Ecuador	Colombia	Dic 2015	
	Perú	Julio 2012	Implantado
	Venezuela	May 2016	
Guyana Francesa (Francia)	Brasil	TBD	Falta Implantación AMHS
	Venezuela	TBD	Falta Implantación AMHS
Guyana	Brasil	Mar 2016	
	Surinam	Jun 2011	Implantado
	Venezuela	Dic 2016	
Panamá	Colombia	Dic 2015	
Paraguay	Argentina	Mar 2012	Implantado
	Brasil	Dic 2015	
Perú	Argentina	Jul 2015	
	Bolivia	May 2016	
	Brasil	Jul 2014	Falta implantación operacional.
	Chile	TBD	Informado por delegado de Chile durante SAM/IG/13. Se implantará dentro de las consideraciones indicadas en la declaración de Bogotá (Diciembre 2016). Chile procedió a la firma del MoU para la implantación de la interconexión AMHS con Perú.
	Colombia	Sep 2010	Implantado
	Ecuador	Jul 2012	Implantado
	Venezuela	Jun 2016	
Suriname	Brasil	Dic 2016	
	Guyana	Jun 2011	Implantado
	Venezuela	Jun 2016	
Uruguay	Argentina	Dic 2015	
	Brasil	Dic 2015	
Venezuela	Brasil	Dic 2015	
	Colombia	Jun 2016	
	Ecuador	May 2016	

ESTADO	REQUERIMIENTO DE INTERCONEXIÓN AMHS	FECHA IMPLEMENTACIÓN	OBSERVACIONES
	Guyana	Dic 2016	
	Guyana Francesa	TBD	Falta Implantación AMHS
	Perú	Jun 2016	
	Surinam	Jun 2016	