



INTERNATIONAL CIVIL AVIATION ORGANIZATION  
WESTERN AND CENTRAL AFRICAN OFFICE

Twenty first Meeting on the Improvement of Air Traffic Services  
over the South Atlantic (SAT/21)

(Lisbon, Portugal d'Ivoire, 8-10June 2016)

**Agenda Item 3: Communications, navigation and surveillance  
(CNS) (By CNS Working Group)**

**Follow up AMHS interconnection in the SAM Region**  
(Presented by the Secretariat)

<b>EXECUTIVE SUMMARY</b>	
This Working Paper present information of the current status and future AMHS interconnection in the SAM Region at Regional and Interregional level	
<b>Action:</b>	Suggested Action is presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Air Navigation Capacity and Efficiency</li> </ul>
<i>References:</i>	<ul style="list-style-type: none"> <li>• Document 8733 eANP Volume II (December 2015)</li> <li>• Thirteenth meeting of Civil Aviation Authorities of the SAM Region (RAAC/13 Bogotá Colombia 4 -6 December 2013</li> <li>• Seventeenth workshop/meeting of the SAM implementation group (SAMIG/17 Lima Peru 9 to 13 May 2016)</li> </ul>

**1. Introduction**

1.1 The CAR/SAM AMHS requirements are specified in table CNS I of eANP Volume II, and were previously specified in FASID Table CNS 1 A (Vol II of the Regional Air Navigation Plan, Doc 8733). AMHS circuit requirements correspond to the same AFTN circuit requirements specified in eANP table CNS I. All SAM States, with the exception of French Guiana, have already installed AMHS.

2.2 The Bogota Declaration gives priority to implementing the AMHS interconnection, which allows for a greater data transmission capacity in shorter times. Accordingly, the Bogota Declaration stipulates that 23 AMHS interconnections must be implemented during the period 2014-2016.

2.3 With the implementation of AMHS, SAM States have implemented IP digital networks at national level and the REDDIG II IP network at regional level.

## 2 Analysis

2.1 The progress made in the implementation of AMHS interconnection since the last year is reported below. There has been a significant progress in the implementation of AMHS interconnection with respect to previous years.

### *Brasilia - Lima*

2.2 On 14 December 2015, the AFTN circuit between the Brasilia MTA and the Lima MTA was migrated to an AMHS circuit using protocol P1. Thus, Peru has implemented its third operational AMHS, becoming the State with the largest number of AMHS interconnections. The other two AMHS interconnection in Peru are Lima Guayaquil and Lima Bogota .

### *Brasilia - Madrid*

2.3 All AMHS trials between Brazil and Spain (Brasilia MTA-Madrid MTA) through the CAFSAT satellite network had been successfully completed on 14 January 2016. In this regard, all the technical, operational, and managerial personnel of Brazil and Spain involved in the implementation of the interconnection and the trials was commended. It was also reported that Brazil and Spain were coordinating as necessary for the commissioning of this AMHS connection, which would be the first inter-regional AMHS interconnection of the SAM Region.

### *Brasilia - Ezeiza*

2.4 The complete operational test was made with successful result the 18<sup>th</sup> May 2016. The AMHS circuit is connected to the new REDDIG II node of Brasilia that came in operation by the middle of April 2016.

### *Ezeiza - Montevideo*

2.5 On 3 March 2016, Uruguay began initial coordination with Argentina for AMHS interconnection between Ezeiza and Montevideo. AMHS trials between the Ezeiza and Montevideo MTAs started on the week of 21 March 2016. P1 connectivity between Ezeiza and Montevideo had been achieved , and that trials from Montevideo to Ezeiza were still pending.

### *Brasilia - Montevideo*

2.6 This circuit is pending in March 2016, the focal point of Uruguay started to coordinate the implementation of the AMHS interconnection with Brazil.

*Ezeiza - Lima*

2.7 Trials were resumed on the week of 21 March 2016. P1 connectivity between the Ezeiza and the Lima MTAs had been established.

*Lima Caracas*

2.8 On 10 March 2016, AMHS trials between Peru and Venezuela were resumed, attaining P1 connectivity between the Maiquetía and Lima MTAs. P1 connectivity between Peru and Venezuela was achieved with the support of Brazil. Initial message exchange trials through the AMHS (P1) circuit were conducted on 15 March, without satisfactory results. In this regard, the focal point of Peru requested Venezuela to make the necessary corrections so that messages could be processed and delivered to the user without any problems. Trials were conducted on 20 and 21 March, in which some progress was noted, expecting a successful completion as soon as possible.

*Lima - Santiago*

2.9 Coordination started for the implementation of the AMHS interconnection between Chile and Peru. In this regard, the focal point of Peru sent to the focal point of Chile a copy of the Quito MTA configuration to be used by Chile as reference, taking into account that the Santiago AMHS is also from Thales. AMHS interconnection trials between Chile and Peru would be resumed on the week of 21 March 2016.

*Brasilia – United States*

2.10 On 13 January 2016, the focal points of Brazil and United States started coordinating the implementation of the AMHS interconnection through the MEVAIII-REDDIG II interconnection. In this regard, Brazil reviewed a technical letter required by the United States (FAA) for interconnections with other countries. The technical letter covers administrative and operational aspects for the completion of the AMHS interconnection. At present, the technical letter is being reviewed by the United States. Once the technical letter has been finalised and signed, interconnection trials will start.

*Complete status of AMHS Status in the SAM Region*

2.11 . The updated table of AMHS interconnections in the SAM Region appears in **Appendix** to this working paper. The AMHS

Requirements between SAM and AFI Region consist in the following circuits:

Ezeiza Johannesburg  
Brasilia Dakar

***Proposed connection between a SAM AMHS system and SITA***

2.12 During the Fifteenth Workshop/Meeting of the SAM Implementation Group (SAM/IG/15) SITA presented the proposal of AMHS interconnection in the ICAO SAM Region with Brazil. The Meeting recommended that a plan be prepared in accordance with the proposal of interconnection with Brazil.

2.13 The SITA AMHS website is under production since November 2014 and will accept AMHS interconnections with ANSPs as needed. Currently, SITA has completed AMHS interoperability tests with Switzerland and has commitments with Germany, Russia, Thailand, Singapore, and United States to conduct similar tests, under the coordination of the corresponding ICAO regional offices.

2.14 During initial preparation, ICAO address lists of SITA users, as well as traffic with the SAM Region will be shared for review and validation. Likewise, the documents recently prepared as a result of current commitments with other ICAO Regions for AMHS tests and migration will be shared as a contribution to being better prepared.

2.9

**3. Action required**

3.1 The meeting is invited to take note of the information regarding the AMHS interconnection in the SAM Region and analyze the implementation of AMHS requirements between SSAM and AFI Region

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## APPENDIX

## AMHS INTERCONNECTION REQUIREMENT AND DATE OF IMPLEMENTATION

STATES	AMHS INTERCONNECTION REQUIREMENTS	DATE OF IMPLEMENTATION	COMMENTS
Argentina	Bolivia	Dec 2016	
	Brazil	Jun 2016	Pending operational implementation
	Chile	Dec 2016	
	Paraguay	Mar 2012	Implemented
	Peru	Oct 2016	
	Uruguay	Dec 2016	
	Venezuela	Dec 2016	
	Southafrica (Johannesburg)	TBD	
Bolivia	Argentina	Dec 2016	
	Brazil	Dec 2016	
	Peru	Dec 2016	
Brazil	Argentina	Jun 2016	Pending operational implementation
	Bolivia	Dec 2016	
	Colombia	Jul 2016	
	Guyana	Jul 2016	
	French Guiana	TBD	AMHS pending implementation
	Paraguay	Jun 2016	
	Peru	Dec 2015	Implemented 14 December 2015
	Suriname	Dec 2016	
	Uruguay	Oct 2016	
	Venezuela	Dec 2016	
	Senegal (Dakar)	TBD	
Chile	Argentina	Dec 2016	
	Peru	Oct 2016	
Colombia	Brazil	Jul 2016	

	Ecuador	Jul 2016	
	Panama	Dec 2016	
	Peru	Sep 2010	Implemented
	Venezuela	Dec 2016	
Ecuador	Colombia	Jul 2016	
	Peru	Julio 2012	Implemented
	Venezuela	Dec 2016	
French Guiana (France)	Brazil	TBD	AMHS pending implementation
	Venezuela	TBD	AMHS pending implementation
Guyana	Brazil	Jul 2016	
	Suriname	Jun 2011	Implemented
	Venezuela	Dec 2016	
Panama	Colombia	Dec 2016	
Paraguay	Argentina	Mar 2012	Implemented
	Brazil	Jul 2016	
Peru	Argentina	Oct 2016	
	Bolivia	Dec 2016	
	Brazil	Dec 2015	Implemented 14 December 2015
	Chile	Oct 2016	
	Colombia	Sep 2010	Implemented
	Ecuador	Jul 2012	Implemented
	Venezuela	Oct 2016	
Surinamee	Brazil	Dec 2016	
	Guyana	Jun 2011	Implemented
	Venezuela	Dec 2016	
Uruguay	Argentina	Dec 2016	
	Brazil	Oct 2016	
Venezuela	Argentina	Dec 2016	
	Brazil	Dec 2016	
	Colombia	Dec 2016	
	Ecuador	Dec 2016	
	Guyana	Dec 2016	
	French Guiana	TBD	AMHS pending implementation
	Peru	Oct 2016	
	Suriname	Dec 2016	

