



Agenda Item 5: Operational implementation of new ATM automated systems and integration of the existing systems

FOLLOW-UP ON THE PERFORMANCE OF THE AIDC OPERATION IN THE SAM REGION

(Presented by the Secretaría)

SUMMARY	
This working paper presents updated information on AIDC operation in the SAM Region since the twenty-first workshop/meeting of the SAM Implementation Group (SAM/IG/21).	
References:	
<ul style="list-style-type: none">- Report of the Twenty-first workshop/meeting of the SAM implementation group (SAM/IG/21) (Lima, Peru, 21-25 May 2018);- Report of the Meeting on AIDC Implementation in the NAM/CAR/SAM Regions (Lima, Peru, 16-20 April 2018);- Report of the Third meeting on AIDC implementation (AIDC/3 - Lima, Peru, 24-26 April 2017);- Report of the Twentieth workshop/meeting of the SAM implementation group (SAM/IG/20) (Lima, Peru, 16-20 October 2017); and- Summary of the teleconferences to follow-up AIDC implementation (14/12/2017 and 26/01/2018).	
ICAO strategic objectives:	<ul style="list-style-type: none">A – SafetyC – Air navigation capacity and efficiency

1. Background

1.1 The air traffic control centres of the SAM Region have had difficulties for proper coordination of air traffic, which has been identified as a major contributing factor to air traffic incidents, which could be significantly reduced through the interconnection of automated air traffic control systems.

1.2 In this sense and since 2009, a process was started in the SAM Region for the interconnection of ATM automated systems between adjacent ACCs, whose final objective was to:

- Allow for automatic transfer of flight plans between adjacent ATC centres through AIDC.
- Allow for the exchange of surveillance data (mainly radar) in areas of common interest.

1.3 In order to support the interconnection of automated systems, and with the support of regional projects RLA/98/003 and RLA/06/901, visits were made to SAM States to obtain information on the status of ATM automation in ACCs, and on the surveillance systems and their interfaces. As a result of

these visits, the following documents were prepared, which can be found on the following website:

<https://www.icao.int/SAM/Pages/eDocumentsDisplay.aspx?area=CNS>

- Interface Control Document (ICD) for ATS inter-facility data communication in the Caribbean and South American Regions (CAR/SAM AIDC ICD).
- System Interface Control Document (SICD).
- Initial plan for regional interconnection of automated systems in ACCs.
- Preliminary document on automated system requirements (SSS).
- Memorandum of understanding for the implementation of the interconnection of automated systems between two States that have adjacent ACCs.

1.4 Likewise, the Guide for AIDC implementation through the interconnection of automated centres was developed. The updated guide can also be found on the website indicated in paragraph 1.3 of this working paper.

1.5 Likewise, several courses and seminars were conducted. Courses were conducted on the use of ASTERIX protocols to support the implementation of radar data exchange, on-site courses were conducted in Chile, Colombia, Ecuador, Panama, Paraguay and Peru, as well as several surveillance and AIDC seminars.

1.6 In this regard, and as a result of the aforementioned activities, some SAM States prepared and signed memoranda of understanding (MoU) for the interconnection of automated systems. In relation to effective interconnection of automated systems, little progress has been made so far. There is only radar data exchange between Argentina-Uruguay, and radar exchange tests have been conducted between Venezuela-Brazil, Argentina-Chile and Argentina-Paraguay. Regarding the transfer of flight plan data through AIDC, this has been implemented operationally between the Brazilian ACCs, between some Chilean ACCs and pre-operationally in many States of the Region.

2. Discussion

2.1 To monitor AIDC performance, information is provided below on the status in each of SAM States with regard to AIDC implementation between adjacent ACCs, and follow-up to activities for mitigating flight plan errors and duplication/multiplicity:

AIDC implementation between adjacent ACCs in the SAM Region

Argentina

2.2 At national level, the AIDC between the Cordoba ACC and the Ezeiza ACC was in the pre-operational phase since 2015, and the letter of operational agreement between these ACCs had been amended to introduce the operational use of AIDC as primary means. AIDC training for the controllers of the ACCs of Comodoro Rivadavia, Mendoza and Resistencia had been completed in late September 2017.

2.3 AIDC is expected to be operational between all national ACCs by the second semester of 2018. AIDC is expected to be operational with adjacent regional ACCs by 2019.

Bolivia

2.4 ATM system automation is expected to be operational at the main ATS units of Bolivia by 2019. The automated ATM systems to be installed are Thales Topsky. Once automation is operational at ATS units, Bolivia will start coordinating with the ACCs of adjacent States for the conduction of AIDC tests.

Brazil

2.5 During the first quarter of 2018, the SAGITARIO system entered into operation at the Amazon ACC and Atlantico ACC. Thus, Brazil has AIDC in place and in operation between all its national ACCs. Internationally, it is pending the implementation between the Amazon ACC, Atlantic ACC and the Curitiba ACC with adjacent centres in the region.

Chile

2.6 On 16 August 2018, was established the AIDC connection between Iquique ACC and Lima ACC. Positive AIDC tests have been conducted between the Iquique ACC and the Cordoba ACC, which are expected to become operational during 2018-2019. At national level, AIDC connection is operational between the Punta Arenas ACC and the Puerto Montt ACC, and between the Iquique ACC and the Antofagasta APP since mid-2017.

Colombia

2.7 AIDC interconnections implemented at national level (Bogota ACC – Barranquilla ACC) and at intra-regional level (Bogota ACC - Guayaquil ACC, Bogota ACC - Lima ACC and Bogota ACC – Panama ACC) are in the pre-operational phase since late 2015. The letters of operational agreement between the aforementioned ACCs were revised to include the use of AIDC as primary means. An amendment to the letter of operational agreement was signed in November 2016 between the Bogota ACC and the Lima ACC. These AIDC connections were scheduled to become operational by mid-2018.

2.8 Positive operational testing was obtained between Guayaquil ACC and CENAMER, in the first semester of 2017, it is expected to have this connection operational by the end of this year (2018).

Ecuador

2.9 At national level, AIDC between the Guayaquil ACC and the Quito APP became operational in February 2017, for which an amendment to the letter of operational agreement was signed on 1 February 2017 to introduce AIDC as primary means. Positive AIDC tests were conducted between the Guayaquil ACC and the Manta APP and Shell in late 2017, which are expected to become operational by the end of the second semester of 2018.

2.10 At regional level, the AIDC connection between the Guayaquil ACC and the Lima ACC is operational since 16 August 2018. The AIDC connection between the Guayaquil ACC and the Bogota ACC is in the pre-operational phase since August 2015. The letter of operational agreement between these ACCs was amended to introduce AIDC as primary means. I expected to become operational by the end of the first semester of 2018.

2.11 Positive pre-operational tests have been conducted between the Guayaquil ACC and CENAMER during the first quarter of 2017, expecting it to enter the operational phase in 2018.

French Guiana (France)

2.12 In mid-2017, a new ATM automation system, which included AIDC, was installed in the Cayenne ACC. The implementation of AIDC with the ACCs of adjacent States is foreseen for the period 2018-2019.

Guyana

2.13 The implementation of AIDC with the ACCs of adjacent States is scheduled for 2019. To date, Guyana has no AIDC.

Panama

2.14 After Thales updated its software to the TopSky-ATS automated system in July 2017, congestion problems in the flight plan processor of the Panama ACC were solved.

2.15 Panama is migrating to full AMHS connection, since the TopSky-ATC system currently works through the AFTN. Once AMHS trials are completed, pre-operational tests with CENAMER, the Bogota ACC and the Kingston ACC are expected to start. Panama has started discussions with the parties responsible for AIDC in CENAMER, Bogota and Kingston in order to start establishing the respective letters of agreement between adjacent centres, contemplating AIDC as the primary means of flight coordination between adjacent ACCs.

2.15 It is expected that, by the last quarter of 2018, upon completion of the migration from AFTN to AMHS, the AIDC pre-operational phase will be resumed between CENAMER, Bogota and Barranquilla, and the operational phase will start on the second quarter of 2019.

Paraguay

2.16 The updating of the ATM automation system at the Asuncion ACC is still pending. The State is calling for bids for the procurement of a new ATM system. Taking into account the time the process will take, it is estimated that the ATM system will be available by the first quarter of 2019 to resume the tests that had been postponed.

Peru

2.17 Since 16 August 2018, the AIDC connection between the Lima ACC with Iquique ACC and Guayaquil ACC is operational. The AIDC connection with the Bogota ACC is in the pre-operational phase, since August 2015. The Lima centre is still waiting indication from other adjacent States (Bolivia, Brazil and Venezuela) to begin or to go on with the process to establish AIDC connections.

Suriname

2.18 The implementation of AIDC with the ACCs of adjacent States is foreseen for 2019. So far, Suriname has no AIDC.

Uruguay

2.19 The implementation of AIDC with the ACCs of adjacent States is foreseen for the period 2018-2019.

Venezuela

2.20 The implementation of AIDC with the ACCs of adjacent States is foreseen for late 2019. So far, Venezuela has acquired a new ATM automation system bought from ATECH of Brazil (SAGITARIO) that will become operational by the end of the first quarter of 2019. It is scheduled an AIDC training for ATC operators by the end February 2019. Once the automated system has been installed and commissioned, Venezuela will start implementation of AIDC interconnection with adjacent States.

Other considerations on the follow-up to the implementation of the AIDC interconnection

2.21 **Appendix A** presents the list of focal points for coordination of AIDC interconnection between adjacent ACCs.

2.22 The Declaration of Bogota contemplated the operational implementation of 15 AIDC interconnections in the period between 2014 and 2016. To date, nine interconnections are operational: eight internally in Brazil, and one in Chile. Between SAM States, there are four AIDC interconnections in the pre-operational phase, which are expected to become operational during the course of 2018.

Follow-up to actions to mitigate flight plan errors and duplication/multiplicity in the SAM Region

2.23 Regarding progress made in actions to mitigate flight plan errors and duplication/multiplicity, the following can be reported:

Follow-up to the implementation of automated systems for FPL 2012

2.24 Regarding progress made in the implementation of automated systems for FPL 2012, Bolivia has started the implementation of an ATM automation project at ATS units in La Paz, Cochabamba, Santa Cruz and Trinidad, called SIDACTA. The automated system to be installed at these ATS units is Thales TopSky-ATC, to be completed in 2019.

2.25 Likewise, the FDPs of the ACCs of Brasilia and Curitiba were already processing FPL 2012 automatically by the end of the first quarter of 2018, thus eliminating the converters in these centres. The remaining ACCs will be upgraded during the second semester of 2018.

2.26 Peru had also completed in late 2017 the upgrading of the automated system of the Lima ACC (INDRA AIRCON 2100), which, *inter alia*, resolved the limitations in the maximum number of characters in Box 10 of FPL 2012.

2.27 Finally, Venezuela informed that they were expecting to have a new automated system at the Maiquetía ACC by the end of the first quarter of 2019, thus eliminating the FPL2012 converter.

2.28 Based on the analysis of the status of implementation of automated systems in the SAM Region to comply with Amendment 1 to Edition 15 of Doc 4444 (FPL2012), progress made so far in the 27 ACCs of the SAM Region is as follows:

FPL 2012 processing capacity of FDPs of automated system	
Native support to FPL 2012 with smart templates for error detection	74%
Use of FPL 2012 converters	15%
Manual solutions	11%
FPL 2012 processing capacity in AMHS/AFTN terminals	
Native support to FPL 2012 with smart templates for error detection	67%
No capacity	33%

Analysis of flight plan errors and duplication in the SAM Region

2.29 Action taken to mitigate flight plan errors and duplication in SAM States is as follows:

Argentina

2.30 Single addresses to receive FPLs at each ACC of Argentina are to be implemented by late 2020, in compliance with Conclusion SAM/IG/19-2 - *Implementation of procedures to mitigate the duplication/multiplicity of scheduled commercial flight plans.*

Bolivia

2.31 At present, flight plans continue to be filed in physical format (paper). There are plans to implement a system for filing flight plans on-line, via Internet, and through a mobile application in cellular phones.

Brazil

2.32 By the end of 2018, all flight plans will be centralised at the CGNA (Air navigation management centre) through the SIGMA system (Integrated aircraft movement management system).

Chile

2.33 Chile has been in contact with the airlines in order to minimise errors in the generation of flight plans. The internal addressing structure is being reviewed to avoid flight plan multiplicity, and a study has been started for the creation of a national centre to receive flight plans.

Colombia

2.34 Meetings were held with aircraft operators (Avianca, LATAM, Spirit, Viva Colombia, Iberia) in October 2017 regarding procedures for filing flight plans at the international AIS offices rather than directly to the ACCs, in order to avoid flight plan duplication.

Ecuador

2.35 On 22 February 2018, a meeting was held with airline representatives to inform them of the forthcoming adoption of a single national address for receiving flight plans, which will become operational in August 2018.

Panama

2.36 Panama has completed the upgrading of the ATM automation system at the Panama ACC, and in the process of updating the ATC system database.

Paraguay

2.37 Duplicated flight plans continue to be received. Operational training on duplicated flight plans has been provided to the personnel in charge of repairing FPLs. Conversations have been held with some airline dispatchers operating in Paraguay regarding the delivery of duplicated FPLs, especially for flights leaving the airports of the country, where only those issued by the ARO offices were considered as

valid, and they informed that this issue would be reported to their base office. To date, duplicated FPLs continue to be received. Likewise, there are some cases of missing FPLs, especially for overflights.

Peru

2.38 Regarding procedures to mitigate the duplication/multiplicity of scheduled commercial flight plans in SAM States, Peru has already implemented them since late July 2017. In this regard, it has issued aeronautical information circular AIC/05/2017.

2.39 On 14 December 2017 at 15:00 hours, the Aeronautical Information Office received the representatives of JetBue, and the first letter of agreement was signed to transmit flight plans via AMHS at the single address SPIMZPZX, starting on 16 December 2017. So far, 7 letters of agreement had been signed with various airlines. Five additional letters of agreement were to be signed by June 2018 (Copa, AeroMéxico, United, American and Delta).

Venezuela

2.40 Venezuela has implemented, on a pre-operational basis, an IDS centralised automated system for handling flight plans that reduces filing errors. This system has been installed at the ARO office in Maiquetía. Compliance with Conclusion SAMIG/19-2 is expected by the first quarter of 2019.

Other States

2.41 Guyana, French Guiana, Suriname and Uruguay show no progress in the implementation of Conclusion SAMIG/19-2.

3 Suggested action

3.1 The Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) analyse AIDC performance, the progress made in AIDC interconnection between adjacent ACCs in the SAM Region, the updating of focal points for AIDC interconnection coordination, as well as the action taken to mitigate the flight plan errors and duplication in the SAM Region described in Section 2 and Appendixes; and
- c) discuss any other matter it may deem appropriate.

APPENDIX A

(AIDC) GROUND-GROUND DATA INTERCONNECTION LEVEL REQUIREMENTS IN THE SAM REGION

ARGENTINA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels *				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
CORDOBA (AUT. INDRA AIRCON2100) (2007)	IQUIQUE	XI			X	Positive AIDC tests - March 2016 As a result of the tests, the transmission speed has to be incremented from 2400 to 9600 bit/sec AIDC foreseen to be operational at the end of the second semester of 2019.
	LA PAZ	XI			X	AIDC foreseen for period - 2019 -2020
	EZEIZA	XI			XI	AIDC in pre-operational phase since December 2015. Operational phase foreseen by the second semester of 2018
	MENDOZA	XI			X	AIDC pre-operational phase by the second semester of 2018
	RESISTENCIA	XI			X	AIDC pre-operational phase by the second semester of 2018
RESISTENCIA (AUT. INDRA AIRCON2100) (May 2016)	ASUNCION	XI			X	Positive AIDC tests were conducted in 2015 between Ezeiza and Asuncion. Tests between Resistencia and Asuncion were conducted in the end of 2016. AIDC foreseen to be operational by the first semester of 2019.
	CORDOBA	XI			X	AIDC pre-operational by the second semester of 2018
	CURITIBA	XI			X	AIDC foreseen by the first semester of 2019
	EZEIZA	XI			X	AIDC pre-operational by the second semester of 2018

	MONTEVIDEO	XI			X	AIDC foreseen by the first semester of 2019
EZEIZA (AUT. INDRA AIRCON2100) (2007)	COMODORO RIVADAVIA	XI			X	AIDC pre-operational by the second semester of 2018
	MENDOZA	XI			X	AIDC pre-operational by the second semester of 2018
	PUERTO MONTT	XI			X	AIDC by the first semester of 2019
	CORDOBA	XI			XI	AIDC in pre-operational phase since December 2015. Operational phase foreseen by the second semester of 2018
	RESISTENCIA	XI			X	AIDC pre-operational by the second semester of 2018
	JOHANNESBURG	XI			X	AIDC tests foreseen by the second semester of 2017
	MONTEVIDEO	XI			X	AIDC foreseen by the first semester of 2019
MENDOZA (AUT INDRA AIRCON2100) (May 2016)	EZEIZA	XI			X	AIDC pre-operational by the first semester of 2018
	SANTIAGO	XI			X	AIDC foreseen for 2019
	CORDOBA	XI			X	AIDC pre-operational by the second semester of 2018
COMODORO RIVADAVIA (AUT INDRA AIRCON2100) (June 2016)	EZEIZA	XI			X	AIDC pre-operational by the first semester of 2018
	PUNTA ARENAS	XI			X	AIDC by the end of the second semester of 2018
	PUERTO MONTT	XI			X	AIDC by the end of the second semester of 2018

BRAZIL						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
AMAZÓNICO (MANAUS) AUTO. SAGITARIO ATECH	BRASILIA	XI			XI	AIDC implemented June 2016
	BOGOTÁ	XI			X	AIDC operational foreseen by first semester 2018
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019
	CURITIBA	XI			XI	AIDC implemented July 2016
	GEORGETOWN	XI			X	AIDC foreseen for period 2018-2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020

	LIMA	XI			X	AIDC foreseen second semester 2018
	MAIQUETIA	XI	X		X	AIDC foreseen for period 2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2018-2019
	RECIFE	XI			X	AIDC implemented since 2 May 2016
	ATLÂNTICO	XI			X	Second semester 2018
BRASILIA AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			XI	AIDC implemented June 2016
	CURITIBA	XI			XI	AIDC implemented July 2016
	RECIFE	XI			XI	AIDC implemented June 2016
CURITIBA AUTO. SAGITARIO ATECH	AMAZONICO	XI			XI	AIDC implemented July 2016
	ASUNCION	XI			X	AIDC foreseen second semester 2018
	BRASÍLIA	XI			Xi	AIDC implemented July 2016
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	MONTEVIDEO	XI			X	AIDC foreseen for the first semester of 2018
	RECIFE	XI			XI	AIDC implemented July 2016
	RESISTÊNCIA	XI			X	AIDC foreseen by the first semester of 2018
	ATLÂNTICO	XI			X	Implemented on the first quarter of 2018
RECIFE AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			XI	AIDC Implemented on 2 May 2016
	BRASÍLIA	XI			XI	AIDC implemented June 2016
	CURITIBA	XI			XI	AIDC implemented July 2016
	ATLÂNTICO	XI			X	Implemented on the first quarter of 2018
ATLÂNTICO AUTO. SAGITARIO ATECH	AMAZÔNICO	XI			X	Second Semester 2018
	CURITIBA	XI			X	Implemented on the first quarter of 2018
	DAKAR	XI			X	AIDC TBD
	JOHANNESBURG	XI			X	AIDC TBD
	LUANDA	XI			X	AIDC TBD
	MONTEVIDEO	XI			X	AIDC foreseen for period 2018-2019
	RECIFE	XI			X	Implemented on the first quarter of 2018

	CAYENNE	XI			X	AIDC foreseen for period 2018-2019
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BOLIVIA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
LA PAZ (MANUAL)	AMAZÔNICO	XI			X	AIDC foreseen for period 2019 -2020
	ASUNCION	XI			X	AIDC foreseen for period 2019 -2020
	CURITIBA	XI			X	AIDC foreseen for period 2019 -2020
	CORDOBA	XI			X	AIDC foreseen for period 2019 -2020
	LIMA	XI			X	AIDC foreseen for period 2019 -2020
	IQUIQUE	XI			X	AIDC foreseen for period 2019 -2020

CHILE						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
SANTIAGO (AUTO THALES TOPSKY)	IQUIQUE	XI			X	AIDC foreseen for period 2018-2019
	LIMA	XI			X	AIDC foreseen for period 2018-2019
	MENDOZA	XI			X	AIDC foreseen for period 2018-2019
	PUERTO MONTT	XI			X	AIDC foreseen for period 2018-2019
IQUIQUE (AUTO INDRA AIRCON 2100)	CORDOBA	XI			X	Positive AIDC tests - March 2016. Tests results indicate the requirement of increase transmission speed from 2400 to 9600 bit/sec. AIDC operational foreseen by the first semester of 2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	LIMA	XI			XI	Operational since 16 August 2018.
PUERTO MONTT	SANTIAGO	XI			X	AIDC foreseen for period 2018-2019

(INDRA AUTOMATED)	PUNTA ARENAS	XI			X	AIDC operational since mid-2017
	EZEIZA	XI			X	AIDC by the first semester of 2019
	COMODORO RIVADAVIA	XI			X	AIDC by the second semester of 2018
PUNTA ARENAS (INDRA AUTOMATED)	PUERTO MONTT	XI			X	AIDC operational since mid-2017
	COMODORO RIVADAVIA	XI			X	AIDC by the second semester of 2018

COLOMBIA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
BOGOTÁ (AUTO INDRA AIRCON 2100)	AMAZÓNICO	XI			X	AIDC operational foreseen first semester 2018
	CENAMER	XI			X	AIDC foreseen for period 2018-2019
	GUAYAQUIL	XI			XI	Positive AIDC tests conducted AIDC in pre-operational phase (August 2015). Implementation foreseen first semester 2018.
	LIMA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational (August 2015) Operational letter of agreement incorporating AIDC was signed on November 2016 Operational phase foreseen first semester 2018
	MAIQUETIA	XI			X	AIDC foreseen for period 2018-2019
	PANAMA	XI			X	Positive AIDC tests conducted. AIDC foreseen to be operational by first semester 2018.
	BARRANQUILLA	XI			XI	AIDC pre-operational (March 2016)
	BARRANQUILLA (AUTO INDRA AIRCON 2100)	MAIQUETIA	XI			X
PANAMA		XI			X	Positive AIDC tests conducted.

						AIDC foreseen to be operational by first semester 2018.
	BOGOTA	XI			XI	AIDC pre-operational (March 2016)
	KINGSTON	XI			X	AIDC TBD
	CURAÇAO	XI			X	AIDC TBD
APP Rio Negro (AIRCON 2100)	PANAMA	XI			X	Tests on first semester 2018
APP Cali (AIRCON 2100)	PANAMA	XI			X	Tests on first semester 2018

ECUADOR						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
GUAYAQUIL AUTO INDRA AIRCON 2100	BOGOTA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational (August 2015) implementation foreseen first semester 2018
	LIMA				XI	Operational since 16 August 2018.
	CENAMER	XI			X	Positive AIDC tests conducted. AIDC foreseen for period 2018-2019

FRENCH GUIANA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
CAYENNE AUTO ADACEL AIDC not installed	AMAZÔNICO	XI			X	AIDC foreseen for period 2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2017-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	DAKAR	XI			X	AIDC foreseen for period 2018-2019
	ATLANTICO	XI			X	AIDC foreseen for period 2018-2019

GUYANA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
GEORGETOWN AUTO INTELCAN AIDC not installed	AMAZONICO	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	MAIQUETIA	XI			X	AIDC foreseen for period 2018-2019
	PARAMARIBO	XI			X	AIDC foreseen for period 2018-2019

PANAMA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
PANAMA (AUTO THALES)	BOGOTA	XI			X	Still in pre-operational phase. It is required to coordinate letters of agreement based on AIDC. The operational phase of the AMHS connection is foreseen and the tests carried out
	BARRANQUILLA	XI			X	Still in pre-operational phase. It is required to coordinate letters of agreement based on AIDC. The operational phase of the AMHS connection is foreseen and the tests carried out.
	CENAMER	XI			X	Positive AIDC tests have been performed under the AFTN network. The pre-operational phase will now be resumed under the AMHS network.
	APP CALI	XI			X	Tests on second semester 2019.
	APP RIO NEGRO	XI			X	Tests on second semester 2019.

	KINGSTON	XI			X	Waiting for Kingston Control to start with pre operational phase
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PARAGUAY						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
ASUNCION AUTO AIRCON 2100 INDRA	CURITIBA	XI			X	AIDC foreseen for second semester 2019
	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
	RESISTENCIA	XI			X	Positive AIDC tests conducted in 2015 between Ezeiza and Asuncion. Tests between Resistencia and Asuncion were conducted in late 2016. AIDC foreseen to be operational by the first semester 2019.

PERU						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
LIMA AUTO AIRCON 2100 INDRA	AMAZONICO	XI			X	AIDC foreseen to be operational by second semester 2018
	BOGOTA	XI			XI	Positive AIDC tests conducted. AIDC pre-operational phase (August 2015). Amendment to the operational agreement including the AIDC signed in November 2016. Operational phase foreseen first semester 2018
	SANTIAGO	XI			X	AIDC foreseen for period 2018-2019
	IQUIQUE	XI			XI	Operational since 16 August 2018.
	GUAYAQUIL	XI			XI	Operational since 16 August 2018.

	LA PAZ	XI			X	AIDC foreseen for period 2019-2020
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SURINAME						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
PARAMARIBO (AUTO INTELCAN) AIDC not installed	AMAZÓNICO	XI			X	AIDC foreseen for period 2018-2019
	GEORGETOWN	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC foreseen for period 2018-2019
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019

URUGUAY						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
MONTEVIDEO (AUTO INDRA AIRCON2100)	CURITIBA	XI			X	AIDC foreseen by first semester 2018
	EZEIZA	XI			X	AIDC foreseen by the first semester 2019
	RESISTENCIA	XI			X	AIDC foreseen by first semester 2019
	ATLANTICO	XI			X	AIDC foreseen for period 2018-2019
	JOHANNESBURG	X			X	AIDC TBD

VENEZUELA						
ACC	ACC ADJ	Flight plan				Comments
		Interconnection levels				
		1 4444 Manual	2 4444 Auto	3 (OLDI)	4 (AIDC)	
MAIQUETIA (AUTO ATECH X4000) AIDC not installed	AMAZONICO	XI	XI		X	AIDC foreseen for period 2018-2019
	BOGOTA	XI			X	AIDC foreseen for period 2018-2019
	BARRANQUILLA	XI			X	AIDC foreseen for period 2018-2019
	PIARCO	XI			X	AIDC TBD
	CAYENNE	XI			X	AIDC foreseen for period 2018-2019
	CURAZAO	XI			X	AIDC TBD
	SAN JUAN	XI			X	AIDC TBD

* X PLANNED

*XI IMPLEMENTED AND IN PRE-OPERATIONAL OR OPERATIONAL PHASE

APPENDIX B

PLAN OF ACTIVITIES FOR THE IMPLEMENTATION OF THE AIDC INTERCONNECTION BETWEEN ADJACENTS ACCs

Activity	Start	End	Responsible	Status
1. Establishment of initial activities for completing the technical implementation of AIDC	10/10/14	16/10/14	ICAO	Completed
1.1 Based on the results of AIDC tests conducted from February 2014 to June 2014, the technical documentation of the automated systems installed in the Region, and the SAM AIDC implementation guide, develop:				The initial plan of activities for AIDC implementation is scheduled for 2015. The plan of activities contemplates the conduction of AIDC courses for air traffic controllers working at ACCs and the operational implementation of AIDC between adjacent ACCs. These activities will be conducted in Chile, Colombia, Ecuador and Peru. Interconnection tests between the Lima and Bogota ACCs were added to the list shown in paragraph 1.1.1.
1.1.1 Plan of activities to complete technical feasibility tests for AIDC interconnection between: Santiago ACC - Lima ACC Guayaquil ACC - Lima ACC Bogota ACC - Guayaquil ACC	10/10/14	16/10/14	ICAO	
1.1.2 Contents of AIDC course for ATS controllers and programmers of AIDC automated system databases, to be conducted in Chile, Colombia, Ecuador and Peru.				
2. Review of activities at the SAM/IG/14 meeting	09/10/14	13/11/14	ICAO and SAM/IG group	Completed
2.1 Submission of the plan of activities and contents of the AIDC course at the SAM/IG/14 meeting	09/10/14	13/11/14	ICAO	The SAM/14 reviewed and approved the plan of activities for AIDC implementation
2.2 Review and approval for submission at the Eighth Coordination Meeting of Project RLA/06/901	09/10/14	13/11/14	SAM/IG	
3. Approval of activities by the RCC/8 meeting	25/02/15	27/02/15	RLA/06/901 member States	Completed
3.1 Submission of activities, with their respective cost, for approval.	25/02/15	27/02/15	RLA/06/901 member States	The RCC/8 meeting held in Lima on 25-27 February 2015 approved the activities for initial implementation of AIDC interconnection in Chile,

Activity	Start	End	Responsible	Status
				Colombia, Ecuador and Peru.
4. Search and selection of experts	24/11/14	28/01/15	ICAO	Completed For the performance of the initial activities, three SAM experts with experience in database programming and operation of ACC automated systems were selected: Rubén Silva of Argentina, Mauricio Ferrer of Colombia, and Jorge Merino of Peru.
4.1 Search and selection of 4 experts from SAM States participating in Project RLA/06/901, with experience in the installation, operation and programming of AIDC databases, to perform the activities listed in item 1.	24/11/14	28/01/15	ICAO	
5. Missions to complete AIDC interconnection between States that started tests during the first semester of 2014	06/04/15	01/05/15	3 automation experts ICAO	Completed Missions were conducted for training purposes and to complete tests for AIDC interconnection and operation in Chile, Peru, Ecuador and Colombia.
5.1 Mission to Santiago de Chile	06/04/15	10/04/15	3 automation experts ICAO	Completed Implementation of AIDC activities at the Santiago ACC • AIDC practical course AIDC interconnection tests between: <i>Santiago ACC and Lima ACC</i>
5.1.1 Complete AIDC technical implementation between the Santiago and Lima ACCs	06/04/15	10/04/15		Completed Two-way communication was established in the AIDC interconnection tests between the Thales Top sky system of the Santiago ACC and the INDRA Aircon 2100 of the Lima ACC. The operational
5.1.2 Conduct AIDC course for ATS personnel of the Santiago ACC	06/04/15	10/04/15	3 automation experts ICAO	

Activity	Start	End	Responsible	Status
				<p>tests did not have positive results due to the AIDC limitations in the Santiago ACC.</p> <p>The practical course on AIDC and database programming was conducted, providing training to 16 controllers of the Santiago ACC and 2 aeronautical technicians.</p>
<p>5.2 Mission to Lima:</p>	<p>13/04/15</p>	<p>17/04/15</p>	<p>3 automation experts</p>	<p>Completed Implementation of AIDC activities in the Lima ACC</p> <ul style="list-style-type: none"> • AIDC practical course • AIDC interconnection tests between: <p><i>Lima ACC - Santiago ACC</i> <i>Lima ACC - Guayaquil ACC</i> <i>Lima ACC - Bogota ACC</i></p>
<p>5.2.1 Conduct AIDC course for ATS personnel of the Lima ACC</p>	<p>13/04/15</p>	<p>17/04/15</p>		<p>Completed The practical course on AIDC and database programming was conducted, providing training to 44 controllers of the Lima ACC.</p>
<p>5.2.2 Complete AIDC tests between the Lima ACC and the Guayaquil ACC</p>	<p>13/04/15</p>	<p>17/04/15</p>	<p>3 Automation experts ICAO</p>	<p>Completed AIDC tests between the Lima and Guayaquil ACCs were successfully conducted.</p>
<p>5.2.3 Complete AIDC tests between the Lima ACC and the Bogota ACC</p>	<p>13/04/15</p>	<p>17/04/15</p>		<p>Completed AIDC tests between the Lima and Bogota ACCs were successfully conducted.</p>

Activity	Start	End	Responsible	Status
5.3 Mission to Guayaquil	20/04/15	24/04/15	3 Automation experts of the SAM Region	Completed Implementation of AIDC activities at the Guayaquil ACC <ul style="list-style-type: none"> • Practical course on AIDC • AIDC interconnection tests and pre-operational implementation: Guayaquil ACC - Lima ACC Guayaquil ACC- Bogota ACC
5.3.1 Complete AIDC technical implementation between the Guayaquil ACC and the Lima ACC	20/04/15	24/04/15		Completed AIDC technical interconnection was completed, currently in the pre-operational phase.
5.3.2 Complete AIDC technical implementation between the Guayaquil ACC and the Bogota ACC	20/04/15	24/04/15	3 automation experts of the SAM Region	Completed AIDC technical interconnection was completed, currently in the pre-operational phase
5.3.3 Conduct AIDC course for ATS personnel of the Guayaquil ACC	20/04/15	24/04/15		Completed The practical course on AIDC and database programming was conducted, providing training to 31 controllers of the Guayaquil ACC.
5.4 <i>Mission to Bogota</i>	27/04/15	01/05/15	3 automation experts	Completed Implementation of AIDC activities in the Bogota ACC <ul style="list-style-type: none"> • Practical course on AIDC • AIDC interconnection tests and pre-operational implementation: <i>Guayaquil ACC - Lima ACC</i>

Activity	Start	End	Responsible	Status
				<i>Guayaquil ACC - Bogota ACC</i>
5.4.1 Complete AIDC technical implementation between the Bogota ACC and the Guayaquil ACC	27/04/15	01/05/15	3 automation experts of the SAM Region	Completed The AIDC technical interconnection was completed, currently in pre-operational phase
5.4.2 Complete AIDC technical implementation between the Bogota ACC and the Lima ACC	27/04/15	01/05/15		Completed The AIDC technical interconnection was completed, currently in pre-operational phase
6. First meeting of the AIDC operational implementation working group during the SAMIG/15 meeting	11/05/15	15/05/15	RLA/06/901 member States	Completed. As a result of AIDC technical implementation, the SAM/IG/15 established a group of activities to migrate from the pre-operational phase to the operational between the ACC Bogota, Guayaquil and Lima. Additionally, the AIDC messages to be used were defined.
6.1 It is proposed that, as a matter of priority, the SAM/IG/15 meeting do the follow-up of AIDC implementation. Accordingly, the AIDC operational implementation working group will hold its first meeting.	11/05/15	15/05/15	RLA/06/901 member States	
7. AIDC operational implementation ACC Guayaquil ACC Lima ACC Bogota ACC Guayaquil ACC Lima ACC Bogota ACC Lima ACC Iquique	18/05/15	31/12/18	Involved States	Since 16 August 2018 were established the following AIDC connectios: ACC Guayaquil-ACC Lima and ACC Iquique-ACC Lima
7.1 Definition of the parameters of the AIDC database for the to AID operational interconnection between Colombia, Ecuador and Peru	25/05/15	29/05/15	Involved States	Completed.
7.2 Amend letter of operational agreement to include the AIDC for the coordination between the ACC Lima with AAC Bogota, ACC	15/06/15	30/06/18	Involved States	Valid. Letter of operational agreement

Activity	Start	End	Responsible	Status
Bogota with ACC Guayaquil and ACC Lima with ACC Guayaquil				between the ACC Guayaquil and ACC Lima was amended and signed. (Oct 2015). On Nov 2016, final review and sign of letter of operational agreement between ACC Lima and ACC Bogota was completed. Pending amendment of letter of agreement between ACC Bogota and ACC Guayaquil.
7.3 Teleconferences to coordinate and follow-up the migration from the AIDC pre-operational phase to the operational for Colombia, Ecuador and Peru	June 2014	Monthly Teleconferences at the beginning of each month until end 2018 depending on the progress, teleconference will be conducted upon needs	Involved States ICAO	Valid. Teleconferences are been carried out on monthly basis since June 2014. On 2016 teleconferences were conducted on: 19 January 23 May 19 February 3 June 18 March 6 September On 2017 teleconferences were held on March 2, June 28, August 24 and December 14. On 2018 one teleconference was held on January 26 and on July .
7.4 Complete courses for the ACC Lima and Guayaquil, Bogotá ATS staff as well as staff ARO/AISe	18/05/15	30/12/17	Involved States	Completed.
7.5 Preoperational and operational Implementation of AIDC Guayaquil ACC - Lima ACC Bogota ACC - Guayaquil ACC Lima ACC - Bogota ACC Lima ACC – Santiago ACC*	18/05/15	31/12/17	States involved	Valid. Letter of operational agreement with corrections on AIDC between ACC Colombia, Ecuador, Panama and Peru were amended (October 2015).

Activity	Start	End	Responsible	Status
Lima ACC – Iquique ACC				<p>Letter of operational agreement between AAC Lima and Guayaquil with the inclusion of AIDC was signed on 23 October 2015. Letter came into force on 31 March 2016.</p> <p>Establishing of a pre-operational period completing the ATS staff training.</p> <p>Operational implementation. AIDC between ACC Lima - ACC Guayaquil in operational phase from August 3, 2015, became operative on 31 March 2016. AIDC operations interrupted on September 2016 due to AIRCON 2100 system problems in Lima ACC. Automated system of Lima was completed by the end of 2017.</p> <p>The AIDC between the ACC Bogota and the ACC Lima and ACC Guayaquil is still in pre-operational phase since May, 2015.</p> <p>* The AIDC operational implementation between the ACC Lima and ACC Santiago has postponed in view of the</p>

Activity	Start	End	Responsible	Status
				delay in the modernization of the ACC Santiago automated Center (2017-2019). AIDC connections between Iquique ACC – Lima ACC and Guayaquil ACC – Lima ACC operational since 16 August 2018.
8. Other AIDC implementations Bogota ACC - Panama ACC Ezeiza ACC - Montevideo ACC Resistencia ACC - Asunción ACC Curitiba ACC – Resistencia ACC Iquique ACC – Lima ACC Cordoba ACC – Iquique ACC Amazonico ACC – Bogota ACC Amazonico ACC – Lima ACC Asuncion ACC – Curitiba ACC	18/05/15	31/12/18	States involved	AIDC connections between Iquique ACC – Lima ACC operational since 16 August 2018.
8.1 Definition of parameters of the AIDC database for the operational interconnection of the AIDC		29/12/16	States involved	Valid Defined for AIDC between: Bogota ACC-Panama ACC, Iquique ACC-Cordoba ACC and Resistencia ACC-Asuncion ACC.
8.2 Amendment of letter of operational agreement to include the AIDC for coordination between ACCs.		30/06/18	States involved	Valid
8.3 Carry out teleconferences for coordination and follow-up to the migration from the AIDC pre-operational to operational fase		Monthly tele-conferences at the begining of each month	States involved ICAO	Valid Teleconferences conducted 19 January 23 May 19 February 3 June 18 March 6 September

Activity	Start	End	Responsible	Status
		until the end of 2018 Depending on the progress tele-conferences will be conducted upon need		For 2017 teleconferences are foreseen for March, (made on 3 March) July, September and December. Three teleconferences were carried out in 2018 (January, July and November).
8.4 Practical courses addressed to the ATS AIS CNS personnel of the ACC involved, interconnection AIDC		30/11/16	States involved OACI	Completed AIDC Course (Panamá 22 -26 June) 2015 AIDC Course (Paraguay 28 November to 2 December 2016).
8.5 Conduction of AIDC interconnection test between adjacents ACCs		30/12/17	States involved	Valid Successful AIDC interconnection tests between Bogota and Panama. (June 2015). Tests will continue during 2017 in view of the improvement made in the automated system of Panama ACC. AIDC tests Iquique ACC and Lima ACC were successfully conducted on December 2015 and continued until the end of 2017. AIDC tests Iquique ACC and

Activity	Start	End	Responsible	Status
				<p>Cordoba ACC were made in February 2016 with positive results but the ABI message. Tests will continue one end-2017 since Argentina reported that AIDC domestic operations will be completed first.</p> <p>AIDC tests Amazonico ACC and Lima ACC were conducted on the second semester of 2018 with problems with ABI messages at the beginning which were overcome by the Company Atech. Tests will continue on first semester 2018.</p> <p>AIDC tests Ezeiza ACC and Montevideo ACC (first semester 2018).</p> <p>AIDC tests Asuncion ACC and Resistencia ACC were made during the week of 28 November 2016 and will restart at the beginning of 2020.</p> <p>AIDC tests Curitiba ACC and Resistencia ACC (end of the second semester 2017).</p> <p>AIDC tests Curitiba ACC and Asuncion ACC (first semester</p>

Activity	Start	End	Responsible	Status
				2017). AIDC tests Bogota AAC and Amazonico ACC (First semester 2018)
8.6 Implantation of pre-operational and operational AIDC		31/12/17	States involved	<p>Valid</p> <p>AIDC between Bogota ACC and Panama ACC is in pre-operational phase since October 2015. Operational phase foreseen by the end of the second semester 2019.</p> <p>AIDC between Ezeiza ACC and Montevideo ACC in pre-operational phase foreseen by June 2018 and in operational phase by the end of the second semester 2019.</p> <p>AIDC between Asuncion ACC and Resistencia ACC in pre-operational phase and operational by the end of first semester 2019.</p> <p>AIDC between Iquique ACC and Lima ACC will be in pre-operational phase on May 2018 and operational phase on the end of first semester 2018.</p> <p>AIDC between Iquique ACC</p>

Activity	Start	End	Responsible	Status
				<p>and Cordoba ACC in pre-operational phase and will be on operational phase by the end of first semester 2019.</p> <p>AIDC between Curitiba ACC and Resistencia ACC in pre-operational and operational phases by the first semester 2019.</p> <p>AIDC between Amazonico ACC and Lima pre-operational phase on second semester 2018.</p> <p>AIDC between Amazonico ACC and Bogota ACC foreseen operational phase by the end of first semester 2018.</p> <p>AIDC between Asuncion ACC and Curitiba ACC operation phase foreseen by second semester 2021.</p>
9. Workshop/Seminars on implementation of ATM automation	22/09/15	31/12/19		
9.1 Workshop/Seminars on implementation of ATM automation	22/09/15	23/10/15		<p>Completed</p> <p>NAM/CAR/SAM Workshop held in Panama from 22 to 25 September 2015.</p> <p>The implementation of interregional AIDC interconnections was analysed.</p>

Activity	Start	End	Responsible	Status
9.2 Workshops/Seminars on AIDC implementation		June 2019	ICAO	Valid.
10. Second meeting of the AIDC operational implementation working group during SAMIG/16	19/10/15	23/10/15	ICAO	Completed
10.1 It is proposed, as a matter of priority, the SAM/IG/16 meeting do the follow-up of AIDC implementation. Accordingly, the second meeting of the AIDC operational implementation working group will be held.	19/10/15	23/10/15	ICAO	Completed Follow-up was made on the operational implementation and programming of activities for operational implementation in 2016.
11. AIDC Implementation meetings 2018-2020	01/01/18	31/12/20	Involved States ICAO	Valid
11.1 Implementation of remaining AIDC interconnections at inter-regional level (Chart CNS II-3 – Plan of ATS voice circuits of the CAR/SAM Air Navigation Regional Plan Volume II eANP) and 8 inter-regional distributed as follows: Colombia (Barranquilla-Kingston, Barranquilla-Curacao and Bogota-CENAMER), Ecuador (Guayquil-CENAMER) and Venezuela (Maiquetia-Piarco, Josefa Camejo – Aruba and Maiquetia-San Juan).	01/01/17	31/12/19	Involved States ICAO	Valid
11.2 Inter-regional AIDC interconnections between SAM and AFI Regions: Argentina (1), Brazil (2), French Guiana (1) and Uruguay (1)	01/01/17	31/12/20	Involved States ICAO	Valid
12. Introduction of FF ICE concept	18/04/17	31/12/19		
12.1 Analysis of the application of B1-FICE Module in the Region: Increasing interoperability, efficiency and capability through FF ICE. First stage of application before exit.	18/04/18	31/12/2019	SAM Region States and ICAO	Valid
13. Monitoring to the AIDC interconnection implementation	2015	2020	ICAO	
13.1 AIDC Implementation Meeting ✓ First AIDC Implementation Meeting	March 2016	September 2020	ICAO	Valid AIDC/1 (Lima, Peru, 28-30 March 2016)

Activity	Start	End	Responsible	Status
<ul style="list-style-type: none">✓ Second AIDC Implementation Meeting✓ Third AIDC Implementation Meeting✓ Fourth AIDC Implementation Meeting✓ Fifth AIDC Implementation Meeting✓ Sixth AIDC Implementation Meeting				AIDC/2 (Lima, Peru, 21-23 September 2016) AIDC/3 (Lima, Peru, 24-26 April 2017) Approved by RCC/10 AIDC/4 (Lima, Peru, 16-20 April 2018) AIDC/5 (Lima, Peru, September 2019) AIDC/6 (Lima, Peru, September 2020)

APPENDIX C / APÉNDICE C

NATIONAL FOCAL POINTS IN SAM REGION / PUNTOS FOCALES NACIONALES EN REGIÓN SAM

IMPLEMENTATION OF INTERCONNECTION OF AUTOMATED SYSTEMS / IMPLANTACIÓN INTERCONEXIÓN SISTEMAS AUTOMATIZADOS

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STATE/ ESTADO	ADMINISTRATION / ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
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	SURINAM/ SURINAME				

STATE/ ESTADO	ADMINISTRATION / ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
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APPENDIX D**RECOMMENDATIONS FORMULATED DURING THE MEETING OF IMPLEMENTATION OF AIDC IN THE NAM/CAR/SAM REGIONS (Lima, Peru, 16 to 20 April 2018) TO COMPLETE THE OPERATIONAL IMPLEMENTATION OF AIDC*****RECOMMENDATION AIDC/1.- Increase efforts to complete AIDC operational implementation***

That NAM/CAR/SAM States, taking into account the information provided by the GREPECAS GTE that shows the significant contribution of AIDC to the reduction of LHDs, increase their AIDC implementation efforts, aiming at the operational implementation of AIC systems. Likewise, that States, through their task forces, promote the exchange of lessons learned regarding AIDC implementation.

RECOMMENDATION AIDC/2.- Consider the recommendations of manufacturers and States regarding AIDC implementation

That NAM/CAR/SAM States examine and use as a reference the document containing the integrated recommendations made at the Meeting by Indra Systems, Thales, and ATECH, which is shown in Appendix D of the Meeting Report, as well as the weaknesses identified by the regional AIDC implementation working groups, with a view to expediting and coordinating the implementation of AIDC interconnections.

RECOMMENDATION AIDC/3.- List of AMHS staff

That the NAM/CAR/SAM States update the contact information of the AMHS technicians of their States/FIRs to have an updated version of the AMHS technical management contact list and that the ICAO NAM/CAR and SAM Offices ensure that this information is available on their WEB pages with the aim of obtaining an updated version to coordinate, as soon as possible, any necessary action with those centers with which messaging is exchanged and traffic is permanently monitored, establishing maximum time between consecutive messages processed, as well as how to check permanently reports of non-delivery reports (NDR) generated by messaging systems, mainly those that are not related to unknown addresses.

- *See Appendix E on the next page of this Appendix*

APPENDIX E**INTEGRATED RECOMMENDATIONS FROM INDRA SYSTEMS, THALES AND ATECH**

Recommendations for the implementation of AIDC in the latest generation systems of suppliers:

- Indra Systems SA and ATECH recommend that Brazil establish a work plan in conjunction with Colombia and Peru in order to coordinate tests as of mid-July 2018 when the new ATECH system is implemented in the Amazonian FIR, which has latest software version "SAGITARIO" and which has among its improvements the management capacity of FPL2012 and the latest implementations in the AIDC protocol. Currently the Indra Systems of Colombia and Peru have technical support and guarantee.
- According to our experience, we consider that the new software versions of the systems contemplate all the necessary parameters for the correct coordination of the systems with the AIDC protocol. If any State considers that some parameter should be implemented in the future, it can make its consultation or suggestion so that the suppliers can indicate if they have this possibility or if it can be implemented as per request within a new contract.
- Indra Systems SA will study in the short term two lines of work to be presented to ICAO.
 - o Will study improvement formulas for the training of qualified personnel in their systems.
 - o Proposal for homologation of systems to a common target

Recommendations before bidding:

- Clearly define the protocol, version to be used, and establish in the specification the level of coordination with which it should communicate with each adjacent state.
- It is recommended to specify in the specifications any operational case that is considered to be implemented.

Short-term recommendations for states:

- That all states have systems with FPL2012 capacity.
- Have specific contracts of support and guarantee for the AIDC operational implementation.

Recommendations to ICAO for the prior validation of a system:

- It is recommended that ICAO develop a semantic validation tool for different protocols and versions that allows providers to validate their systems autonomously.
- Incorporate technical and operational courses to the working meetings of the states.

For the certification of technicians:

- It is recommended that technicians have continuous training. These courses of refreshment should be oriented mainly to the operation staff of the systems that will in turn give greater support to the controllers.
- It is recommended that technicians be more involved in operational and conceptual aspects of the operation of an ATC system.
- Theoretical-practical exam in specific operating systems in the country or control center.

- Theoretical-practical exam of the working mode of the installed system (supplier application).

Recommendations to ICAO regarding queries from system suppliers:

- The NACC and SAM Offices should designate a focal point to respond to clarification requests regarding ICD specifications from the system suppliers. ICAO clarifications should be distributed to all providers of AIDC systems.
