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 Secretariat)

SUMMARY

This working paper presents updated information on AIDC operation in the SAM Region since the twenty-second workshop/meeting of the SAM Implementation Group (SAM/IG/22).

References:

- Report of the Twenty-second workshop/meeting of the SAM implementation group (SAM/IG/21) (Lima, Peru, 19-23 November 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); and
- Report of the Twentieth workshop/meeting of the SAM implementation group (SAM/IG/20) (Lima, Peru, 16-20 October 2017).

ICAO strategic objectives:	*A – Safety* *C – Air navigation capacity and efficiency*

1. Background

1.1 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.

1.2 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.

1.3 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.

1.4 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.

1.5 In this regard, and as a result of the aforementioned activities, some SAM States prepared and signed memorandum of understanding (MoU) for the interconnection of automated systems. In relation to effective interconnection of automated systems, little progress has been made so far. Only 12 AIDC communications are operational, out of 76 AIDC connections planned. The **Appendix A** to this working paper shows all necessary AIDC connections to be established.

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, as informed in the last Implementation Group Meeting (SAM/IG/22):

Argentina

2.2 At the national level, the AIDC between Ezeiza and Aeroparque is in the Operational phase. The AIDC between the ACC of Córdoba and the Ezeiza ACC remains in the pre-operational phase since 2015, and among the other internal ACCs since 2018, having being amended the letters of operational agreement between the national ACCs with the introduction of operational use of AIDC as the primary means of coordination. Also, in September 2017, AIDC training was completed for the controllers of the ACCs of Comodoro, Rivadavia, Mendoza and Resistencia.

2.3 The AIDC was 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.

2.4 Regardless of these plans, the automated systems in Argentina are in a position to proceed with the initiation of technical interconnection tests with the regional ACCs.

2.5 Table 1 presents all AIDC connections between the automated centres of Argentina and adjacent centres.

Centre A	Centre B	General Table	Notes
Córdoba ACC	Iquique ACC	1	
	La Paz ACC	2	
	Ezeiza ACC	3	Pre-operational (Dec 2015)
	Mendoza ACC	4	Pre-operational (Dec 2018)
	Resistencia ACC	5	Pre operational (Dec 2018)
Resistencia ACC	Asuncion ACC	6	
	Curitiba ACC	7	
	Ezeiza ACC	8	Pre operational (Dec 2018)
	Montevideo ACC	9	
Ezeiza ACC	Comodoro Rivadavia ACC	10	Pre operational (Dec 2018)
	Mendoza ACC	11	Pre operational (Dec 2018)
	Puerto Montt ACC	12	
	Johannesburg ACC	13	
	Montevideo ACC	14	
Mendoza ACC	Santiago ACC	15	
Comodoro Rivadavia ACC	Punta Arenas ACC	16	
	Puerto Montt ACC	17	

Table 1 – AIDC connections of Argentina

Bolivia

2.6 An automated Thales ATM system Model Topsky is being implemented in Bolivia's main ATS units, which is expected to enter into operation by the second half of 2019. However, the manufacturer indicated that the system purchased does not include the module that allows AIDC functionality. Bolivia is managing the budget for the acquisition of the necessary module from the manufacturer Thales, which has generated a delay in the AIDC implementation plans. Date will be set once an agreement with the manufacturer is arranged.

2.7 Table 2 presents all AIDC connections between the automated centres of Bolivia and adjacent centres.

Centre A	Centre B	General Table	Notes
La Paz ACC	Amazonico ACC	18	
	Asuncion ACC	19	
	Curitiba ACC	20	
	Córdoba ACC	(2)	
	Lima ACC	21	
	Iquique ACC	22	

Table 2 – AIDC connections of Bolivia

Brazil

2.8 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.

2.9 Internationally, it is in the pre-operational phase the AIDC connection between the Amazon ACC and Lima ACC, since 06 September 2018. It is pending the implementation between the Atlantic ACC and the Curitiba ACC with adjacent centres in the region.

2.10 Table 3 presents all AIDC connections between the automated centres of Brazil and adjacent centres.

Centre A	Centre B	General Table	Notes
Amazon ACC	Brasilia ACC	23	Operational since 2017
	Bogota ACC	24	
	Cayenne ACC	25	
	Curitiba ACC	26	Operational since 2017
	Georgetown ACC	27	
	La Paz ACC	(18)	
	Lima ACC	28	Pre-operational since 2017
	Maiquetia ACC	29	

Centre A	Centre B	General Table	Notes
	Paramaribo ACC	30	
	Recife ACC	31	Operational since 2016
	Atlantic ACC	32	Operational since 2018
Atlantic ACC	Amazon ACC	(32)	Operational since 2018
	Curitiba ACC	33	Operational since 2018
	Dakar ACC	34	
	Johannesburg ACC	35	
	Luanda ACC	36	
	Montevideo ACC	37	
	Recife ACC	38	Operational since 2018
	Cayenne ACC	39	
Brasilia ACC	Amazon ACC	(23)	Operational since 2017
	Curitiba ACC	40	Operational since 2016
	Recife ACC	41	Operational since 2016
Curitiba ACC	Amazon ACC	(26)	Operational desde 2017
	Asunción ACC	42	
	Brasilia ACC	(40)	Operational since 2016
	La Paz ACC	(20)	
	Montevideo ACC	43	
	Recife ACC	44	Operational since 2016
	Resistencia ACC	(7)	
	Atlantic ACC	(33)	Operational since 2018

Centre A	Centre B	General Table	Notes
Recife ACC	Amazon ACC	(31)	Operational since 2016
	Brasilia ACC	(41)	Operational since 2016
	Curitiba ACC	(44)	Operational since 2016
	Atlantic ACC	(38)	Operational since 2016

Table 3 – AIDC connections of Brazil

Chile

2.11 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.

2.12 Table 4 presents all AIDC connections between the automated centres of Chile and adjacent centres.

Centro A	Centro B	General Table	Notes
Santiago ACC	Iquique ACC	45	
	Lima ACC	46	
	Mendoza ACC	(15)	
	Puerto Montt ACC	47	
Iquique ACC	Córdoba ACC	(1)	
	La Paz ACC	(22)	
	Lima ACC	48	Operational since 2018
	Santiago ACC	(45)	
Puerto Montt ACC	Santiago ACC	(47)	
	Punta Arenas ACC	49	
	Ezeiza ACC	(12)	
	Comodoro Rivadavia ACC	(17)	

Centro A	Centro B	General Table	Notes
Punta Arenas ACC	Puerto Montt ACC	(49)	Operational desde 2017
	Comodoro Rivadavia ACC	(16)	

Table 4 – AIDC connections of Chile

Colombia

2.13 The AIDC interconnections implemented at the national level (ACC Bogotá - ACC Barranquilla) and intraregional (ACC Bogotá - ACC Guayaquil, ACC Bogotá - ACC Lima and ACC Bogotá - ACC Panama), are in the pre-operational phase since the end of 2015. Proceeded to review the operational letters of agreement between the aforesaid ACCs with the introduction of the use of the AIDC as primary means. In November 2016, the amendment of the letter of operational agreement was signed between the Bogota ACC and the Lima ACC. It was expected that the AIDC connections between the ACC Bogota with the ACC Lima, and ACC Bogotá with ACC Guayaquil, to be in operational phase by August of 2018, and with the ACC Panama for the first half of 2019.

2.14 Table 5 presents all AIDC connections between the automated centres of Colombia and adjacent centres.

Centre A	Centre B	General Table	Notes
Bogota ACC	Amazon ACC	(24)	
	CENAMER	50	
	Guayaquil ACC	51	Pre-operational since 2015
	Lima ACC	52	Pre-operational since 2015
	Maiquetia ACC	53	
	Panama ACC	54	
	Barranquilla ACC	55	Pre-operational since 2016
Barranquilla ACC	Maiquetia ACC	56	
	Panamá ACC	57	
	Bogota ACC	(55)	Pre-operational since 2016
	Kingston ACC	58	
	Curacao ACC	59	

Centre A	Centre B	General Table	Notes
Rio Negro APP	Panama ACC	(23)	
Cali APP	Panama ACC	(38)	

Table 5 – AIDC connections of Colombia

Ecuador

2.15 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.

2.16 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. It is expected to become operational by the first semester of 2019.

2.17 Positive pre-operational tests were conducted between the ACC of Guayaquil and CENAMER in the first quarter of 2017. The solution of a technical aspect regarding the sending requirement of Box 18 in the ABI message by the automated CENAMER system, is pending, whose system rejects the messages generated by the automated system of the Guayaquil ACC, which do not include or process Box 18 in the ABI message, while the automated system of ACC CENAMER requires that this information be included. Once this problem has been overcome with the intervention of the manufacturer (Indra), it is expected that by the end of 2019 it will be possible to migrate to the operational phase.

2.18 Table 6 presents all AIDC connections between the automated centres of Ecuador and adjacent centres.

Centre A	Centre B	General Table	Notes
Guayaquil ACC	Bogota ACC	(51)	Pre-operational since 2015
	Lima ACC	62	Operational since 2018
	CENAMER	63	Pre-operational since 2015

Table 6 – AIDC connections of Ecuador

French Guiana (France)

2.19 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

2019-2020.

2.20 Table 7 presents all AIDC connections between the automated centres of French Guiana and adjacent centres.

Centre A	Centre B	General Table	Notes
Cayenne ACC	Amazon ACC	(25)	
	Paramaribo ACC	64	
	Piarco ACC	65	
	Dakar ACC	66	
	Atlantic ACC	(39)	

Table 7 – AIDC connections of French Guiana

Guyana

2.21 The AIDC functionality is currently disabled in the automated INTELCAN system. Conversations have been initiated with the manufacturer to enable this functionality. The AIDC capacity is expected to be available from 2020.

2.22 Table 8 presents all AIDC connections between the automated centres of Guyana and adjacent centres.

Centre A	Centre B	General Table	Notes
Georgetown ACC	Amazon ACC	(27)	
	Piarco ACC	67	
	Maiquetia ACC	68	
	Paramaribo ACC	69	

Table 8 – AIDC connections of Guyana

Panama

2.23 Coordination was made with the AIDC managers of CENAMER, Bogotá and Kingston to establish the respective Letters of Agreement between the adjacent ACCs. At present, the pre-operational phase between the Panama ACC with the Bogotá, Barranquilla and CENAMER ACCs has been maintained, and some inconveniences have arisen due to the fact that the operational staff has not been performing the AIDC pre-operational tests correctly (the manual coordination was maintained without leaving operate the AIDC automatically).

2.24 It is expected that the necessary agreements will be signed to migrate to the operational phase between CENAMER, Bogotá and Barranquilla, and to make the effective migration to the operational phase in the second quarter of 2019. It should be mentioned that, so far, testing between Rio Negro Control and Medellin Control, have not been done.

2.25 Table 9 presents all AIDC connections between the automated centres of Panama and adjacent centres.

Centre A	Centre B	General Table	Notes
Panama ACC	Bogota ACC	(54)	Pre-operational since 2017
	Barranquilla ACC	(57)	Pre-operational since 2017
	CENAMER	70	Pre-operational since 2017
	Cali APP	(61)	
	Rio Negro APP	(60)	
	Kingston ACC	71	

Table 9 – AIDC connections of Panamá

Paraguay

2.26 Paraguay has acquired a new ATM System, ATECH SAGITARIO. Taking into consideration the period required for the installation and commissioning, the new ATM system is foreseen to be operating by the second semester 2019, to resume the postponed tests.

2.27 Table 10 presents all AIDC connections between the automated centres of Paraguay and adjacent centres.

Centre A	Centre B	General Table	Notes
Asuncion ACC	Curitiba ACC	(42)	
	La Paz ACC	(19)	
	Resistencia ACC	(6)	

Table 10 – AIDC connections of Paraguay

Peru

2.28 The AIDC is in operational phase between Lima ACC and Guayaquil ACC (Ecuador) and Iquique ACC (Chile) since 18 August 2018. The connection with Bogota remains pre-operational since August 2015 and foreseen operational before the end of 2019. Likewise, the pre-operational phase with Amazonico began on 6 September 2018. Instructions are expected from Bolivia and Chile (Santiago ACC Oceanic ACC) to begin or continue the process of AIDC connection with the Lima ACC.

2.29 Table 11 presents all AIDC connections between the automated centres of Peru and adjacent centres.

Centre A	Centre B	General Table	Notes
Lima ACC	Amazon ACC	(28)	Pre-operational since 2018
	Bogota ACC	(52)	Pre-operational since 2015
	Santiago ACC	(46)	
	Iquique ACC	(48)	Operational since 2018
	Guayaquil ACC	(62)	Operational since 2018
	La Paz ACC	(21)	

Table 11 – AIDC connections of Perú

Suriname

2.30 Suriname does not have AIDC. The implementation with the ACC of adjacent States is foreseen by the period 2019-2020.

2.31 Table 12 presents all AIDC connections between the automated centres of Suriname and adjacent centres.

Centre A	Centre B	General Table	Notes
Paramaribo ACC	Amazon ACC	(30)	
	Georgetown ACC	(69)	
	Piarco ACC	72	
	Cayenne ACC	(64)	

Table 12 – AIDC connections of Surinam

Uruguay

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

2.33 Table 13 presents all AIDC connections between the automated centres of Urugauay and adjacent centres.

Centre A	Centre B	General Table	Notes
Montevideo ACC	Curitiba ACC	(43)	
	Ezeiza ACC	(14)	
	Resistencia ACC	(9)	
	Atlantic ACC	(37)	
	Johannesburg ACC	73	

Table 13 – AIDC connections of Uruguay

Venezuela

2.34 The AIDC implementation with ACCs of adjacent States is foreseen by the end of 2019. At present, Venezuela does not have AIDC. It was informed that by the end of the first quarter of 2019 a new ATM automated system will enter into operation. This system has been purchased to company ATECH Brazil (SAGITARIO System). Once the automated system is installed and in operation, Venezuela will begin the AIDC implementation interconnection with adjacent States.

2.35 Table 14 presents all AIDC connections between the automated centres of Venezuela and adjacent centres.

Centre A	Centre B	General Table	Notes
Maiquetia ACC	Amazon ACC	(29)	
	Bogota ACC	(53)	
	Barranquilla ACC	(56)	
	Piarco ACC	74	
	Curacao ACC	75	
	San Juan ACC	76	

Table 14 – AIDC connections of Venezuela

Puntos Focales AIDC

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

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, to coordinate AIDC implementation as described in Section 2 and Appendixes; and

c) discuss any other matter it may deem appropriate.

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APENDICE A / APPENDIX A

COMUNICACIÓN AIDC – REGIÓN SAM / AIDC COMMUNICATION – SAM REGION

Num.	Centro A / Centre A	Centro B / Centre B	Operativa en / Operational in	Observaciones / Notes
1	Córdoba ACC INDRA AIRCON 2100 (2007)	Iquique ACC INDRA AIRCON 2100		Pruebas positivas (marzo de 2016)/Positive tests (March 2016)
2	Córdoba ACC INDRA AIRCON 2100 (2007)	La Paz ACC Thales TopSky		Previsión para 2020-2021/Estimation for 2020-2021
3	Córdoba ACC INDRA AIRCON 2100 (2007)	Ezeiza ACC INDRA AIRCON 2100 (2007)		Pre-operacional (Dic 2015)/Pre-operational (Dec 2015)
4	Córdoba ACC INDRA AIRCON 2100 (2007)	Mendonza ACC INDRA AIRCON 2100 (2016)		Pre-operacional (Dic 2018)/Pre-operational (Dec 2018)
5	Córdoba ACC INDRA AIRCON 2100 (2007)	Resistencia ACC INDRA AIRCON 2100 (2016)		Pre-operacional (Dic 2018)/Pre-operational (Dec 2018)
6	Resistencia ACC INDRA AIRCON 2100 (2016)	Asuncion ACC ATECH SAGITARIO (2019)		Previsión para 2020/Estimation for 2020
7	Resistencia ACC INDRA AIRCON 2100 (2016)	Curitiba ACC ATECH SAGITARIO		Previsión para 2019/Estimation for 2019
8	Resistencia ACC INDRA AIRCON 2100 (2016)	Ezeiza ACC INDRA AIRCON 2100 (2007)		Pre-operacional (Dic 2018)/Pre-operational (Dec 2018)
9	Resistencia ACC INDRA AIRCON 2100 (2016)	Montevideo ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
10	Ezeiza ACC INDRA AIRCON 2100 (2007)	Comodoro Rivadavia ACC INDRA AIRCON 2100 (2016)		Pre-operacional (Dic 2018)/Pre-operational (Dec 2018)
11	Ezeiza ACC INDRA AIRCON 2100 (2007)	Mendonza ACC INDRA AIRCON 2100 (2016)		Pre-operacional (Dic 2018)/Pre-operational (Dec 2018)
12	Ezeiza ACC INDRA AIRCON 2100 (2007)	Puerto Montt ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
13	Ezeiza ACC INDRA AIRCON 2100 (2007)	Johannesburg ACC		Previsión para 2020/Estimation for 2020
14	Ezeiza ACC INDRA AIRCON 2100 (2007)	Montevideo ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
15	Mendoza ACC INDRA AIRCON 2100 (2016)	Santiago ACC Thales TopSky		Previsión para 2019/Estimation for 2019

Num.	Centro A / Centre A	Centro B / Centre B	Operativa en / Operational in	Observaciones / Notes
16	Comodoro Rivadavia ACC INDRA AIRCON 2100 (2016)	Punta Arenas ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
17	Comodoro Rivadavia ACC INDRA AIRCON 2100 (2016)	Puerto Montt ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
18	La Paz ACC Thales TopSky	Amazónico ACC ATECH SAGITARIO		Previsión para 2020-2021/Estimation for 2020-2021
19	La Paz ACC Thales TopSky	Asuncion ACC ATECH SAGITARIO (2019)		Previsión para 2020-2021/Estimation for 2020-2021
20	La Paz ACC Thales TopSky	Curitiba ACC ATECH SAGITARIO		Previsión para 2020-2021/Estimation for 2020-2021
21	La Paz ACC Thales TopSky	Lima ACC INDRA AIRCON 2100 (2016)		Previsión para 2020-2021/Estimation for 2020-2021
22	La Paz ACC Thales TopSky	Iquique ACC INDRA AIRCON 2100		Previsión para 2020-2021/Estimation for 2020-2021
23	Amazónico ACC ATECH SAGITARIO	Brasilia ACC ATECH SAGITARIO	2017	
24	Amazónico ACC ATECH SAGITARIO	Bogotá ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
25	Amazónico ACC ATECH SAGITARIO	Cayenne ACC ADACEL		Previsión para 2019-2020/Estimation for 2019-2020
26	Amazónico ACC ATECH SAGITARIO	Curitiba ACC ATECH SAGITARIO	2017	
27	Amazónico ACC ATECH SAGITARIO	Georgetown ACC INTELCAN		Previsión para 2019-2020/Estimation for 2019-2020
28	Amazónico ACC ATECH SAGITARIO	Lima ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
29	Amazónico ACC ATECH SAGITARIO	Maiquetia ACC ATECH SAGITARIO (2019)		Previsión para 2019-2020/Estimation for 2019-2020
30	Amazónico ACC ATECH SAGITARIO	Paramaribo ACC INTELCAN		Previsión para 2019-2020/Estimation for 2019-2020
31	Amazónico ACC ATECH SAGITARIO	Recife ACC ATECH SAGITARIO	2016	
32	Amazónico ACC ATECH SAGITARIO	Atlántico ACC ATECH SAGITARIO (2017)	2018	

Num.	Centro A / Centre A	Centro B / Centre B	Operativa en / Operational in	Observaciones / Notes
33	Atlántico ACC ATECH SAGITARIO (2017)	Curitiba ACC ATECH SAGITARIO	2018	
34	Atlántico ACC ATECH SAGITARIO (2017)	Dakar ACC		Previsión para 2019/Estimation for 2019
35	Atlántico ACC ATECH SAGITARIO (2017)	Johannesburg ACC		Previsión para 2019-2020/Estimation for 2019-2020
36	Atlántico ACC ATECH SAGITARIO (2017)	Luanda ACC		Previsión para 2019-2020/Estimation for 2019-2020
37	Atlántico ACC ATECH SAGITARIO (2017)	Montevideo ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
38	Atlántico ACC ATECH SAGITARIO (2017)	Recife ACC ATECH SAGITARIO	2018	
39	Atlántico ACC ATECH SAGITARIO (2017)	Cayenne ACC ADACEL		Previsión para 2019-2020/Estimation for 2019-2020
40	Brasilia ACC ATECH SAGITARIO	Curitiba ACC ATECH SAGITARIO	2016	
41	Brasilia ACC ATECH SAGITARIO	Recife ACC ATECH SAGITARIO	2016	
42	Curitiba ACC ATECH SAGITARIO	Asuncion ACC ATECH SAGITARIO (2019)		Previsión para 2019/Estimation for 2019
43	Curitiba ACC ATECH SAGITARIO	Montevideo ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
44	Curitiba ACC ATECH SAGITARIO	Recife ACC ATECH SAGITARIO	2016	
45	Santiago ACC Thales TopSky	Iquique ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
46	Santiago ACC Thales TopSky	Lima ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
47	Santiago ACC Thales TopSky	Puerto Montt ACC INDRA AIRCON 2100		Previsión para 2019/Estimation for 2019
48	Iquique ACC INDRA AIRCON 2100	Lima ACC INDRA AIRCON 2100	2018	
49	Puerto Montt ACC INDRA AIRCON 2100	Punta Arenas ACC INDRA AIRCON 2100	2017	

Num.	Centro A / Centre A	Centro B / Centre B	Operativa en / Operational in	Observaciones / Notes
50	Bogotá ACC INDRA AIRCON 2100	CENAMER		Previsión para 2019/Estimation for 2019
51	Bogotá ACC INDRA AIRCON 2100	Guayaquil ACC INDRA AIRCON 2100		Pre-operacional desde 2015/Pre-operational since 2015
52	Bogotá ACC INDRA AIRCON 2100	Lima ACC INDRA AIRCON 2100		Pre-operacional desde 2015/Pre-operational since 2015
53	Bogotá ACC INDRA AIRCON 2100	Maiquetia ACC ATECH SAGITARIO (2019)		Previsión para 2019-2020/Estimation for 2019-2020
54	Bogotá ACC INDRA AIRCON 2100	Panamá ACC Thales TopSky		Previsión para 2019/Estimation for 2019
55	Bogotá ACC INDRA AIRCON 2100	Barranquilla ACC INDRA AIRCON 2100		Pre-operacional desde 2016/Pre-operational since 2016
56	Barranquilla ACC INDRA AIRCON 2100	Maiquetia ACC ATECH SAGITARIO (2019)		Previsión para 2019-2020/Estimation for 2019-2020
57	Barranquilla ACC INDRA AIRCON 2100	Panamá ACC Thales TopSky		Previsión para 2019/Estimation for 2019
58	Barranquilla ACC INDRA AIRCON 2100	Kingston ACC		
59	Barranquilla ACC INDRA AIRCON 2100	Curacao ACC		
60	Rio Negro APP INDRA AIRCON 2100	Panamá ACC Thales TopSky		Previsión para 2019/Estimation for 2019
61	Cali APP INDRA AIRCON 2100	Panamá ACC Thales TopSky		Previsión para 2019/Estimation for 2019
62	Guayaquil ACC INDRA AIRCON 2100	Lima ACC INDRA AIRCON 2100	2018	
63	Guayaquil ACC INDRA AIRCON 2100	CENAMER		Situación de la Casilla 18 en el mensaje ABI/Field 18 of ABI message
64	Cayenne ACC ADACEL	Paramaribo ACC INTELCAN		Previsión para 2019-2020/Estimation for 2019-2020
65	Cayenne ACC ADACEL	Piarco ACC		
66	Cayenne ACC ADACEL	Dakar ACC		Previsión para 2019-2020/Estimation for 2019-2020

Num.	Centro A / Centre A	Centro B / Centre B	Operativa en / Operational in	Observaciones / Notes
67	Georgetown ACC INTELCAN	Piarco ACC		
68	Georgetown ACC INTELCAN	Maiquetia ACC ATECH SAGITARIO (2019)		Previsión para 2019-2020/Estimation for 2019-2020
69	Georgetown ACC INTELCAN	Paramaribo ACC INTELCAN		Previsión para 2019-2020/Estimation for 2019-2020
70	Panamá ACC Thales TopSky	CENAMER		Previsión para 2019/Estimation for 2019
71	Panamá ACC Thales TopSky	Kingston ACC		
72	Paramaribo ACC INTELCAN	Piarco ACC		
73	Montevideo ACC INDRA AIRCON 2100	Johannesburg ACC		Previsión para 2019-2020/Estimation for 2019-2020
74	Maiquetia ACC ATECH SAGITARIO (2019)	Piarco ACC		
75	Maiquetia ACC ATECH SAGITARIO (2019)	Curacao ACC		
76	Maiquetia ACC ATECH SAGITARIO (2019)	San Juan ACC		

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APPENDIX B / APÉNDICE B

NATIONAL FOCAL POINTS IN SAM REGION / PUNTOS FOCALES NACIONALES EN REGIÓN SAM
IMPLEMENTATION OF INTERCONNECTION OF AUTOMATED SYSTEMS / IMPLANTACIÓN INTERCONEXIÓN SISTEMAS AUTOMATIZADOS

STATE/ ESTADO	ADMINISTRATION/ ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
ARGENTINA	EANA	Javier Schenk	Gerente CNS EANA	Cel (54911) 5848 6936	Jschenk@eana.com.ar
		Osvaldo Oscar Godoy	Jefe ANS Subregional Ezeiza	(5411) 4480 2309 Cel (54911) 2883 6444	ogodoy@eana.com.ar
		Daniel Coria	Coordinador nacional sistema automatizados	Cel (54911) 3594 2686	dcoria@eana.com.ar
		Mario Correa	Jefe Departamento de vigilancia	(5411) 4320 3955 Cel (54911) 5460 9199	mccorrea@eana.com.ar
	ANAC	Diego Agüero	Técnico automatización	(5411) 5941 3000 Ext.69-128 Cel (54911) 2258 7836	daguero@anac.gob.ar
BOLIVIA	DGAC	Jaime Yuri Álvarez Miranda	Jefe Unidad CNS	(5912) 2444450 Ext. 2651	jalvarez@dgac.gob.bo
BRAZIL/ BRASIL	DECEA	Luiz Antonio dos Santos	Asesor ATM	(5521) 2101 6088	luizantoniolas@decea.gov.br
		Murilo Loureiro	Asesor sistemas automatizados	(5521) 2101 6658	loureiromal@decea.gov.br
		Rochelly de Miranda Correa	Especialista ATC – SUBDEPARTAMENTODE OPERAÇÕES (SDOP)	(5521) 21016197	rochellyrmc@decea.gov.br
COLOMBIA	UAEAC	Harlen Mejía	Jefe de Aeronavegación		harlen.mejia@aerocivil.gov.co
		Adriana Murillo	Especialista ATM sistemas automatizados		adriana.murillo@aerocivil.gov.co

STATE/ ESTADO	ADMINISTRATION/ ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
CHILE	DGAC	Pedro Pastrian	Especialista radar y sistemas automatizados	(562)2 836 4005 (56) 981571040	ppastrian@dgac.gob.cl
		Christian Vergara	Especialista comunicaciones	(562) 2836-4005 (56) 998886452	cvergara@dgac.gob.cl
		Gustavo Cáceres Moraga	Controlador Tránsito Aéreo Ofc. Operaciones ACCS	(56) 991581853 (562) 28364018	gcaceres@dgac.gob.cl
ECUADOR	DAC	Juan Poalasín	Controlador ACC Guayaquil Radar	(593) 2947400 ext 2130 (593) 998318034	juan.poalasin@aviacioncivil.gob.ec
		Jorge Zúñiga	Programación FDP y coordinaciones	(593) 2947400 ext 4520 +593 993067547	jorge.zuniga@aviacioncivil.gob.ec
		Eugenio Espinoza	Controlador ACC Guayaquil Radar	(593) 981269823	eugenio.espinoza@aviacioncivil.gob.ec
GUYANA					
GUYANA FRANCESA / FRENCH GUIANA	Service de la Navigation Aérienne aux Antilles-Guyane (SNA-AG)	Michel Areno	Head French Guiana ACC	(594) 6944 55617	michel.areno@aviation-civile.gouv.fr
PANAMA	Autoridad Aeronáutica Civil (AAC)	Mario Antonio Facey Howard	Especialista radar y sistemas automatizados	(507) 315 9852/65	mfacey@aeronautica.gob.pa
		Bernabé Rodríguez Martínez	Controlador de Tránsito Aéreo de Aérea Radar	(507) 315 9850/52 / 66610967	bernaber@aeronautica.gob.pa
		Moises Mela	Controlador Tránsito Aéreo Panama ACC	(507) 315 9850/52 (507) 662 94270	mmela@aeronautica.gob.pa
		Arístides Villarreal	Gerente de estación de servicio de vuelo Tocumen	(507) 238 2603 (507) 621 81043	avillarreal@aeronautica.gob.pa

STATE/ ESTADO	ADMINISTRATION/ ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
PARAGUAY	DINAC	Digno Nelson Cardozo González	Técnico Especialista en Radar y Sistemas Automatizados	(595) 217585016 Cel (595) 961779106	nechicar@gmail.com
		Diego Ramón Aldana Fernández	Supervisor ACC/APP	(595)21 752719 (59) 596169 2104	diegoaldana@gmail.com
PERÚ	CORPAC	Johnny Ávila	Jefe Área de sistemas de vigilancia aérea	(511) 230-1545	javila@corpac.gob.pe
		Jorge Eduardo Merino Rodríguez	Especialista ATM Controlador de Tránsito Aéreo	(51 1) 230-1383 (511) 575-1995 Cel (51) 99737407	jmerino@corpac.gob.pe jemr69@yahoo.com
		Jaime Arturo Contreras Benito	Coordinador Operativo del Centro de Control	(511) 630 1154 Cel (51) 948 463 081	jcontreras@corpac.gob.pe
		Raul Anastacio Granda	Supervisor Comunicaciones AMHS-AFTN Área de Comunicaciones Fijas Aeronáuticas	(511) 230-1424	ranastacio@corpac.gob.pe
		Mario Matos Rivera	Especialista CNS	(511) 2301000 Ext.1211	mmatos@corpac.gob.pe
	DGAC	Sady Beaumont Valdez	Inspector de Navegación Aérea	(511) 6157880	sbeaumont@mtc.gob.pe
		Giuliano Guzman Vera	Inspector de navegación aérea	511 6157880	gguzman@mtc.gob.pe
		Sara Siles La Rosa	Inspector de navegación aérea	(511) 6157880 Cel (51) 978 598 481	ssiles@mtc.gob.pe
SURINAM/ SURINAME					

STATE/ ESTADO	ADMINISTRATION/ ADMINISTRACIÓN	NAME/ NOMBRE	POST/ CARGO	TELEPHONE/ TELEFONO	E-MAIL
URUGUAY	DINACIA	Antonio Lupacchino	Especialista CNS sistemas automatizados	(598) 2604-0408 Ext.4520	alupacch@yahoo.com.ar
		Gustavo Turcatti	Jefe Departamento Operativo de Tránsito Aéreo	(598) 2604-0408 Ext.5111	blantur@gmail.com
VENEZUELA	INAC	Jean Carlos Lozano Garcia	Controlador tránsito aéreo ACC Maiquetía	(58 416) 7226428	jclozgar@hotmail.com
		Wilfredo Omar Gil Sánchez..	CTA JEFE II	(58 414) 3475804	w.gil@inac.gob.ve, willjet66@gmail.com

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