



Agenda Item 3

CNS Developments

- 3.5 Review of the planning and implementation of surveillance systems.**
- 3.6 Radar data sharing among neighbouring ATS units**

**REVIEW OF THE SURVEILLANCE SYSTEMS AND RADAR DATA SHARING
IMPLEMENTATION PLANS IN THE CAR REGION**

(Presented by the Secretariat)

SUMMARY
This working paper presents a review of the planning status for the implementation of surveillance systems; also, it presents proposals for the implementation of new surveillance systems.
Strategic Objectives: <i>This paper is related to strategic objectives A and D.</i>
References: • Reports of the GREPECAS/12, 13 and 14 Meetings • Global Air Navigation Plan. (Doc 9750 AN/968) • CAR/SAM Regional Air Navigation Plan. (Doc 8733)

1. Introduction

1.1 The GREPECAS/12 Meeting held in Havana, Cuba from 7 to 11 June 2004, reviewed and proposed an amendment to the surveillance systems plan contained in Table CNS 4A of the FASID and consequently drafted Conclusion 12/50 – *Amendment to FASID Table CNS 4A (Surveillance Regional Plan) – Surveillance Systems*. The Meeting also noted that Table CNS 4A did not contain the requirements for the ADS-C and ADS-B surveillance functions.

1.2 The CNS Committee of the GREPECAS ATM/CNS Subgroup carried out studies on the implementation of ADS-C and ADS-B in the CAR/SAM Regions. These studies took into account the status of SARPs and ICAO guidance materials; the Administration initiatives on planning and implementation of these systems; the declarations and goals of the industry's surveillance roadmap; the identification of potential airspace for the ADS-B implementation; the analysis of information on the current planning and aircraft fleet capacity operating in the CAR/SAM Regions; and in the Fifth Meeting of the CNS Committee developed a Preliminary Regional Strategy for the ADS-C and ADS-B implementation.

1.3 The GREPECAS/13 Meeting, held in Santiago, Chile from 14 to 18 November 2005, took note of the results of the ADS-C and ADS-B implementation study made by the CNS Committee of the ATM/CNS Subgroup. Likewise, it drafted Conclusion 13/53 – *Information request on aircraft capability to operate SSR in Mode S, ADS and ADS-B*, through which requested the aforementioned information to IATA and collected information from Aeronautical Administrations regarding the needs of the ATC automation systems to support ADS-B.

1.4 Additionally, the GREPECAS drafted Conclusion 13/87 – *ADS-B Trials Programme in the CAR/SAM Regions*, which urges Aeronautical Administrations to collaborate with airspace users to establish and implement ADS-B trial programmes in order to improve the knowledge on ADS-B and evaluate benefits for air traffic management in the CAR/SAM Regions.

1.5 The GREPECAS/14 Meeting took note that the Global Air Navigation Plan (Doc 9750 – AN/963), established Global Plan Initiative GPI-09 – *Situational awareness*, which provides guidelines for the application of data link-based surveillance (ADS-C, ADS-B and SSR in Mode S). GPI-09 is included in **Appendix A** to this paper.

1.6 As a result of the work performed by the CNS Committee, which was based on the guidelines set forth in the Global Air Navigation Plan, specifically GPI-09, **Appendix B** to this paper presents the revision to the *Preliminary CAR/SAM Regional Strategy for the ADS-C and ADS-B Systems Implementation in the short, medium and long terms*, which was adopted by the GREPECAS/14 Meeting. When reviewing this strategy, the GREPECAS agreed it would be convenient to integrate the elements into a unified regional strategy for surveillance system implementation.

1.7 Considering the potential airspaces for the ADS-C and ADS-B implementation which were identified by the GREPECAS mechanism, the updated table of initiatives for ADS-C and ADS-B deployment in the CAR Region is presented in **Appendix C** to this paper.

1.8 The GREPECAS/14 Meeting recalled that Conclusion 13/87, directed States/Territories/International Organizations, in collaboration with air space users, to establish and execute an ADS-B trials programme using available services and technology, in order to improve the knowledge on ADS-B and to assess the benefits for air traffic management in the CAR/SAM Regions. In this respect, it was agreed that the proposed task should involve different activities and that representatives of international organizations and industry need to collaborate in order to carry out the technical and operational assessments to establish optimized solutions for implementation options.

1.9 The impact of the ADS-B trials would provide more accurate information about the operational use of the system as a support for surveillance, giving new perspective to States' implementation plans. These trials and the related aspects (necessary infrastructure, specific ATC procedures, applied technologies, statistics, etc.) should be monitored under project methodology in order to provide results that can be properly assessed and presented for the consideration of GREPECAS.

1.10 The GREPECAS/14 Meeting took note about the regional ADS-B Service Concept and FANS developments in the CAR/SAM Regions. Also, the Meeting noted information about the United States' Automatic Dependent Surveillance – Broadcast (ADS-B) programme, which is being carried out in domestic airspace, applying this technology as a surveillance solution for air traffic control and users in a cost effective manner and with improved surveillance performance. Also, Cuba informed GREPECAS that they are performing reception trials of ADS-B signals from aircraft overflying the Havana FIR and presented the ADS-B data collected at the Havana ACC.

1.11 Additionally, the GREPECAS/14 Meeting took note of the development of multilateration and its growing number of world-wide installations for the surveillance of vehicles and aircraft at airports, as well as in terminal and en-route areas.

1.12 Also, the GREPECAS Meeting took note that the ground implementation of Mode S secondary surveillance radars (SSR) should be prioritized at the en-route and terminal areas with high traffic density and that each State/Territory/International Organization should assess current traffic density in their respective terminal and en-route areas, as well as that expected for the next ten years and the useful life of the SSR currently installed in terminal areas.

1.13 In order to continue developing the regional plan for Surveillance systems, including SSR in Mode S, as well as the use of Mode S for ADS-B applications, and to follow-up on the studies of the multilateration system and contribute to necessary coordination, the GREPECAS/14 Meeting proposed to initiate further actions by the ATM/CNS Subgroup and its Committees. These actions could be integrated with the strategy for the implementation of ADS-C and ADS-B and a general surveillance plan containing all the required surveillance applications could be developed and harmonised with the Global Air Navigation Plan. **Appendix D** to paper contains a list of preliminary elements in order to develop a regional consolidated strategy for the implementation of surveillance systems.

1.14 IATA informed the GREPECAS/14 that member airlines are providing support for the implementation of ADS-B and that they have requested the fleet capability for ADS-B, GNSS and others according to the routes operating in the CAR/SAM Regions.

1.15 Considering the implementation initiatives for ADS-C and ADS-B systems, as well as the results of the study on the Regional implementation of other surveillance systems, the GREPECAS/14 Meeting updated Table CNS 4A of the FASID – Surveillance Systems. **Appendix E** to this paper presents the results as a proposal for amendment. Notwithstanding, the Meeting agreed that it is required to continue with the review of this plan, mainly to add more details relevant to the planning of new surveillance systems.

1.16 ICAO, with the collaboration of Trinidad and Tobago, is organizing a NAM/CAR/SAM Surveillance Systems Seminar, which will be held in combination with this Meeting from 18 to 20 June 2007, targeted for States/Territories/International Organizations from the NAM, CAR and SAM Regions to provide updated information and explanations on ICAO standardized surveillance systems, as well as new surveillance systems in process of being studied and standardized, to increase and improve the knowledge for the implementation of these systems according to required performance, depending on the different scenarios.

1.17 Regarding the radar data sharing, the C/CAR and E/CAR Radar Data Sharing Task Forces are preparing work related to the radar data sharing implementation in neighbouring ATS units in these Sub-regions. Also, Cayman Islands, Cuba, Jamaica and COCESNA are carrying out bilateral projects as part of the implementation of the first phase of radar data sharing in the Central Caribbean.

1.18 Also, Central American States and COCESNA are implementing radar data sharing projects in Central America.

2. Discussion

Global Air Navigation Plan on data-based surveillance and ICAO SARPs and guidance

2.1 The Meeting should note that the Global Air Navigation Plan (Doc 9750 – AN/963), established Global Plan Initiative (GPI) 09, which is presented in Appendix A to this working paper. This strategy guides the application of data-based surveillance (ADS-C, ADS-B and SSR in Mode S).

2.2 Furthermore, the Meeting should take into account the status of SARPs and ICAO guidelines on Surveillance systems that will be explained in the Surveillance Seminar that is being carried out jointly with this Meeting. Also, to follow-up the development of SARPs and ICAO guidelines on these systems.

Follow-up to the Preliminary Regional strategy for the ADS-C and ADS-B deployment

2.3 As a follow-up to the work performed by the GREPECAS mechanism on the guidelines for the ADS-B and ADS-C deployment, which is based on the guidelines set in the Global Air Navigation Plan, specifically GEI-09, the Meeting is proposed to take into account the Preliminary CAR/SAM Regional Strategy for the ADS-C and ADS-B Systems Implementation in the short, medium and long terms, which is presented in Appendix B to this paper. Also, the results of the Seminar held in combination with this Meeting could contribute to orient the States, Territories and International Organizations initiatives as well as the planning and implementation review of the Surveillance Systems.

ADS-B, ADS-C and other surveillance systems Implementation Initiatives

2.4 Considering the potential airspaces and the initiatives for the ADS-C and ADS-B implementation already identified by the GREPECAS/14 Meeting, which are included in Appendix C to this paper, as well as taking into account the results of the Surveillance Systems Seminar, the Meeting should review and update the mentioned Appendix to incorporate other initiatives informed by States, Territories and International Organizations, not only on ADS, but also on other surveillance systems.

2.5 Considering GREPECAS Conclusion 13/87, the Meeting should recommend to air navigation services provider States/Territories/International Organizations, who have not done so, the implementation of ADS-B and other surveillance systems trials.

Updating of the Surveillance Regional Plan

2.6 Considering the implementation initiatives for ADS-C and ADS-B systems, as well as the results of the study on the Regional Implementation of SSR in Mode S and other surveillance systems, the Meeting should review Appendix E to this working paper, which includes Table CNS 4A of the FASID, with updated information until the GREPECAS/14 Meeting.

Radar data sharing

2.7 The Rapporteurs of the C/CAR and E/CAR Radar Data Sharing Task Forces are expected to inform the Meeting on the results of their respective works related to the implementation on radar data sharing in neighbouring ATS units. Also, it is expected that States, Territories and COCESNA, who are implementing projects for the radar data sharing, inform the Meeting regarding the progress of their respective bilateral/multilateral agreements for the aforementioned purpose.

2.8 States, Territories and International Organizations who have not done so, are urged to identify potential benefits, establish and execute bilateral/multilateral agreements to implement the radar data sharing.

Action Plan for the follow-up and implementation of Surveillance Systems

2.9 Based on the background and the analysis expressed in the previous paragraphs, the Meeting is proposed to review and recommend States/Territories/International Organizations the implementation of the Action Plan for the follow-up and implementation of Surveillance Systems presented in **Appendix F** to this working paper.

3. Suggested actions

3.1 The Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) take note of the global strategy established by GPI-09 of the Global Air Navigation Plan, according to paragraph 2.1 and Appendix A to this paper;
- c) take note of the Surveillance Systems SARPs and ICAO guidelines status and recommend their follow-up in accordance to paragraph 2.2 of this paper;
- d) consider the preliminary regional strategy for the ADS-C and ADS-B deployment mentioned in paragraph 2.3 and presented in Appendix B to this working paper;
- e) review and improve the ADS-C and ADS-B deployment initiatives table bearing in mind the considerations mentioned in paragraph 2.4 and in Appendix C to this working paper;
- f) recommend the execution of ADS-B and other surveillance systems trials, taking into account paragraphs 1.8, 1.9 and 2.5 of this working paper;
- g) review and updated the Surveillance Regional Plan, considering paragraphs 1.15 and 2.6 and Appendix E to this working paper;
- h) note the information provided to the Meeting on the progress of the implementation of bilateral/multilateral agreements for radar data sharing, taking into account paragraphs 1.17, 1.18, 2.7 and 2.8 of this paper;
- i) based on the proposal expressed in paragraph 2.9 and Appendix F to this paper, review and recommend an action plan for the follow-up and implementation of Surveillance Systems; and
- j) review and propose any other actions deemed appropriate.

APPENDIX A

(GPI-9) SITUATIONAL AWARENESS

Scope: Operational implementation of data link-based surveillance. The implementation of equipment to allow traffic information to be displayed in aircraft supporting implementation of conflict prediction and collaboration between flight crew and the ATM system. Improve situational awareness in the cockpit by making available electronic terrain and obstacle data of required quality.

Related ATM objectives: application of data link; Functional integration of ground systems with airborne; ADS; ADS-B; SSR Mode S

Description of strategy

1.49 The further implementation of enhanced surveillance techniques (ADS-C or ADS-B) will allow reductions in separation minima and an enhancement of safety, increase in capacity, improved flight efficiency, all on a cost-effective basis. These benefits may be achieved by bringing surveillance to areas where there is no primary or secondary radar, when cost-benefit models warrant it. In airspaces where radar is used, enhanced surveillance can bring a further reductions in aircraft separation minima and improve, in high traffic density areas, the quality of surveillance information both on the ground and in the air, thereby increasing safety levels. The implementation of sets of quality assured electronic terrain and obstacle data necessary to support the ground proximity warning systems with forward looking terrain avoidance function as well as minimum safe altitude warning (MSAW) system will benefit safety substantially.

1.50 Implementation of surveillance systems for surface movement at aerodromes where weather conditions and capacity warrant will also enhance safety and efficiency while implementation of cockpit display of traffic information and associated procedures will enable pilot participation in the ATM system and improve safety through greater situational awareness.

1.51 In remote and oceanic airspace where ADS-C is used, FANS capabilities exist on many air transport aircraft and could be added to business aircraft. ADS-B can be used to enhance traffic surveillance in domestic airspace. in this respect, it should be noted that 1090 extended squitter is both available and should be accepted as the global choice for the ADS-B data link.

1.52 At terminal areas and at aerodromes surrounded by significant terrain and obstacles, the availability of quality assured terrain and obstacle databases containing digital sets of data representing terrain surface in the form of continuous elevation values and digital sets of obstacle data of features, having vertical significance in relation to adjacent and surrounding features considered hazardous to air navigation, will improve situational awareness and contribute to the overall reduction of the number of controlled flight into terrain related accidents.

APPENDIX B

CAR/SAM Regional Strategy for the ADS-C and ADS-B Systems Implementation

Near-Term (until 2011)

1. The ADS-C surveillance implementation is used in oceanic and remote airspace associated with FANS capacities. The ADS-B surveillance implementation should be prioritize in the continental airspaces where there is no radar surveillance available, taking into consideration the density of traffic, the operational requirements and aircrafts capability. Also, consideration should be given to the potentialities to complement or replace the SSR in a scarcely to medium traffic density area, for route surveillance, in terminal areas, for surface movement control (ADS-B) and other applications.
2. Each State/Territory/International Organization needs to evaluate the: maximum density traffic nowadays and expected for the year 2015. The useful life of their radars and the potentiality for their replacement with ADS-B, the locations of potential ADS-C or ADS-B ground station sites, and the capabilities of existing and planned ATC automation systems to support the ADS-C or ADS-B.
3. The proportions of equipped aircrafts are also critical for the ADS-C and ADS-B deployment, for which it is required to periodically provide, at least, the following information: number of equipped aircrafts operating in the concern airspace, number and name of the airlines that have equipped aircrafts for ADS-C and ADS-B, type of equipped aircrafts, categorization of the accuracy/integrity data available in the aircrafts.
4. The ADS-B deployment should be associated at early stages in coordination with the States/Territory/International Organizations responsible for the control of adjacent areas, and the correspondent ICAO Regional Office, establishing a plan in the potential areas of ADS-B data sharing, aimed at a coordinated, harmonious and interoperable implementation.
5. Each State/Territory/Organization should investigate and report their own Administration's policy in respect to the ADS-B data sharing with their neighbours and from cooperative goals.
6. The ADS-B data sharing plan should be based selecting centres by pairs and analyzing the benefits and formulating proposals for the ADS-B use for each pair of centre/city with the purpose to improve the surveillance capacity.
7. Likewise, it is necessary to consider implementing surveillance solutions for surface movement control by the implementation of ADS-B.
8. To support the ADS-C and ADS-B regional plan, the States/Territories/International organizations, as well as the entity representing the airspace users, should organized and provide the following information; a focal point of contact, its respective implementation plan, including a time-table, and information on its air-ground communications and automation systems.
9. The ADS-B data links technology that will be use for the Mode S 1,090 MHz extended squitter to (1090 ES). Likewise, al the end of the medium term the introduction of ADS-B data sharing could be initiated and be approved by ICAO for its use in a long-term to satisfy the new requirements of the global ATM system.
10. The implementation would be in conformity with the SARPs, ICAO guidelines and the GREPECAS conclusions.

Medium-Term (2011 – 2015)

11. Continuation of the ADS-B use with the 1090 ES technique and the planning initiation for the ADS-B implementation by new data links to satisfy the ATM global system requirements.

Longer-Term (From 2015 to 2025)

12. The planning and implementation would be carried out according to the ADS and ADS-B evolution, with the associated technology developments, in conformity with the global ATM systems, with the new SARPs and ICAO guidance.

APPENDIX C

POTENTIAL AIR SPACE TO IMPLEMENT ADS-C AND ADS-B CONSIDERED BY CAR STATES, TERRITORIES, AND INTERNATIONAL ORGANIZATIONS / ESPACIOS AÉREOS POTENCIALES PARA IMPLANTAR ADS-C Y ADS-B CONSIDERADOS POR LOS ESTADOS/ TERRITORIOS/ORGANIZACIONES INTERNACIONALES DE LA REGIÓN CAR

No.	State or Organization/ Estado u Organización/ Center/Centro	Air Space/ Espacio aéreo	ADS Type/ Tipo	Status/ Estado	ADS-B data sharing with/ Intercambio de datos ADS-B con	Impl. Date Fecha de Impl.	Remarks/ Observaciones
1	2	3	4	5	6	7	8
	CAR						
1.	Bahamas/ Nassau ACC	Nassau FIR	ADS-B	S			Studies are being carried out. /Se están realizando estudios.
2.	Cuba/ Habana ACC	Havana FIR (South East Zone)	ADS-B	S			Studies are being carried out. /Se están realizando estudios.
3.	Haiti/ Port au Prince ACC	Port au Prince FIR	ADS-B	S			Studies are being carried out. /Se están realizando estudios.
4.	Mexico/ Mérida ACC Monterrey ACC	Gulf of Mexico (Central zone between Houston Oceanic and Mexico FIRs / Zona central entre las FIRS Houston Oceanic y México)	ADS-B	P	Houston ARTCC		Based on an agreement Mexico - USA/ Basado en acuerdo México - Estados Unidos.
5.	Trinidad and Tobago/ Piarco ACC	Piarco FIR	ADS-B ADS-C*	P			Studies are being carried out. /Se están realizando estudios. * Oceanic East Sector/Sector Este oceánico
6.	United States/ Houston ARTCC Miami ARTCC	Domestic (Houston Oceanic zone / Zona Houston Oceanic) Miami Oceanic FIR (Domestic zone)	ADS-B ADS-B	P P			Based on an agreement Mexico - USA/ Basado en acuerdo México - Estados Unidos.

No.	State or Organization/ Estado u Organización/ Center/Centro	Air Space/ Espacio aéreo	ADS Type/ Tipo	Status/ Estado	ADS-B data sharing with/ Intercambio de datos ADS-B con	Impl. Date Fecha de Impl.	Remarks/ Observaciones
1	2	3	4	5	6	7	8
7.	COCESNA/ Cenamer ACC	Cenamer FIR (Caribbean and Pacific Oceanic sectors / Sectores oceánicos Caribe y Pacífico)	ADS-B	S			Studies are being carried out. /Se están realizando estudios.
8.		Other air spaces./ Otros espacios aéreos					Studies are pending / Pendiente de estudios.

P – Planned/Planificado S – Study/Estudio

APPENDIX D

DRAFT ELEMENTS FOR A REGIONAL STRATEGY FOR SURVEILLANCE SYSTEMS

- **Short term:
(until 2011)**

Installation of surveillance systems on ground

- Implementation of SSR radars Mode S only in high-traffic-density approach, en route, and terminal areas,
- Implementation of monopulse SSR, adaptable to Mode S, in medium- and high-traffic en route and terminal areas.
- Begin ground implementation for ADS-B (ES Mode S receivers) for en route and terminal areas not covered with radar, and strengthen surveillance in areas covered with SSR Modes A/C and S.
- Begin the implementation of multilateration, where aircraft respond to SSR Mode A/C or SSR Mode S queries for aerodrome surface movement surveillance

Aircraft

- Assignment of *24-bit addressing for unique aircraft identification*
- Complete the implementation of ACAS II systems throughout commercial and general aviation. Use of basic Mode S transponder
- Begin the update of Mode S transponder so that it can operate in ADS-B and multilateration environments

- **Medium term:
(2011 – 2015)**

Installation of surveillance systems on ground

- Implementation of Mode S in those monopulse SSRs that have Mode S capabilities, in areas with coverage and increased air traffic.
- SSR Mode A/C and SSR Mode S continue to be the main surveillance elements for approach, en route, and terminal areas.
- Increase ADS-B installations on ground (ES Mode S receivers) for en route and terminal areas not covered by radar, and strengthen surveillance in areas covered by SSR Mode A/C and SSR Mode S.
- Increase the implementation of multilateration, where aircraft respond to SSR Modes A/C and S queries for surveillance of aerodrome surface movements, and begin the implementation of surveillance applications in approach, en route and terminal areas (wide area multilateration, WAM) in areas that are not covered by radar surveillance and to strengthen radar surveillance

Aircraft

- Increase updating of Mode S transponder for ADS-B and multilateration operations

- **Long term:
(2015 - 2025)**

Installation of surveillance systems on ground

- Begin the non-replacement of SSR Mode A/C radars that have completed their life cycle.
- Implement ADS-B or multilateration systems to replace the SSRs that have completed their life cycle
- Begin the implementation of new ICAO-approved surveillance systems

Aircraft

- New updates of Mode S transponder to support new ADS-B functions, such as improved information transmission capability, more information on board to give the pilot the capability to make decisions on separation.

APPENDIX/APENDICE E

Table CNS 4A - SURVEILLANCE SYSTEMS (Updated)
Tabla CNS 4A - SISTEMAS DE VIGILANCIA (Actualizada)

State(Territory)/Location Estado(Territorio)/Ubicación	ATS Unite Served Unidad ATS Servida	PSR			SSR				ADS		Remarks Observaciones
		Funtion Función	Coverage Cobertura (NM)	Status Impl. Estado	Funtion Función	Modes Modos (A,C& S)	Coverage Cobertura (NM)	Status Impl. Estado	Type Tipo	Status Impl. Estado	
1	3	4	5	6	7	8	9	10	11	12	13
ANGUILA (UK)								NP			
ANTIGUA & BARBUDA Airport (4 NM North)	V.C. Bird APP				T	A/C	180	I*			* MSSR
ARUBA (Kingdom of the Netherlands)	Reina Beatrix APP	T	80	I	T	A/C	256	I*			*MSSR
BAHAMAS Nassau	Miami ACC Nassau APP	E/T		I	E/T	A/C		I			
BARBADOS Aiport	Adams APP				T	A/C	250	I*			*MSSR
BELIZE	Belize APP							NP			
COSTA RICA El Coco	El Coco APP	E/T		I	E/T	A/C	245	I*			*MSSR
CUBA Camagüey Habana Holguín Menocal San Julián Sta. Clara	Habana ACC Camagüey APP Habana TMA Habana APP Habana ACC Santiago de Cuba TMA Holguín APP Habana ACC Habana TMA Habana APP Varadero APP Habana ACC Habana ACC	T		P	E/T T E/T E/T E E	A/C A/C A/C A/C A/C A/C	200 200 200 200 200 200	I/P* I/P* I/P* I* I/P* I/P*			*MSSR *MSSR *MSSR *MSSR *MSSR *MSSR
DOMINICA				NP				NP			
DOMINICAN REPUBLIC Barahona Puerto Plata Punta Cana	Barahona APP Puerto Plata APP Santo Domingo ACC	T T T	70 70 70	I I P	 E/T	 A/C	 250	 P*			*MSSR

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[illegible]

[illegible]

APPENDIX F

ACTION PLAN FOR THE FOLLOW-UP AND IMPLEMENTATION OF SURVEILLANCE SYSTEMS - CAR REGION

State/Organization:

Estado/Organización:

Date/Fecha:

No.	Strategic Objective/ Objetivo	Global Plan/ Plan Mundial - GPI	Regional Plan / Plan Regional - FASID	GREPECAS No. Con/Dec/Pa	Target Activity / Actividad Meta	Follow-up Action/ Acción de seguimiento	To be developed by/ A ser desarrollado por	Deliverable/ Entregable	Target date/ Fecha límite	Remarks/ Observaciones
1	2	3	4	5	6	7	8	9	10	11
1	A, D	GPI-09		GRP14 pa 3.6.3.4 3	<u>Global Plan Strategy GPI-09 - Situational Awareness</u> Take note of GPI-09 - Situational awareness as a global strategy for data-based surveillance implementation. (Appendix A)		States and International Organizations	Knowledge of GPI-09 from the Global air navigation Plan		
2	A, D	GPI-09			<u>ICAO SARPs and guidelines on Surveillance Systems</u> Take into account and follow-up the Surveillance Systems SARPs and ICAO guidelines		States and International Organizations	Knowledge and application of the Surveillance SARPs		
3	A, D	GPI-09		GRP14 pa 3.6.3.4 4	<u>Preliminary Regional Strategy for the deployment of ADS-B and ADS-C</u> Take into account the "Preliminary Regional Strategy for the Deployment of ADS-C and ADS-B" and follow-up GREPECAS guidelines regarding the consolidation of this strategy into a Surveillance Systems Regional Unified Strategy." (Appendix B)		States and International Organizations	Preliminary regional strategy used to plan and deploy ADS. Follow-up to the evolution		
4	A, D	GPI-09		13/87	<u>Initiatives for the implementation of ADS-B, ADS-C as well as other Surveillance Systems</u> Assess the convenience to establish and implement ADS-B trials, as well as other surveillance systems.		States and International Organizations	ADS-B Trials		
5	A, D	GPI-09	Tabla CNS 4A	GRP14 pa 3.6.3.4 4	Continue the adoption of initiatives for the ADS-B, ADS-C and other surveillance systems planning and implementation, according to operational requirements. (Appendix C)		States and International Organizations	Established initiatives		

APPENDIX F

No.	Strategic Objective/ Objetivo	Global Plan/ Plan Mundial - GPI	Regional Plan / Plan Regional - FASID	GREPECAS No. Con/Dec/Pa	Target Activity / Actividad Meta	Follow-up Action/ Acción de seguimiento	To be developed by/ A ser desarrollado por	Deliverable/ Entregable	Target date/ Fecha límite	Remarks/ Observaciones
1	2	3	4	5	6	7	8	9	10	11
6	A, D	GPI-09	Tabla CNS 4A	GRP14 pa 3.6.3.5 1	<u>Update of the Surveillance Systems Regional Plan</u> Considering the results of the previous actions and the development of the Surveillance Systems, to review and propose amendments to Table CNS 4A - Surveillance Systems of the FASID.		States and International Organizations	Amendment to Table CNS4A, FASID		
7	A, D	GPI-09		11/47 12/48 12/49 13/88	<u>Radar data exchange</u> Establish and implement bilateral/multilateral agreements for radar data exchange.		States and International Organizations	Radar data exchange established		