



International Civil Aviation Organization

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

First Meeting of the Communications, Navigation and Surveillance / Air Traffic Management Subgroup (CNS/ATM/SG/1)

Lima, Peru, 15-19 March 2010

CNS/ATM/SG/1-WP/13

8/2/10

Agenda Item 4: Review of pending matters of the ATM/CNS/SG, ATM/COMM, CNS/COMM, and the respective Task Forces, for their consideration in the work programme of the CNS/ATM Subgroup

FOLLOW UP ON THE IMPLEMENTATION OF THE WORK PROGRAMME OF THE CNS COMMITTEE AND PRESENTATION OF PENDING CNS ACTIVITIES

(Presented by the Secretariat)

Summary	
<p>This working paper presents, as a result of the follow-up on the implementation of the CNS Committee work programme, the activities in the communications, navigation and surveillance areas that are still pending, so that they can be included in the work programme of the new ICAO CNS/ATM Subgroup.</p>	
<p>References:</p> <ul style="list-style-type: none">• Report of the sixth meeting of the CNS Committee (Santo Domingo, Dominican Republic, 30 June - 4 July 2008);• Report of the GREPECAS/15 meeting (Rio de Janeiro, Brazil, 13-17 October 2008);• Report of the fifth meeting of the ATN Task Force (Mexico City, Mexico, 12-13 June 2009);• Report of the fourth meeting of the GNSS Task Force (Mexico City, Mexico, 8-9 September 2009); and• Report of the third meeting of the Surveillance Task Force (Mexico City, Mexico, 9-10 September 2009).	
Strategic Objectives	<i>This working paper is related to Strategic Objective D</i>

1. Introduction

1.1 The sixth meeting of the CNS Committee reviewed the Terms of Reference and Work Programmes of the CNS Committee and its task forces, where work programmes were presented in the format required by GREPECAS Decision 15/53.

1.2 The ATN, GNSS and Surveillance Task Forces of the CNS Committee, at their last meetings held during the sixth meeting of the CNS Committee, analysed the progress made in the activities listed in the CNS Committee work programme in relation to its task forces. After analysing the terms of reference of the CNS/ATM Subgroup, they:

- a) considered which activities should stay in the work programme of the new CNS/ATM Subgroup; and
- b) proposed new activities and deliverables to support the performance objectives included in the terms of reference of the CNS/ATM Subgroup.

1.3 Likewise, the progress made in the activities listed in the work programme of the CNS Committee that had not been addressed by the task forces, such as the interconnection/integration of digital networks and the development and application of a VDL plan, was analysed at events such as coordination meetings (MEVAII REDDIG) and the seminar on ATN ground-ground and ground-air applications.

2 Discussion

2.1 Based on the work done by the ATN, GNSS and Surveillance Task Forces of the CNS Committee, as well as at regional meetings and the seminar held after the sixth meeting of the CNS Committee, a summary of pending and new activities proposed for the work programme of the CNS Committee follows.

Communications

2.2 In the area of communications, the CNS Committee is contemplating the following activities:

- a) Guide the interconnection/integration of digital communication networks.
- b) Develop a VDL implementation plan and its applications.
- c) Review, update and complete the initial transition plan for the gradual development of ATN and its applications.
- d) Guide the development of the ATN addressing plan, in keeping with ICAO principles and technical provisions.
- e) Develop plans for the gradual implementation of the ATN ground infrastructure and the development of ground-ground applications, such as AIDC and AMHS.
- f) Analyse the proposed data communication infrastructure proposals in support of ATFM implementation.
- g) Prepare a CAR/SAM plan for the establishment of the communication system required for the migration to the exchange of MET aeronautical messages (METAR/SPECI and TAF) in the new format to be defined.

Appendix A to this working paper describes the pending activities in the communications area.

2.2.1 Guide the interconnection/integration of digital communication networks

2.2.1.1 Two deliverables: the interconnection of the MEVA II and REDDIG VSAT networks foreseen for late March 2010, according to the action plan presented by the MEVA II service provider and the REDDIG administration; and the drafting of preliminary considerations for the integration of the MEVA II and REDDIG networks. The MEVA II REDDIG coordination group has conducted an initial study in this regard, which is to be completed by the end of the first quarter of 2011.

2.2.1.2 The CNS/ATM Subgroup must follow up service operations, the planning of new services once the MEVA II/REDDIG interconnection is implemented, and MEVAII/REDDIG integration studies. It should also continue studying the possibility of integrating other regional digital networks as recommended by the ALLPIRG to foster the use of regional telecommunication networks.

2.2.2 **Develop a plan for the implementation of VDL and its applications**

2.2.2.1 Deliverable: A plan for the implementation of VDL (VHF data link) and its applications, and a plan for testing VDL and its applications. In the CAR/SAM Regions, VDL implementation plans are contemplated in FASID Table CNS 2 A, which was amended at the end of the first quarter of 2009. It should also be noted that VDL implementation in the CAR/SAM Regions is almost inexistent: very few States have implemented it. VDL planning focuses on en-route control services (ACC) with the CPDLC application, and on services in the terminal area, with the CLRD and D-ATIS applications. Regarding the plan for testing VDL and its applications, it has not been drafted yet.

2.2.2.2 As agreed by the sixth Coordination Meeting of the CNS Committee, and in order to support the study of a plan for testing data link applications, a seminar on “ATN ground-ground and ground-air applications” was conducted in Boca Chica, Dominican Republic, on 23-27 November 2009, the main considerations of which are listed below:

- a) When replacing VHF radio equipment, States, Territories and International Organisations could consider acquiring this equipment with VDL mode 2 capabilities.
- b) D-ATIS and D-VOLMET applications should be evaluated and implemented in order to improve voice services and reduce controller workload.
- c) In order for data link implementation to meet the performance required for communications, according to GREPECAS and the ICAO SARPs, coordination and cooperation among States, air navigation service providers, users and other related entities is important.
- d) Considering that NextGen (United States) and SESAR (Europe) are planning some significant data link-based developments, starting in the 2014-2015 time frame, CAR/SAM States are urged to begin data link tests now, in order to obtain initial experience and thus position themselves to obtain the benefits to be derived from NextGen and SESAR.

2.2.2.3 The CNS/ATM Subgroup must follow up this activity, taking into account the operational benefits envisaged from the use of data link, as established in the global air navigation plan strategies (Doc 9750 – AN/963): GPI-17 – *Implementation of data link applications* and GPI-22 – *Communication infrastructure*.

2.2.3 **Development of the CAR/SAM ATN**

- a) Review, update, and complete the initial transition plan for the gradual development of ATN and its applications.
- b) Guide the development of the ATN addressing plan, in keeping with ICAO principles and technical provisions.
- c) Develop plans for the gradual development of the ATN ground infrastructure and the development of ground-ground applications, such as AIDC and AMHS.

2.2.3.1 Deliverables: an ATN transition plan and data collection for updating ATN plans (Tables CNS 1Ba and 1Bc). The ATN Task Force updated the ATN transition plan and the ATN plans (Tables CNS 1Ba and 1Bc) in 2009. However, due to updates in the implementation of the global ATN IP, the Task Force felt the need to continue updating the ATN transition plan and the ATN plans (Tables CNS 1Ba and CNS1Bc), supplementing this task with deliverables involving the drafting of an *initial* transition plan for AIDC implementation and the drafting of an initial transition plan for ATN ground-air applications.

2.2.3.2 Other deliverables needed for the definition of the CAR/SAM ATN are the ATN IPv6 addressing plan, guidelines on IP security, the IP interface document, the drafting of a plan for the implementation of ATN ground-ground applications (Part AMHS), and a plan for the implementation of ATN ground-ground applications (Part AIDC).

2.2.3.3 The CNS/ATM Subgroup must follow up this activity, taking into account the operational benefits derived from the implementation of a reliable, safe, and efficient telecommunication network, as established in strategy GPI-22 – *Communication infrastructure*.

2.2.4 **Analyse data communication infrastructure proposals in support of ATFM implementation**

2.2.4.1 Deliverable: proposal of a data communication infrastructure for ATFM. Given its relationship with surveillance activities, it will be developed together with the surveillance area.

2.2.4.2 The CNS/ATM Subgroup must follow up this activity, taking into account the operational benefits to be derived from the implementation of air traffic flow control, and thus from the technical infrastructure required for the implementation of this service.

2.2.5 **Draft a CAR/SAM plan for the establishment of the communication system required for migration to the exchange of MET aeronautical messages (METAR/SPECI and TAF) in the new format to be defined.**

2.2.5.1 Taking into account that the ICAO Air Navigation Commission approved the deferral of BUFR code migration until the WMO panel completes the studies on the use of XML for OPMET exchange, the CNS Committee considered that communication requirements to facilitate the implementation of the new format for OPMET exchange would be examined once the format was defined. In this respect, the new Subgroup should take into account the validity of this activity and its resumption once the new format is defined.

Navigation

2.3 In the navigation field, the CNS Committee envisages the following activities:

- a) Develop proposals on regional guidelines for the evolution of air navigation systems;
- b) Provide guidance to CAR/SAM States on the practical methodology for the implementation of GBAS systems.
- c) Analyse the results of SBAS augmentation trials conducted in the CAR/SAM Regions (CNS/3-2.1);
- d) Update guidelines and regional strategies for the installation and implementation of GNSS augmentation systems (CNS/3-2.2.1);
- e) Considerations about the feasibility of regional application, technical aspects, operational benefits, associated costs, implementation, implications for on-board equipment and other relevant aspects (CNS/3-2.3.1);
- f) Conduct studies on options for the implementation of a regional SBAS/GBAS system, taking into account GNSS evolution (CNS/3.2.3.2).
- g) Analyse the ground navigation infrastructure in support of PBN implementation.

Appendix B to this working paper contains the proposal of pending activities with the respective deliverables related to navigation systems.

2.3.1 The **CNS/ATM Subgroup** must follow up these activities, since they contribute to coordinate the development and evolutionary and gradual implementation of GNSS elements in the CAR/SAM Regions as part of the navigation infrastructure (GPI-21), taking into account PBN requirements (GPI-5) and the harmonisation of systems and resources for the attainment of the performance objectives defined in the CAR/SAM Regions.

Surveillance

2.4 In the surveillance area, the CNS Committee envisages the following activities:

- a) Drafting of a regional plan for the implementation of ADS-C and ADS-B.
- b) Supporting the implementation of PBN and ATFM, the optimisation of ATM routes, and guides for the ATM automation service.
- c) Optimisation of the associated radio frequency environment through recommended actions, in order to avoid frequency congestion in 1030/1090 Mhz.

2.4.1 Since ICAO will soon publish an Air Surveillance Manual, the task “Studies and suggested action for SSR Mode S, ADS-C, ADS-B and other surveillance systems” was removed from the work programme dealing with surveillance.

2.4.2 **Appendix C** to this working paper contains a proposal of pending activities related to surveillance, with the respective deliverables.

2.4.3 The **CNS/ATM Subgroup** must follow up these activities since they involve the coordination and implementation of the surveillance infrastructure needed to enhance ATM situational awareness (GPI-9) and the achievement of several of the performance objectives defined for the CAR/SAM Regions.

3 **Suggested action**

3.1 The Meeting is invited to:

- a) take note and review the information contained in this working paper;
- b) analyse and approve the CNS activities detailed in paragraphs 2.2, communication activities, Appendix A, 2.3 navigation activities, Appendix B, and 2.4, surveillance activities, Appendix C.
- c) based on the analysis of performance objectives, add to or supplement the activities to be conducted by the CNS/ATM Subgroup, as presented in this paper; and
- d) consider and propose other relevant measures.

APÉNDICE A /APPENDIX A

ACTIVIDADES PENDIENTES DEL AREA DE COMUNICACIONES DEL COMITÉ CNS A SER INCLUIDAS EN EL PROGRAMA DE TRABAJOS DEL NUEVO SUBGRUPO CNS/ATM

PENDING ACTIVITIES OF THE COMMUNICATION AREA OF THE CNS COMMITTEE TO BE INCLUDED IN THE WORKING PROGRAM OF THE NEW CNS/ATM SUBGROUP

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/, Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero actividad/Number activity	*Actividades/ Activities	Acción de seguimiento/ Follow-up Action	A ser iniciadas por / To be initiated by	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
D Conclusión 14/52	CNS/2-1.1	Guiar la interconexión/ integración de redes digitales de comunicaciones. Guide the interconnection/integration of Communications digital networks	Actividades Oficinas Regionales OACI Reuniones de Coordinación (MEVAII, REDDIG, MEVAII/REDDIG) Reunión del Subgrupo CNS/ATM ICAO Regional Offices, activities Coordination Meetings (MEVAII, REDDIG , MEVAII/REDDIG) CNS/ATM Subgroup meeting	Grupo/Group MEVAII REDDIG / OACI/ICAO Grupo/Group MEVAII REDDIG / OACI/ICAO	Válida/Valid	Implantación de la interconexión de las Redes MEVAII REDDIG/ Implementation of MEVAII/REDDIG interconnection Consideraciones Preliminares para la integración de las redes MEVA II REDDIG y borrador de MoU para la integración MEVA II REDDIG / Preliminary Considerations for the integration of MEVA II / REDDIG Networks and Draft MoU for MEVA II/REDDIG integration	Mar 2010 Mar 2011
D Conclusión 13/72	CNS/2-1.2.3	Desarrollar un plan de implantación VDL y su aplicación Develop a VDL implementation Plan and its application	Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.) ICAO Regional Office activities ICAO meetings (CNS /ATM Subgroup, Informal, etc.)	Subgrupo, Estados/ Territorios/ Organizaciones Internacionales Subgroup, States/Territories / International Organizations	Válida/Valid	Actualización plan de implementación VDL con sus aplicaciones Update VDL Implementation Plan and applications Plan de ensayos de VDL y sus aplicaciones VDL and its application trials plan	End/Finales 2011

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/ Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero actividad/Number activity	*Actividades/ Activities	Acción de seguimiento/ Follow-up Action	A ser iniciadas por / To be initiated by	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
<p>D</p> <p>Conclusiones 13/74 y 13/79</p>	<p>CNS/2-1.3.2</p>	<p>Revisar, actualizar y completar el plan de transición inicial para el desarrollo evolutivo de la ATN y sus aplicaciones</p> <p>Review, update and complete initial transition plan for the evolutionary development of ATN and applications</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup Informal, etc.)</p>	<p>Subgrupo CNS/ATM</p> <p>CNS/ATM Subgroup</p>	<p>Válida/Valid</p>	<p>Plan de Transición Inicial ATN / Initial ATN Transition Plan</p> <p>Plan de Transición inicial de las Aplicaciones tierra-tierra del ATN (Parte AIDC)/Initial Transition Plan for ATN Ground-ground applications (AIDC)</p> <p>Información para actualización de los Planes del ATN (Tablas CNS1Ba y CNS 1Bc)/ Information for the update of ATN Plans (Tables CNS 1Ba and CNS1Bc)</p> <p>Plan de transición inicial de las aplicaciones tierra aire de la ATN/ Initial transition plan of ground/air ATN application</p>	<p>Finales/End 2010</p> <p>March/ Marzo 2010</p> <p>Finales/End 2010</p> <p>Finales / End 2010</p>
<p>D</p> <p>CNS/COMM Decisión 5/3</p>	<p>CNS/2-1.3.3</p>	<p>Orientar el desarrollo del plan de direccionamiento ATN, de conformidad con los principios y disposiciones técnicas de la OACI</p> <p>Guide de development of ATN addressing plan according to ICAO technical principles and guidelines</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup, Informal, etc.)</p>	<p>Subgrupo CNS/ATM</p> <p>CNS/ATM Subgroup</p>	<p>Valida/Valid</p>	<p>Plan de direccionamiento ATN IPv6/ IPv6 ATN addressing Plan</p> <p>Politica Inicial de enrutamiento ATN/ Initial ATN Routing policy</p> <p>Lineamiento para la seguridad usando IP/ IP security Guideline</p> <p>Documento de interfaz IP/ IP interface document</p>	<p>Finales/End 2010</p> <p>Finales/End 2010</p> <p>Finales/End 2009</p> <p>Finales/End 2010</p>

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/ Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero actividad/Number activity	*Actividades/ Activities	Acción de seguimiento/ Follow-up Action	A ser iniciadas por / To be initiated by	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
D Conclusiones 13/74 y 13/79	CNS/2-1.3.4	<p>Desarrollar planes para la implantación evolutiva de la infraestructura terrestre de la ATN y el desarrollo de aplicaciones tierra-tierra, tales como AIDC y AMHS.</p> <p>Develop plans for the evolutionary implementation of ATN ground infrastructure and the development of ground-ground applications, such as AIDC and AMHS.</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup Informal, etc.)</p>	<p>Subgrupo CNS/ATM</p> <p>CNS/ATM Subgroup</p>	Valida/Valid	<p>Plan de implantación de las Aplicaciones tierra-tierra del ATN (Parte AIDC)/ Implementation Plan for ATN Ground-ground applications (AIDC)</p> <p>Plan de implantación de las Aplicaciones tierra-tierra del ATN (Parte AMHS)/ Implementation/ Plan for ATN Ground-ground applications (AMHS)</p>	<p>Finales/End /2010</p> <p>Julio 2010/July 2010</p>
D Conclusiones 14/43 y 14/44	CNS/2-1.3.6	<p>Analizar las propuestas de infraestructura de comunicaciones de datos en apoyo de la implantación de la ATFM</p> <p>Esta actividad apoya la actividad <i>Soporte a la implantación del PBN el ATFM, optimización de las rutas ATM y guías para el servicio de automatización ATM</i> cubierta en el área de vigilancia.</p> <p>Analyse proposals for data Communications infrastructure in support of ATFM implementation This activity supports the activity <i>Support PBN and ATFM implementation, optimization of ATM routes and guidance for ATM service automation</i> covered in the surveillance area.</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup Informal, etc.)</p>	<p>Subgrupo CNS/ATM</p> <p>CNS/ATM Subgroup</p>	Válida/Valid	<p>Propuesta de infraestructura de comunicaciones para la ATFM</p> <p>Proposal for ATFM Communications infrastructure</p>	<p>Octubre/ October 2011</p>

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/ Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero actividad/Number activity	*Actividades/ Activities	Acción de seguimiento/ Follow-up Action	A ser iniciadas por / To be initiated by	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
<p>D Conclusión 14/54</p>	<p>CNS/2-1.5</p>	<p>Elaborar un plan CAR/SAM para establecer el sistema de comunicaciones necesario para la migración hacia el intercambio de mensajes aeronáuticos MET (METAR/SPECI y TAF) en el nuevo formato a definirse</p> <p>Elaborate a CAR/SAM plan for the establishment of the communications system needed for the migration towards aeronautical MET messages exchange (METAR/SPECI and TAF) in the new format to be defined.</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.) ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup, Informal, etc.)</p> <p>Durante GREPECAS/15 se indicó que la Comisión de Aeronavegación de la OACI en la Cuarta Reunión de la sesión 176 aprobó la suspensión de la migración del código BUFR hasta que se completen los estudios sobre el uso del XML para el intercambio OPMET por parte del grupo de expertos de la OMM. En vista de esta situación, se propone dar por pendiente esta tarea.</p> <p>During GREPECAS/15, it was indicated that the ICAO Air Navigation Commission had approved, during its 176/4 session, to suspend the migration to the BUFR code until studies are completed by the WMO group on experts on the use of XML for OPMET exchange. In view of this situation, this task is proposed to remain pending.</p>	<p>Subgrupo CNS/ATM CNS/ATM Subgroup Nota: Tarea conjunta COMMET del Subgrupo AERMET Note: Joint task with COMMET of the AERMET Subgroup</p>	<p>Válida/Valid</p>	<p>Definición de los requerimientos/consideraciones en comunicaciones para el intercambio de mensajes aeronáuticos MET en nuevos formatos Definition of requirements and considerations for MET aeronautical messages Exchange in new formats</p>	<p>Por ser definidas/ TBD</p>

* Actividad /Activity = Tarea/Task

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APÉNDICE B /APPENDIX B

ACTIVIDADES PENDIENTES DEL AREA DE NAVEGACION DEL COMITÉ CNS A SER INCLUIDAS EN EL PROGRAMA DE TRABAJOS DEL NUEVO SUBGRUPO CNS/ATM
PENDING ACTIVITIES OF THE NAVIGATION AREA OF THE CNS COMMITTEE TO BE INCLUDED IN THE WORKING PROGRAM OF THE NEW CNS/ATM SUBGROUP

	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
1	2	3	4	5	6	7	8
D C 12/45 y D 14/55	CNS/3-2.1	<p>Analizar los resultados de los ensayos de aumentación SBAS realizados en las Regiones CAR/SAM</p> <p>Analyse results of SBAS augmentation trials carried out in CAR/SAM Regions</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup, Informal, etc.)</p>	Subgrupo CNS/ATM ATM/CNS Subgroup	Válida/Valid	<p>Análisis de los resultados de los ensayos SBAS</p> <p>Analysis of SBAS trials results.</p>	Dec/Dic 2011

	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
1	2	3	4	5	6	7	8
D C 12/45 y D 14/55	CNS/3-2.2.1	<p>Actualizar los textos de orientación y las estrategias regionales para la instalación e implantación de los sistemas de aumentación GNSS</p> <p>Update guideline texts and regional strategies for the installation and implementation of GNSS augmentation Systems.</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup, Informal, etc.)</p>	Subgrupo CNS/ATM ATM/CNS Subgroup	Válida/Valid	<p>Propuesta de actualizaciones a Estrategia Regional para la implementación de los sistemas de aumentación GNSS</p> <p>Regional Strategy update proposal for the implementation of the GNSS augmentation Systems.</p>	Dec/Dic 2011

	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
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D C 12/45 y D 14/55	CNS/3.2.3.1	Consideraciones sobre la factibilidad de la aplicación regional, los aspectos técnicos, los beneficios operacionales, los costos asociados, la implantación, las implicancias para los equipos de a bordo y otros aspectos pertinentes.	Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales etc.)	Subgrupo CNS/ ATM ATM/CNS Subgroup	Válida/Valid	Análisis costo beneficio para la implementación de sistemas de GBAS Cost-benefit analysis for the implementation of GBAS systems	Dec/Dic 2010
		Considerations on regional application, technical aspects, operational benefits, associated costs, implementation itself, implications for on/board equipment and other pertinent aspects.	ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup, Informal, etc.)			Análisis costo beneficio para la implantación de sistemas SBAS Cost-benefit analysis for the implementation of SBAS systems	Dec/Dic 2011

	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
1	2	3	4	5	6	7	8
D C 12/45	CNS/3.2.3.2	<p>Dirigir estudios sobre las opciones de implantación de un sistema SBAS/GBAS a nivel regional, tomando en cuenta la evolución del GNSS</p> <p>Carry out studies on the options for the implementation of a regional SBAS/GBAS system, taking into account GNSS evolution.</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS /ATM Subgroup Informal, etc.)</p>	Subgrupo CNS/ ATM ATM/CNS Subgroup	Válida/Valid	<p>Estudio para la implantación de un sistema GBAS con elecciones y consideraciones para su implantación. Study for the implementation of a GBAS system with choices and considerations for its implementation.</p> <p>Estudios para la implantación de un sistema SBAS en las Regiones CAR/SAM. Study on implementation options of a SBAS in the CAR/SAM Regions</p>	<p>Dec/Dic 2010</p> <p>Dec/Dic 2011</p>
D C 12/45 y D 14/55	CNS/3-3.6	<p>Desarrollar propuestas sobre directrices regionales para la evolución de los sistemas de navegación aérea</p> <p>Develop proposals on regional guidelines for the evolution of air navigation systems</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales, etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup, Informal, etc.)</p>	Subgrupo CNS/ ATM ATM/CNS Subgroup	Válida/Valid	<p>Relación de la aviónica disponible en aeronaves de la Región CAR/SAM, así como la proyección de los futuros sistemas</p> <p>Relación de las ayudas a navegación existente en los Estados CAR/SAM así como la proyección de los futuros sistemas</p>	<p>Jun 2010</p> <p>Dec/Dic 2010</p>

	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
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D C 12/45 y D 14/55	CNS/3-3.8	<p>Orientar los Estados de la Región respecto a la metodología práctica para implementación de sistemas GBAS</p> <p>Guide States of the Region as regards practical methodology for GBAS systems implementation</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup Informal, etc.)</p>	Subgrupo CNS/ATM ATM/CNS Subgroup	Válida/Valid	<p>Guía práctica para la implantación de un sistema SBAS tomando en cuenta la evolución del GNSS Practical guide for implementation of a SBAS system taking into account GNSS evolution</p> <p>Guía práctica para la implementación de sistemas GBAS para la Región CAR/SAM Practical guide for the implementation of GBAS systems for the CAR/SAM Region</p>	<p>Dic/Dec 2011</p> <p>Dic/Dec 2010</p>
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	Numero Actividad/ Activity Number	Actividades/ Activities	Acción de seguimiento/ Follow-up	A ser iniciada por / To be started by	Estado/ State	Entregable/ Deliverable	Fecha límite/ Target date
1	2	3	4	5	6	7	8
D C14/46 y C 15/38	CNS/3-3.9	<p>Analizar la infraestructura de navegación terrestre de soporte para la implantación de la PBN</p> <p>Analyse ground navigation infrastructure in support of PBN implementation</p>	<p>Actividades Oficinas Regionales OACI Reuniones OACI (Subgrupo CNS/ATM, Informales etc.)</p> <p>ICAO Regional Office activities ICAO meeting (CNS/ATM Subgroup, Informal, etc.)</p>	Subgrupo CNS/ATM ATM/CNS Subgroup	Válida/Valid	<p>Coberturas calculadas de radio ayudas VOR y DME, identificando las áreas en que la infraestructura de navegación no soportaría operaciones RNAV-5, basadas en VOR/DME y DME/DME en las Regiones CAR/SAM</p> <p>VOR and DME navigation aid calculation coverages, identifying the areas in which navigation infrastructure would not support VOR/DME and DME/DME based RNAV-5 operations in the CAR/SAM Regions</p> <p>Análisis e identificación de las áreas de las TMA de las Regiones CAR/SAM en las que la infraestructura DME soportaría operaciones RNAV-2 y RNAV-1, con y sin la aplicación de sistemas inerciales</p> <p>Analysis and identification of TMA areas in the CAR/SAM Regions where DME infrastructure would not support RNAV-2 and RNAV-1 operations, with and without the application of inertial systems</p>	<p>Jun 2011</p> <p>Jun 2011</p>

APENDICE C/APPENDIX C

ACTIVIDADES PENDIENTES DEL AREA DE VIGILANCIA DEL COMITÉ CNS A SER INCLUIDAS EN EL PROGRAMA DE TRABAJOS DEL NUEVO SUBGRUPO CNS/ATM

PENDING ACTIVITIES OF THE SURVEILLANCE AREA OF THE CNS COMMITTEE TO BE INCLUDED IN THE WORKING PROGRAM OF THE NEW CNS/ATM SUBGROUP

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/ Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero de Tarea/ Task Number.	*Actividad/ Activity	Acción de seguimiento/ Follow-up Action	A ser iniciado por:/ To be started by:	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
D Conclusión 13/87	CNS/4-3.3	Elaboración de un plan regional para la implantación ADS-C y ADS-B. Elaboration of a regional plan for ADS-C and ADS-B implementation.	Oficinas Regionales Reuniones OACI Regional Offices, ICAO Meetings	Subgrupo CNS/ATM CNS/ATM Subgroup	Válida/ Valid	Seguimiento a los ensayos y aspectos de implantación sobre ADS y MLAT (comparación con dato radar, probabilidad de detección, integridad de los datos, compartición de datos, etc.)/ Follow-up ADS and MLAT trials and implementation aspects (comparison with radar data, probability of detection, data integrity, data sharing, etc.)	Oct 2010
D C14/46	Nueva/New	Apoyar la implantación del PBN, la optimización de rutas ATS y orientar la automatización de servicios ATM. Support PBN implementation, optimization of ATS routes and guidance for ATM Service Automation.	Oficinas Regionales Reuniones OACI Regional Offices, ICAO Meetings	Subgrupo CNS/ATM CNS/ATM Subgroup	Válida/ Valid	Evaluación de la infraestructura de vigilancia e identificación de mejoras a los sistemas de vigilancia para apoyar los espacios aéreos en ruta y terminal en las regiones CAR/SAM, la clasificación del espacio aéreo y el ATFM Evaluation of surveillance infrastructure and Identification of Surveillance system improvements to support continental enroute and terminal Airspace in CAR/SAM Regions, airspace classification, and the ATFM Orientaciones para el uso/ integración de los datos ADS-B a Sistemas ATC de Procesamiento multisensoriales Guidelines for using/integrating ADS-B Data to ATC Multi sensor Processing Systems	Oct 2011

Objetivo Estratégico/ Conclusiones/ Decisiones Validas de GREPECAS/, Strategic Objective/ Valid GREPECAS Conclusions/ Decisions	Numero de Tarea/ Task Number.	*Actividad/ Activity	Acción de seguimiento/ Follow-up Action	A ser iniciado por:/ To be started by:	Estado/ Status	Entregable/ Deliverable	Fecha límite/ Deadline
1	2	3	4	5	6	7	8
D C 15/46	Nueva /New	Actividades para optimizar el uso del entorno de radio frecuencia Activities to optimize the use of radio frequency environment	Oficinas Regionales Reuniones OACI Regional Offices, ICAO Meetings	Subgrupo CNS/ATM CNS/ATM Subgroup	Válida/ Valid	Acciones recomendadas para evitar la congestión de frecuencias en 1030/1090 MHz Recommended actions for avoiding 1030/ 1090 frequencys congestion	Oct 2011/

* Actividad/Activity = Tarea/Task

- END / FIN -