



Agenda Item 2: Review of Air Navigation Matters
2.2 Air Navigation specific activities:
2.2.2 Communications, Navigation and Surveillance (CNS)

**COMMUNICATION INFRASTRUCTURE IMPLEMENTATION AND AERONAUTICAL
RADIO SPECTRUM ACTIVITIES IN THE E/CAR REGION**

(Presented by the Secretariat)

SUMMARY	
As part of the CNS elements, communication infrastructure is an enabler of the ATM operational concept, which contributes and supports several of the performance objectives defined in the CAR/SAM Regions. Similarly, the efficient and organized use of the aeronautical radio spectrum is fundamental for all the different applications and systems implemented in air navigation. Due to the importance of these topics, new performance objectives and an action plan on communications are proposed to be implemented and followed-up by the E/CAR Region States/Territories/International Organizations.	
References:	
• ICAO Global Air Navigation Plan (Doc 9750) • NACC/WG/2 Meeting Final Report (Ocho Rios, Jamaica, May 2008) • NACC/DCA/3 Meeting Final Report (Punta Cana, Dominican Republic, September 2008) • GREPECAS/15 Meeting Final Report (Rio de Janeiro, Brazil, October 2008)	
Strategic Objectives	<i>This working paper is related to Strategic Objectives A and D.</i>

1. Introduction

1.1 The E/CAR/WG/30 Meeting held in Saint Lucia in August 2006, agreed that ICAO take appropriate actions to reorganize the E/CAR/WG work programme taking into account several ATM strategies presented in this Meeting, for which Conclusion 30/18 – *Reorganization of the ATM Terms of Reference and Work Programme of the E/CAR/WG* was formulated. This reorganization included the consideration of ATM performance objectives, ICAO Strategic objectives and the Global Air Navigation Plan (Doc 9750) Initiatives.

1.2 As requested by the different meetings Directors of Civil Aviation, ICAO organized the NACC/WG with the main objective of harmonizing air navigation services infrastructure implementation of work plans in the NAM and CAR Regions. Under this mechanism, each of the different regional working groups (NACC, C/CAR, E/CAR and CA/ANE) should review their terms of reference (ToR) and work programme. The activities and planning by these working groups are aimed to achieve a performance-based global air traffic management system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner.

1.3 The NACC Working Group prepared a regional performance-based implementation Plan for the NAM/CAR Regions, which was approved by the Third Meeting of North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/3) through Decisions 3/2 – *Approval of the North American, Central American and Caribbean Working Group (NACC/WG)* and 3/3 – *Approval of the NAM/CAR Implementation Plan* which are applicable to the NAM/CAR Regions. Seven Performance objectives were included in this Implementation Plan. These Performance objectives are the same as those approved by the GREPECAS/15 Meeting.

1.4 To accomplish and enable several of the performance objectives, the evolution of the communication infrastructure is fundamental, as defined in the strategy of GPI-22 – *Communication Infrastructure* of the Global Air Navigation Plan in which the common objective is to seek the most efficient communication network service providing the desired services with the required performance and interoperability required for aviation safety levels at a minimum cost. Communication infrastructure is an enabler of the ATM operational concept, which contributes and supports several of the performance objectives defined for the CAR/SAM Regions.

1.5 Similarly, the strategy defined in GPI-23 – *Aeronautical Radio Spectrum* is crucial for procuring the timely and continuing availability of adequate radio spectrum, on a global basis, to provide viable air navigation services.

2. Discussion

2.1 Considering the performance objectives on the *Performance-Based Air Navigation Implementation Plan for the NAM/CAR Regions* and that this plan should encompass identification of other regional performance objectives and completion of performance framework forms for all air navigation areas such as ATM, CNS, AIM, MET and AGA/AOP, ICAO proposes for the E/CAR Region, the inclusion of two new performance objectives related to communication infrastructure and aeronautical radio spectrum activities; and a detailed action plan for the communication related activities as presented in the **Appendix** to this paper:

Performance Objective on Protection and Optimum Usage of Radiofrequency Spectrum

2.2 This new Performance objective proposes the main actions for organizing the radio frequency management activities within the States and the regional coordination with ICAO. Among these activities, the coordination and communication for conducting the States' support to the ICAO position for the ITU WRC-2012 meeting is also included.

Performance Objective on Optimization and Modernization of Communication Infrastructure

2.3 The follow-up and implementation of improvements and new developments in the communication infrastructure are important and relevant to plan and achieve several of the performance operational requirements defined for the Region. The review of the current status of this infrastructure, the implementation of improvements, the Aeronautical Telecommunication Network (ATN) tasks and planning of new communication technologies are some of the core topics.

Action Plan on Follow-Up and Implementation of Air-Ground and Ground-Ground Communications

2.4 This action plan proposes the communication related activities that are necessary to enable the implementation of several services and systems in accomplishing the performance objectives. Reference to the corresponding performance objective is included as part of the plan.

2.5 All the reference documents included in the Action Plan are available through the ICAO NACC Regional Office website under e-documents, CNS (<http://www.mexico.icao.int/CNS.html>).

3. Suggested Actions

3.1 The meeting is invited to:

- a) take note of the information presented;
- b) analyse the proposal of the new performance objectives and action plan as presented in section 2, considering the current performance objectives and any new performance objective formulated during the meeting;
- c) approve its inclusion in the Performance-Based Air Navigation Implementation Plan for the NAM/CAR Regions applicable to the E/CAR Region, and
- d) determine other actions deemed pertinent.

APPENDIX

PROTECTION AND OPTIMUM USAGE OF RADIOFREQUENCY SPECTRUM				
Benefits				
Efficiency	• Efficient use of aviation radio spectrum • Ensure availability of frequencies for services and aeronautical systems			
Safety	• Assurance of aviation spectrum			
Strategy Near term (2012)				
ATM Component	TASK DESCRIPTION	START-END	RESPONSIBLE	STATUS
AOM, DCB, AO, TS, CM, AUO, SDM	a) Ensure Regional coordination for the protection of the aviation spectrum at WRC-12, and beyond	2009-2011	S/T/O, ICAO	Valid
	b) Ensure Participation of Civil Aviation Experts in State's delegation to ITU WRC Meetings	2009-2010	S/T/O	Valid
	c) Disseminate ICAO policy statements of requirements for aeronautical radio frequency spectrum	2009-2010	ICAO	Valid
	d) Implement frequency spectrum management	2009-2011	S/T/O	Valid
	e) Support ICAO Position during WRC-12	2012	S/T/O	Valid
	f) Monitor the understanding of radio spectrum management and support on WRC-2012	2009-2012	ICAO	Valid
GPIs	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/14: runway operations; GPI-21: Navigation Systems, GPI-22: Communications Infrastructure and GPI-23: Aeronautical radio spectrum.			

OPTIMIZATION AND MODERNIZATION OF COMMUNICATION INFRASTRUCTURE				
Benefits				
Efficiency	• Improvements in coordination • Increase availability of communications • Avoid misunderstandings in communications • Facilitate the utilization of advanced technologies			
Continuity	• improvement of airspace interoperability and seamlessness; and • ensure the provision of positive air traffic control services to all aircraft operations.			
Safety	• Improvement in safety in airspaces and aerodromes			
Strategy Near Term (2012)				
ATM Component	TASK DESCRIPTION	START- END	RESPONSIBLE	STATUS
AO, TS, CM, AUO AOM, SDM	a) Review the status of performance of current AFS Services and identify deficiencies or improvements (AFTN, oral ATS services, A/G communications)	2009	WGs	Valid
	b) Analysis and formulation of plans for implementing improvement or solving deficiencies	2009-2010	WG	Valid
	c) Develop Regional ATN Planning documents	2009-2012	CNS/ATM/SG	Valid
	d) Coordination and testing of ATN G-G Application implementation aspects	2009-2012	WGs	Valid
	e) Planning and trial activities for A-G Application implementation	2010-2011	WGs	Valid
	f) Technical review of Regional Telecommunication networks for ATN implementation	2009-2010	MEVA TMG, WGs	Valid
	g) Implement available technologies in to facilitate ground and airborne applications (CPDLC, ADS-C, ADS-B)	2009-2012	States , user	Valid
	h) Monitor the implementation and improvement of the telecommunications and ATN applications issues.	2009-2012	States, WGs, CNS/ATM/SG, OACI	Valid
GPIs	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/14: runway operations; GPI-17: Data Link Application, GPI-21: Navigation Systems and GPI-22: Communications Infrastructure			

2009-2011
FOLLOW-UP AND IMPLEMENTATION ACTION PLAN
AIR-GROUND AND GROUND-GROUND COMMUNICATIONS

No.	Performance Objective Task	Action Description	Responsible	Begin date	End date	Deliverables	Observations
1	2	3	4	5	6	7	8
1	11 a), 11 b)	Improve VHF and HF/AMS (R) coverages and mitigate deficiencies	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	April 2010	- Deficiencies Identification and - Corresponding corrective action plan	References to CNS tables 2A and 2B
2	11 a), 11 b)	Improve AFTN communications and ATS direct communications and mitigate deficiencies	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	April 2010	- Deficiencies Identification and - Corresponding corrective action plan	References to CNS tables 1A and 1C
3	11 a), 11 b)	Improve E/CAR Telecommunication network	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	April 2010	E/CAR Telecommunication Network improvement plan and implementation of these improvements	
4	1 b)	Evaluation of required communication infrastructure to satisfy the navigation requirements based on PBN.	States/ Territories coordinated by E/CAR/WG-CNS Committee	July 2009	Dec 2010	Analysis of communication infrastructure	
5	7 l)	Adoption of an “equipment modernization/DATIS Service implementation plan for international airports” in compliance to the ATM requirements.	States/ Territories coordinated by E/CAR/WG-CNS Committee	July 2009	Dec 2012	DATIS Modernization and Implementation Plan	
6	11 c)	Elaborate Air-ground datalink progressive execution Plan based on CAR/SAM Activities Plan and Datalink implementation programme (Appendix AW and AX of Agenda 3 of GREPECAS/13).	CNS/ATM/SG (ATN TF)	June 2009.	Dec 2010	Initial Transition Plan for ATN Air-ground applications	References to CNS table 1Bc
7	11 c)	Elaborate ATN AIDC Implementation Plan	CNS/ATM/SG (ATN TF)	June 2009.	Dec 2010	Initial Transition Plan for ATN ground-ground Applications (AIDC)	
8	11 c)	Update the ATN Routers Regional Plan	CNS/ATM/SG (ATN TF)	June 2009.	June 2010	CNS Table 1Ba Updated proposal	References to CNS table 1Ba

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No.	Performance Objective Task	Action Description	Responsible	Begin date	End date	Deliverables	Observations
1	2	3	4	5	6	7	8
9	11 d)	Preliminary review of ATN Routers Regional Plan	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	April 2010	Comments to current version of CNS Table 1Ba	References to CNS table 1Ba
10	11 d)	Evaluation of AMHS CAAS addresses proposal	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	March 2010	Comments to AMHS CAAS addresses proposal	CAR AMHS CAAS Addresses Proposal
11	11 d)	Technical evaluation of communications and interfaces for AIDC implementation over the AFTN.	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	June 2010	Technical recommendations for AIDC implementation over the AFTN	
		Perform activities for the implementation of the ATN and its applications according to the CAR/SAM Regional strategy for the implementation of the ATN and its applications. (Appendix BA of Agenda 3 of GREPECAS/13 Report).:					
12	11 d)	i. Perform AMHS operation trials	USA, Trinidad & Tobago	Oct 2009	Jul 2010	Trial results	
13	11 e), 7c)	ii. Evaluation of regional networks to support ATN Applications	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	May 2010	Trial results	
14	11 d)	iii. Update of Regional Plan for ATN ground-ground applications	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	June 2010	Updates to Regional Plan for ATN ground-ground applications	References to CNS table 1Bb
15	11 e)	iv. Review of CAR/SAM Regional Program for the implementation of the air – ground data links	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	March 2010	Comments to this Regional Program	Reference: CAR/SAM Regional Program for the implementation of the air – ground data links

No.	Performance Objective Task	Action Description	Responsible	Begin date	End date	Deliverables	Observations
1	2	3	4	5	6	7	8
16	11 e), 11 g)	v. A-G Applications trial Plans	States/ Territories coordinated by E/CAR/WG-CNS Committee	Oct 2009	Nov 2010	Trial Plans for A-G Applications	
17	11 d), 11 e)	vi. Participate on training seminars and events	States/ Territories	Oct 2009	Nov 2011	Participation on events	
18	11 a), 11 b)	MEVA II REDDIG Networks Interconnection	COCESNA, Jamaica, Netherland Antilles	July 2009	Oct 2009	MEVA II/ REDDIG Networks Interconnection	
19	11 c)	Procure the application of management and coordination of frequency assignments and the implementation of tools for this goal.	ICAO	Jul 2009	Dec 2010	Frequency Management and coordination tools	
20	11 c)	Implement management and coordination of frequencies with ICAO	States/ Territories	Oct 2009	Dec 2009	Comments to ICAO reviewed frequency assignment lists	
21	11 c)	Comments to management frequency tools provided by ICAO	Trinidad & Tobago, Barbados, ECCAA	Nov 2009	Feb 2010	Comments and evaluation of tools	
22	10 a)	Promote and coordinate diffusion of ICAO position for WRC-2012	ICAO	Oct 2009	Dec 2011	Promote ICAO position	
23	10 b), 10 e)	Participate and coordinate with their national spectrum regulation entities the support to ICAO position for the WRC-2012	States/ Territories	Oct 2009	Dec 2011	Support ICAO position in WRC-2012 related meetings	

Note: The reference given in column 2, labelled “10” or “11” referred to the new proposed Performance objective on PROTECTION AND OPTIMUM USAGE OF RADIOFREQUENCY SPECTRUM and OPTIMIZATION AND MODERNIZATION OF COMMUNICATION INFRASTRUCTURE respectively.

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