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WORKING PAPER

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Miami, United States, 26 to 30 May 2014

Agenda Item 11: Other Matters

NAM/CAR AIR NAVIGATION TARGETS RELATED TO MEVA III IMPLEMENTATION

(Presented by Secretariat)

EXECUTIVE SUMMARY	
This working paper presents the Air Navigation Regional priorities and Targets related to the MEVA Network infrastructure that were developed by the ANI/WG and approved by the NAM/CAR Directors of Civil Aviation.	
Action:	Actions suggested in Section 4
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Security & Facilitation • Economic Development of Air Transport • Environmental Protection
References:	• First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1), Mexico City, Mexico, 29 July to 1 August 2013 • Safety and Air Navigation Directors of the CAR Region Meeting (CAR/DCA/OPSAN), Mexico City, México, 18 to 19 February 2014 • NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP) ver 3.1 • Fourth North American, Central American and Caribbean Working Group Meeting (NACC/WG/4), Ottawa, Canada, 24 to 27 March 2014 • Fifth North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/5), Port-of-Spain, Trinidad and Tobago, 28 to 30 April 2014

1. Introduction

1.1 In order to harmonize air navigation system/services implementation in the NAM/CAR Regions, the NAM/CAR directors of civil aviation approved the *NAM/CAR Regional Performance-based Air Navigation Implementation Plan* (RPBANIP) at the NACC/DCA/3 Meeting and agreed that it would be the reference for all air navigation implementation activities, containing the regional Air Navigation priorities and agreed targets. Each State/Territory National Plan is to be update/develop following the RPBANIP.

1.2 Since 2008, the RPBANIP has been the reference for all NAM/CAR implementation working group action plans and implementation tasks. Under the performance based approach, the RPBANIP includes the agreement of performance metrics and indicators to track and present the operational benefits. All working groups reported annually on the progress and operational achievements accomplished.

2. Regional Air Navigation Targets related to MEVA Network infrastructure

2.1 The RPBANIP, in its current version, was initially updated and reviewed by the NAM/CAR Air Navigation Implementation Working Group (ANI/WG) in July 2013. The RPBANIP was aligned with the Global Air Navigation Plan (GANP), the ICAO ASBU methodology and regional priorities were reviewed. This updated RPBANIP, Version 3.0, includes the adoption of the ASBU ANRFs for air navigation implementation monitoring and progress reporting on agreed NAM/CAR Regions implementation targets and milestones.

2.2 After several reviews, the North America, Central America and Caribbean Working Group in its 4th Meeting (NACC/WG/4) conducted a final reviewed to the RPBANIP and finally the RPBANIP was approved by the NAM/CAR Directors of Civil Aviation in its 5th Meeting (NACC/DCA/5) as version 3.1. Version 3.1 is available at the following link: http://www.icao.int/NACC/Pages/namcar-RPBANIP.aspx.

2.3 The five key Air Navigation targets that are included in the Port of Spain Declaration were taken from the RPBANIP as agreed by the Safety and Air Navigation Directors of the CAR Region Meeting (CAR/DCA/OPSAN).

2.4 The Regional Priority, Regional Performance Objectives related to the MEVA Network infrastructure that required to be followed-up and accomplished by MEVA Network are shown in **Appendix** to this paper. The Air navigation targets that are related to the MEVA Network infrastructure under ASBU module 0 are as detailed:

ASBU B0 Module	Element	Targets
B0-30/DAIM: Service Improvement through Digital Aeronautical Information Management	AIXM 5.1 Implementation	40 % of States with AIXM 5.1 implemented by Dec.2018
B0-25/FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	AMHS Implementation	4 States to have Air Traffic Services Message Handling Services (AMHS) interconnected with other AMHS by December 2014
	ATS Interfacility Data Communications (AIDC) Implementation	50% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC/OLDI with a neighbouring ACC by December 2016.
	ATN Router Structure Implementation	70% of ATN router structure implemented by June 2016 100% MEVA III IP Network implementation by August 2015

ASBU B0 Module	Element	Targets
B0-102/SNET: Increased Effectiveness of Ground-Based Safety Nets	Short Term Conflict Alert Implementation (STCA)	80% of selected ATS units with ground based safety nets (STCA) implemented by Dec 2015
	Area Proximity Warning (APW)/ Minimum Safe Altitude Warning (MSAW)	70% of selected ATS units with ground based safety nets (APW) implemented / 70% of selected ATS units with ground based safety nets (MSAW) implemented by Dec 2015
	Medium Term Conflict Alert (MTCA)	80% of selected ATS units with ground based safety nets (MTCA) implemented by Dec 2016

3. Suggested Actions

3.1 The Meeting is invited to:

a) take note of the Regional Priorities and Air navigation targets related to the MEVA Network infrastructure;

b) agree on the necessary actions and activities to accomplished the air navigation targets shown in paragraph 2.4; and

c) conduct any further actions as deemed necessary.

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APPENDIX
NAM/CAR REGIONAL PERFORMANCE OBJECTIVES

1. IMPLEMENTATION OF PERFORMANCE BASED NAVIGATION (PBN)

Benefits

Environment	• Reductions in fuel consumption
Efficiency	• Ability of aircraft to conduct flight more closely to preferred trajectories • Increase in airspace capacity • Facilitate the utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing)

Strategy

ATM Component	TASK DESCRIPTION	START-END	RESPONSIBLE	STATUS
AOM	a) Implement Collaborative Decision-Making (CDM) process in coordination with stakeholders	2013- 2016	States, Territories, Int. Orgs	Valid
	b) Implement PBN airspace concept for oceanic, continental and terminal areas in accordance with the ICAO PBN Manual	2013- 2016	States, Territories, Int. Orgs	Valid
	c) Update Letters of Agreement between ATC units	2013- 2016	States, Territories, Int. Orgs	Valid
	d) Publish regulations and procedures for PBN operational approval	2013- 2016	States, Territories, Int. Orgs	Valid
	e) Evaluate and implement PBN requirements for ATC automated systems, as required	2013- 2016	States, Territories, Int. Org	Valid
	f) Analyze and enhance air communication, navigation (ground navaids GNSS) and surveillance infrastructure in accordance with PBN requirements	2013- 2018	States, Territories, Int. Orgs	Valid
	g) Develop and implement PBN training programme for pilots, ATCOs, operators and regulators, as well as implementation of GNSS technologies	2013- 2018	States, Territories, Int. Orgs	Valid
	h) Optimize the ATS route structure through implementation of RNAV routes between major city pairs with navigation specification RNAV-5 /2 for en-route operations	2013- 2016	States, Territories, Int. Orgs	Valid
	i) Implement CDOs/CCOs for SIDs/STARS in terminal areas based on RNAV 1-2 and RNP 1-/2 navigation specification, as required	2013- 2016	States, Territories, Int. Org	Valid
	j) Design and implement PBN APV in accordance with Assembly Resolution A37-11	2013- 2016	States, Territories, Int. Orgs	Valid
	k) Conduct PBN safety assessment based ATC simulations (fast time and/or real time), live trials, etc., as required	2013- 2016	States, Territories, Int. Orgs	Valid
	l) Develop performance measurement programme	2013- 2016	States, Territories, Int. Orgs	Valid
	m) Develop post-implementation PBN Safety Assessment Programme	2013- 2016	States, Territories, Int. Orgs	Valid
	n) Monitor implementation progress	2013- 2018	States, Territories, Int. Orgs	Valid
GPIs	GPI/5: Performance-Based Navigation; GPI/7: Dynamic And Flexible ATS Route Management; GPI/8: Collaborative Airspace Design And Management; GPI/10: Terminal Area Design and Management; GPI/11: RNP and RNAV SIDS and STARS; and GPI/12: FMS-Based Arrival Procedures			

4. IMPROVE SITUATIONAL AWARENESS				
Benefits				
Efficiency • Enhanced traffic surveillance • Enhanced collaboration between flight crews and the ATM system • Improved collaborative decision-making through electronic aeronautical data sharing • Reduced workload for both pilots and controllers • Improved operational efficiency • Improved implementation on a cost-effective basis **Safety** • Improved available electronic terrain and obstacle data in the cockpit • Reduced number of controlled flight into terrain related accidents • Improved safety management				
Strategy				
ATM Component	**TASK DESCRIPTION**	**START-END**	**RESPON-SIBLE**	**STATUS**
SDM	a) Identify the automation level required according to the ATM service provided in airspace and international aerodromes, assessing: i. Operational architecture design ii. Characteristics and attributes for interoperability iii. Data bases and software iv. Technical requirements	2013- 2018	States, Territories, Int. Orgs	Valid
	b) Implement flight plan data processing systems and electronic transmission tools	2013- 2018	States, Territories, Int. Orgs	Valid
	c) Implement radar data sharing programmes where benefits can be obtained	2013- 2017	States, Territories, Int. Orgs	Valid
	d) Develop situational awareness training programmes	2013- 2018	States, Territories, Int. Orgs	Valid
	e) Identify and implement additional ATM surveillance systems to improve accuracy and coverage of traffic situational information (ADS-B, MLAT, etc.) and associated procedures	2013- 2018	States, Territories, Int. Orgs	Valid
	f) Implement ATS automated message exchanges as required (FPL, CPL, CNL, DLA, etc.)	2013- 2018	States, Territories, Int. Orgs	Valid
	g) Implement automated radar handoffs where possible	2013- 2017	States, Territories, Int. Orgs	Valid
	h) Implement ground and air electronic warnings as needed: i. Conflict prediction ii. Terrain proximity iii. MSAW iv. DAIW v. Surveillance system for surface movement	2013- 2017	States, Territories, Int. Orgs	Valid
	i) Implement data link surveillance technologies and applications as required: ADS , CPDLC, AIDC	2014- 2018	States, Territories, Int. Orgs	Valid

SDM	j) Implement additional/advanced automation support tools to increase aeronautical information sharing i. ETMS or similar ii. MET information iii. AIS/NOTAM dissemination iv. Surveillance tools to identify airspace sector constraints	2014- 2018	States, Territories, Int. Orgs	Valid
	k) Training in the application and implementation of automated surveillance technologies and ATS system automation	2013-2018	States, Territories, Int. Orgs	Valid
	l) Enhance the training infrastructure of the region and the training programmes related to surveillance and automated systems	2013-2018	States, Territories, Int. Orgs	Valid
	m) Implement ACAS 7.1	2013-2018	States, Territories	Valid
	n) Monitor implementation progress	2013-2018	ICAO	Valid
GPIs	GPI/1: Flexible Use Airspace; GPI/6: Air Traffic Flow Management; GPI/7: Dynamic and Flexible ATS Route Management; GPI/9: Situational Awareness; GPI/13: Aerodrome Design and Management; GPI/14: Runway Operations; GPI/16: Decision Support and Alerting Systems; GPI/17: Implementation of Data Link Applications; GPI/18: Aeronautical Information; GPI/19: Meteorological Systems			

6. OPTIMIZATION AND MODERNIZATION OF COMMUNICATION INFRASTRUCTURE				
Benefits				
Efficiency • Improved ATS coordination • Increased communications availability • Communication misunderstandings avoided • Facilitated utilization of advanced technologies **Continuity** • Improved airspace interoperability and seamlessness • Improved provision of air traffic control services to all aircraft operations **Safety** • Improved airspace and aerodrome safety				
Strategy				
ATM Component	**TASK DESCRIPTION**	**START-END**	**RESPON-SIBLE**	**STATUS**
AO, TS, CM, AUO AOM, SDM	a) Review the performance status of current AFS services and identify deficiencies or improvements (AFTN, oral ATS services, A/G communications)	2013-2015	States, Territories	Valid
	b) Implement communication service improvements as required to support current and planned Air Navigation applications, including Required Communication Performance (RCPs).	2014-2018	States, Territories	Valid
	c) Develop regional ATN planning documents	2013-2015	GREPECAS	Valid
	d) Coordinate and test ATN G-G application implementation aspects (AMHS, AIDC, etc.)	2013-2018	States, Territories	Valid
	e) Conduct planning, trial and implementation activities for A-G data applications (DCL, D-ATIS, etc.)	2014-2018	States, Territories	Valid
	f) Carry out technical review of regional telecommunication networks for ATN implementation	2013-2015	States, Territories	Valid
	g) Implement available technologies in order to facilitate ground and airborne applications (CPDLC, ADS-C, ADS-B)	2013-2018	States, Territories	Valid
	h) Implement the necessary communications network for ACDM	2014-2018	States, Territories	Valid
	i) Support ICAO position during the ITU WRC and ensure regional coordination for the protection of the aviation spectrum	2013-2018	States, Territories	Valid
	j) Ensure participation of civil aviation experts in State delegations to ITU WRC meetings	2013-2018	States, Territories	Valid
	k) Disseminate ICAO policy statements on aeronautical radio frequency spectrum requirements	2013-2018	States, Territories	Valid
	l) Implement frequency spectrum management for protection and new services	2013-2018	States, Territories	Valid
	m) Support training on the application and implementation of advanced communication related technologies and ATN	2013-2018	States, Territories	Valid
	n) Enhance the regional training infrastructure and training programmes related to communications	2013-2018	States, Territories	Valid
	o) Monitor implementation and improvement of telecommunications and ATN application issues	2013-2018	ICAO	Valid
GPIs	GPI/1: Flexible Use Airspace; GPI/6: Air Traffic Flow Management; GPI/7: Dynamic Flexible ATS Route Management; GPI/9: Situational Awareness; GPI/14: Runway Operations; GP1-17: Data Link Application; GPI-21: Navigation Systems; GPI-22: Communications Infrastructure			

7. IMPLEMENTATION OF AERONAUTICAL INFORMATION MANAGEMENT (AIM)	
Benefits	
Efficiency	• Implemented SARPs from Annex 15 and Doc 8126 that apply to the wide range of aeronautical information products of the Integrated Aeronautical Information Package (IAIP), services, and electronic aeronautical information technologies • Generated and distributed aeronautical information that serves to improve the safety, accessibility and cost-effectiveness of ATS • Support PBN • Improved aircraft operating limitations analysis
Safety	• Support Electronic aeronautical chart production and on-board FMS database • Improved situational awareness • Harmonized and integrated aeronautical information safety solutions • Improved cockpit display electronic terrain and obstacle data and electronic aeronautical chart data • Reduced CFIT accidents • Support Ground Proximity (GPWS) and Minimum Safe Altitude Warning (MSAW) system

Strategy

ATM Component	TASK DESCRIPTION	START END	RESPON-SIBLE	STATUS
CM, AUO, DCB, TS, AOM, AO, SDM	The tasks to implement the identified steps in the roadmap must be specified and conducted in accordance with the phases for the transition from AIS to AIM as follows: a) Comply with the process to introduce and implement Annex15 and 4 amendments to the Chicago Convention	2013–2015	States / Territories	Valid
	b) Periodically report on the generation and distribution of Integrated IAIP aeronautical information that improves the safety of ATS in the Region to the ICAO NACC Office	2013–2016	States / Territories	Valid
	c) Develop a method to measure the performance and outcomes from States, Territories and international organizations with distribution of quality aeronautical information to improve recognition of ATM requirements, safety, and effectiveness related to the electronic distribution of information	2013–2016	ICAO, GREPECAS	Valid
	d) Assist States, Territories and international organizations to improve decision making related to their transition to AIM	2013–2016	ICAO	Valid
	e) Assist States, Territories and international organizations with the AIM, in order to implement ICAO Standards for aeronautical information products, services, and technologies in electronic format, as required	2013–2018	ICAO, GREPECAS	Valid
	f) Support AIM developments to achieve the ATM system improvements in the *Global Air Traffic Management Operational Concept*; including NOTAM contingency plans	2013–2018	States / Territories	Valid
CM, AUO, DCB, TS, AOM, AO, SDM	g) Ensure that AIM requirements harmonize and integrate at a regional and international level, on-board electronic management of aeronautical information for the requirements or the use of ground systems	2013–2018	ICAO States / Territories	Valid

	h) Share experience and resources with implementation of e-TOD through establishment of an e-TOD regional working group	2013-2018	GREPECAS States / Territories	Valid
	i) Implement ICAO Doc 9881 technical requirements as required	2013-2018	States / Territories	Valid
	j) Report requirements to the ICAO NACC Regional Office and monitor implementation status of e-TOD using electronic media	2013-2018	States / Territories	Valid
	k) Develop a high-level agreement for the management of a national e-TOD programme	2013-2018	States / Territories	Valid
	l) Monitor implementation progress	2013-2018	ICAO, States/ Territories	Valid
GPIs	GPI-5: Performance-Based Navigation; GPI-9: Situational Awareness; GPI-11: RNP and RNAV SIDS and STARS; GPI-18: Aeronautical Information; GPI-20: WGS-84; GPI-21: Navigation Systems			

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