



Organización de Aviación Civil Internacional

Oficina para Norteamérica, Centroamérica y Caribe (NACC)

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Cuestión 3 del Orden del Día

Asuntos de Navegación Aérea

3.3 Desarrollos específicos de navegación aérea

- ATM

SEPARACIÓN LATERAL DE 50NM Y ESTRUCTURA DE RUTAS RNAV EN EL GOLFO DE MEXICO

(Presentada por Estados Unidos)

RESUMEN

El propósito de esta Nota de Estudio es informar al grupo que la Administración Federal de Aviación de Estados Unidos (FAA) y Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM), en coordinación con la Oficina Regional de la OACI para Norteamérica, Centroamérica y el Caribe (NACC) y las organizaciones de operadores están haciendo un plan para implementar la separación lateral de 50 NM y una estructura de rutas navegación por área (RNAV). La fase 1 fue implementada en las áreas de Control del Golfo de México el 20 de octubre de 2011. La fase 2 está planeada para implementarse tentativamente el 20 de septiembre de 2012. Esta nota discute los planes y objetivos de la fase 2 y provee un concepto de operaciones, lista de tareas y programa así como un borrador de estructura de rutas RNAV.

Objetivos Estratégicos

Esta nota de estudio se relaciona con el Objetivo estratégico A.

1. Introducción

1.1 En 2009, la Administración Federal de Aviación de Estados Unidos (FAA) y Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM), comenzaron a trabajar juntos para avanzar en la implementación de la separación de 50NM entre operadores y aeronaves autorizadas para navegación de área (RNAV) 10, performance de navegación requerida (RNP) 10 u operaciones RNP 4 y para introducir una estructura de rutas RNAV para el Golfo de México. La FAA y SENEAM han llevado a cabo varias reuniones para planear el proyecto, y adicionalmente, han participado en las reuniones de planeación de la OACI para informar a los Estados y organizaciones de la industria acerca del avance del proyecto. En 2011, la FAA y SENEAM, se coordinaron para presentar información sobre el proyecto a la NACC/WG/3 en mayo 2011 y a la NACC/DCA/4 en Junio 2011. Adicionalmente, la FAA, en coordinación con SENEAM, proporcionaron una sesión informativa para dar una perspectiva general del proyecto en el Taller de la OACI sobre Rediseño del Espacio Aéreo PBN en Octubre 2011.

1.2 En diciembre de 2010, la FAA y SENEAM concluyeron que hace falta trabajo adicional en el diseño de los sistemas de rutas RNAV antes de poder avanzar en la publicación de rutas. Siendo este el caso, se acordó que el proyecto del Golfo de México RNAV será implementado en dos fases.

1.3 La Fase 1 fue implementada el 20 de octubre del 2011. En la Fase 1, se aplicó una separación lateral de 50 millas náuticas (NM) en el espacio aéreo del Golfo de México entre aeronaves autorizadas RNP 10 o RNP 4 dentro de la estructura actual de rutas ATS y políticas de operación.

1.4 La fase 2 está tentativamente planeada para el 20 de septiembre de 2012. En la fase 2, se planea que la actual estructura de rutas sea remplazada por el sistema de rutas RNAV con separación lateral de 50 NM.

1.5 Se han aplicado provisiones de separación lateral de 50 NM en la FIR de San Juan, la porción Atlántica del área de control oceánico de Miami (CTA) y el Sistema de Rutas del Atlántico Occidental (WATRS) desde junio de 2008. Esas provisiones están publicadas en los procedimientos suplementarios regionales (SUPPS) de la OACI para la región CAR, Capítulo 2 (Planes de Vuelo) párrafo 4.1.1 Especificaciones sobre navegación de área (RNAV), párrafo 6.2.1 (Separación Lateral) y Capítulo 7.2 (Monitoreo del Espacio Aéreo). Adicionalmente, se han incorporado provisiones para la aplicación de la separación lateral de 50 NM en los párrafos 5.4.1.2 (Criterios de separación lateral y mínima) del Doc 4444 de la OACI.

2. Avances significativos de la Fase 1

2.1 El párrafo 4.1.1.1.1 de los Procedimientos Suplementarios CAR fue actualizado para la implementación de la Fase 1 para mostrar la FIR oceánica de Houston, la porción del Golfo de Mexico correspondiente al Control de Área oceánica de Miami y la porción del Golfo de México de la FIR Mexico como áreas donde la separación de 50 NM se puede aplicar.

2.2 Las políticas de operación y procedimientos de aplicación de de separación lateral de 50 NM fueron publicadas en los siguientes documentos:

- Notificación de la FAA: Iniciativa de separación lateral de 50 NM en el Golfo de México – Política Operacional y Procedimientos; y
- Circular Obligatoria de la DGAC México: Implementación de Separación Lateral de 50 NM en el Golfo de México

2.3 La FAA, en coordinación con SENEAM, estableció una página web que muestra guías y documentos de políticas, así como información relacionada con el proyecto. Esta se titula “ Página Web de la Iniciativa de Reducción de Separación Lateral de 50NM en el Golfo de México” y se puede tener acceso a través del siguiente enlace:

http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/oceanic/gomex/

3. Objetivos Del Proyecto de la Fase 2

3.1 Los principales objetivos del proyecto son:

- Continuar aplicando la separación lateral de 50 NM en operaciones entre aeronaves autorizadas para RNP 10 o RNP 4 dentro de la región de información de vuelo (FIR)/ Área de Control de Houston (CTA), la porción del Golfo de México del CTA Oceánico de Miami, y las áreas de control superior de Mérida y Monterrey.

- Continuar aplicando las provisiones de la OACI respecto al manual de navegación basada en la performance (PBN) para operaciones en el Golfo de México para permitir a aeronaves equipadas con un solo Sistema de Navegación de Largo Alcance a calificar para autorización RNP 10 (Referencia Manual PBN de la OACI, Volumen II, Parte B, Capítulo 1, párrafo 1.3.6.2);
- Acomodar la operación de un pequeño porcentaje de operadores y aeronaves que pueden no haber obtenido autorización RNP 10 al mismo tiempo que se continúa trabajando con operadores y organizaciones internacionales para maximizar el número y porcentaje de vuelos en el Golfo de México conducidos por operadores y aeronaves autorizados para operaciones RNP 10 o RNP 4;
- Armonizar las políticas y procedimientos de separación lateral de 50 NM entre los proveedores ATS adyacentes;
- Implementar un sistema de rutas RNAV en los CTAs del Golfo de México basados en una separación lateral de 50 NM.

4. Información proporcionada en los Apéndices de esta nota:

4.1 Los apéndices de esta nota describen las provisiones operacionales y tareas para la implementación de la fase 2 de la RNP 10 para el Espacio Aéreo del Golfo de México de acuerdo a los Procedimientos Suplementarios CAR y el Doc 4444. Los apéndices (disponibles en inglés únicamente) son:

- **Apéndice A:** Concepto de operaciones para implementación de la Separación Lateral de 50 NM en las rutas existentes del Golfo de México;
- **Apéndice B:** Lista de tareas para la implementación de la Separación Lateral de 50 NM en rutas existentes ATS en el Golfo de México;
- **Apéndice C:** Gráfica que muestra la estructura de rutas ATS existente en el Golfo de México;
- **Apéndice D:** Gráfica que muestra la estructura tentativa de rutas RNAV en el Golfo de México;
- **Apéndice E:** Lista tentativa de Segmentos de Ruta propuestos para ser removidos o enmendados de los CTAs del Golfo de México para la revisión del Doc 8733 de la OACI;
- **Apéndice F:** Políticas Tentativas de Operación de Rutas RNAV.

5. Acciones Sugeridas

5.1 La Reunión está invitada a:

- a) tomar nota del plan proyecto de la Fase 2, la lista de tareas y el sistema de rutas tentativo RNAV;

- b) apoyar el trabajo continuo de implementación de la separación lateral de 50 NM y un sistema de rutas RNAV en el espacio aéreo sobre el Golfo de México.

APÉNDICE A
(Disponible únicamente en inglés)

PHASE 1 CONCEPT OF OPERATIONS

Note: final policies and procedures will be published in an FAA Notice and a DGAC Mexico Circular Obligatoria and posted on the Gulf of Mexico 50 NM Lateral Separation/RNAV Routes Project Website.

CONCEPT OF OPERATIONS FOR IMPLEMENTATION OF 50 NM LATERAL SEPARATION ON EXISTING GULF OF MEXICO ROUTES

1. Vertical and horizontal boundaries of airspace

a. **Horizontal Boundary.** 50 NM lateral separation is planned to be applied between aircraft authorized RNP 10 or RNP 4 operating on oceanic routes or areas:

- Within the Houston Oceanic CTA/FIR and the Miami CTA/FIR.
- Within the Mexico FIR/UTA: Monterrey CTA and Merida High CTA

b. **Vertical Boundary.** 50 NM lateral separation is planned to be applied between aircraft authorized RNP 10 or RNP 4 operating above the floor of controlled airspace within the CTAs listed above.

2. Lateral separation standard(s) to be applied

a. **Application of 50 NM Lateral Separation to Operators/Aircraft Authorized RNP 10 or RNP 4.** 50 NM lateral separation will be applied between aircraft authorized RNP 10 or RNP 4 operating at any altitude within the Gulf of Mexico CTAs above the floor of controlled airspace.

b. **Lateral Separation Applied to Operators/Aircraft Not Authorized RNP 10 or RNP 4.** Within the Gulf of Mexico Oceanic CTAs, the lateral separation currently applied to operators/aircraft not authorized RNP 10 or RNP 4 (NonRNP10 aircraft) will continue to be applied, i.e., 100 NM in the Houston, Monterrey and Merida CTA's and 90 NM in the Miami Oceanic CTA.

3. Concept for transfer of control to Adjacent CTA's. Transfer of control will be affected per regional agreement with the appropriate separation standard applied.

4. Concept for Route Structure.

a. The RNAV route structure in the oceanic portion of the Gulf of Mexico will be based on 50 NM lateral separation.

5. Operator/Aircraft requirements for operation on routes on the periphery of the Gulf CTAs. Operation on certain routes that fall within the boundaries of Gulf CTAs will not be affected by the introduction of RNP 10/50 NM lateral separation (e.g., routes defined by VOR and DME).

6. Flight Plan Equipment Suffix Requirements

a. **ICAO Flight Plan Required.** Operators are required to file an ICAO flight plan.

b. **ICAO Flight Plan Entries.** To inform ATC that they have RNP 10 or RNP 4 authorization and are eligible for 50 NM lateral separation, operators must annotate:

- *Item 10 (Equipment) of the ICAO Flight Plan with the letter “**R**” (RNP type certification) and “**Z**” (Other equipment carried).
- *Item 18 (Other Information) with, as appropriate, “NAV/RNP10”, “NAV/RNP4”, “STS/NONRNP10”.

c. **15 November 2012 Implementation: ICAO Flight Plan (FPL) 2012.** ICAO has published a revised ICAO Doc 4444, Appendix 2 policy for ICAO Flight Plan Item 18 entries to show aircraft Comm, Nav and Surveillance capabilities. The revised Doc 4444, Appendix 2 material is planned to be effective on 15 November 2012.

7. Provisions for accommodating aircraft not meeting RNP 10 or RNP 4

a. For the project to be fully successful, operators flying on oceanic routes or areas in the Gulf of Mexico CTAs between FL 290-410 (inclusive) should obtain RNP 10 or RNP 4 authority (to the maximum extent possible). **For initial project implementation, however, the airspace of the Gulf CTAs will not be “exclusionary”.** Aircraft not authorized RNP 10 will be allowed to fly on oceanic routes or areas within Gulf CTAs, however, 50 NM lateral separation will not be applied to them. They will be cleared on their preferred routes and altitudes as traffic permits. Aircraft that are authorized RNP 10 or RNP 4 will have a better opportunity of obtaining their preferred route and altitude because the 50 NM lateral separation standard will be applied to those aircraft.

b. The following basic accommodation policies will apply:

(1) Operators/aircraft not authorized RNP 10 or RNP 4 will file “STS/NONRNP10” in Item 18 of the ICAO flight plan and will notify the controller that they do not have RNP 10 authorization upon making voice contact.

Note: this provision will have to be reviewed and possibly revised for FPL 2012 implementation on 15 November 2012.

(2) Non-RNP 10 operators/aircraft will be able to file any route at any altitude in the Gulf of Mexico CTAs. They will be cleared to operate on their preferred routes and altitudes in accordance with existing policy (i.e., traffic permitting).

(3) Non-RNP 10 aircraft will retain the option of climbing to operate at altitudes above those where traffic is most dense (i.e., at/above FL 410). To minimize the chance of conflict with aircraft on adjacent routes, Non-RNP 10 aircraft should plan on completing their climb to or descent from higher FL’s within radar coverage.

8. Aircraft Population RNP 10 or RNP 4 Authorization Objective

a. Implementation Objective: Percentage of Flights Authorized RNP 10 or RNP 4. The Gulf Task Force will progress its work with the objective of having approximately 85% of flights operating in Gulf oceanic airspace authorized for RNP 10 or RNP 4 by 20 September 2012.

b. RNP 10 or RNP 4 Compliance To the Maximum Extent Possible. The Gulf Task Force will advocate that all operators/aircraft that fly in the Gulf CTAs obtain RNP 10 or RNP 4 authorization as soon as possible.

9. Aircraft/operator authorization requirements (equipage, RNP 10 authorization documents)

a. For 50 NM lateral separation to be applied, operators are required to obtain RNP 10 or RNP 4 authorization from the appropriate State authority.

b. For Gulf of Mexico operations, aircraft equipped with a single Long Range Navigation System will qualify for RNP 10 authorization. The provisions of Volume II, Part B, Chapter 1, paragraph 1.3.6.2 of the ICAO PBN Manual will apply.

c. Guidance To Be Used. The FAA will use FAA Order 8400.12 (as amended) for RNP 10 authorization or, if applicable, FAA Order 8400.33 (as amended) for RNP 4 authorization. It is recommended that other States use either the FAA orders or the ICAO Performance Based Navigation (PBN) Manual (ICAO Document 9613).

12. Target Dates:

a. Implementation Decision Date: 1 June 2012

b. Operator/aircraft RNP 10 or RNP 4 Authorization Date: 20 Sept 2012

c. Target Implementation Date: 20 Sept 2012

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PHASE 2 TASK LIST: IMPLEMENTATION OF 50 NM LATERAL SEPARATION ON GOMEX RNAV ROUTES

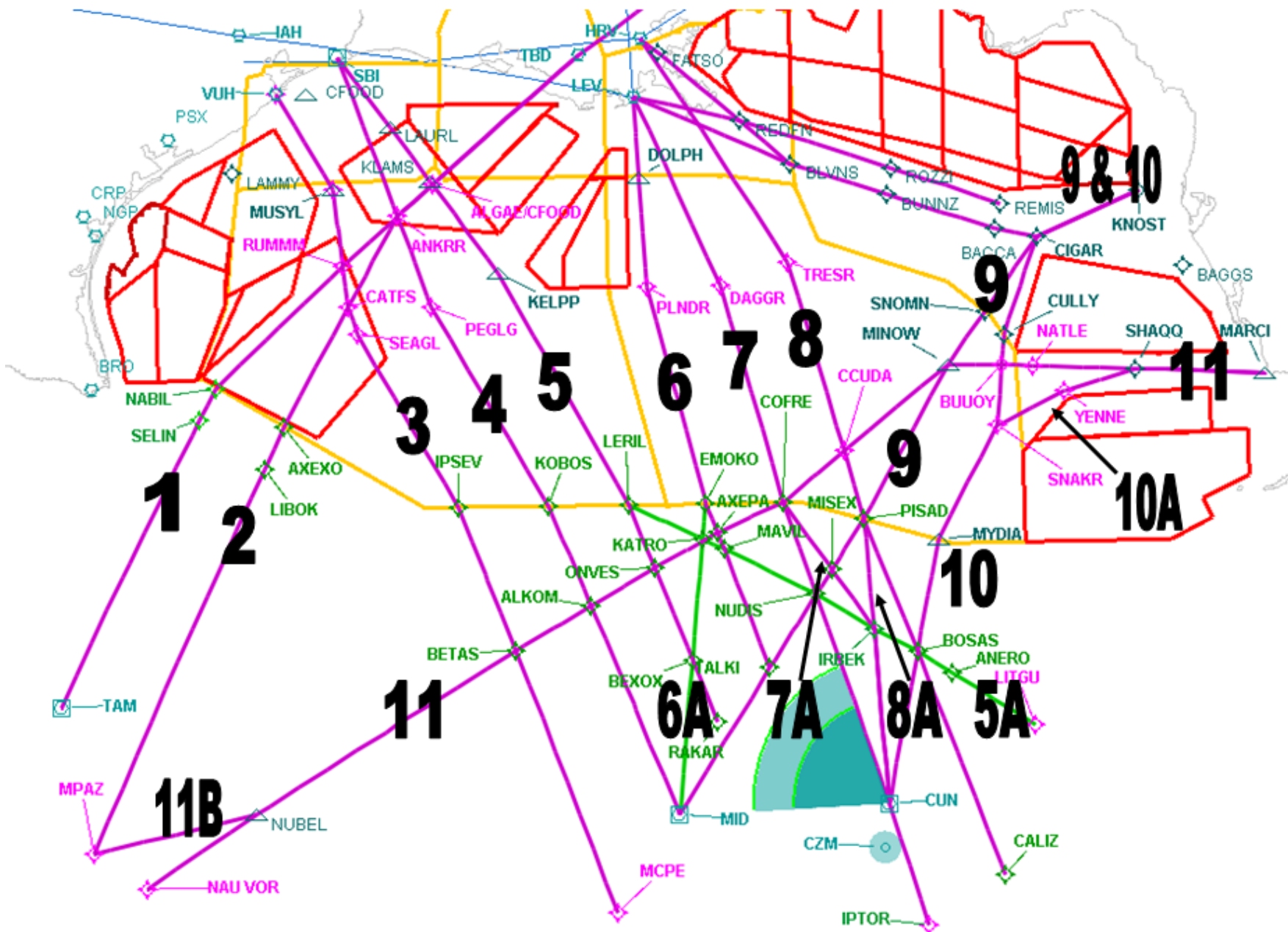
<u>SUBJECT</u>	<u>TARGET DATE</u>	<u>LEAD</u>	<u>SUMMARY/STATUS OF KEY IMPLEMENTATION TASKS – update 30 Jan 12</u>
ICAO SARPS and Guidance	3/15/2010	FAA, SENEAM	Complete. Review related ICAO SARPS and guidance documents. ICAO Doc 4444, Annexes 2 and 6. Note: 50-lat criteria is currently published on Caribbean (CAR) Regional Supplementary Procedures (ICAO Doc 7030) and ICAO Doc 4444, paragraph 5.4.1.2.
Task List and Schedule	3/15/2010	FAA, SENEAM	Ongoing. Draft Task List developed and coordinated. Add updates as needed.
Concept of Operations	3/15/2011	FAA, SENEAM	Complete. Concept of Operations reviewed at the July 2011 FAA/SENEAM/IATA meeting. Incorporated into FAA Notice and DGAC Mexico Circular Obligatoria.
Develop Safety Assessment/Collision Risk Modeling Document	5/25/2011	FAA	Complete. FAA Tech Center submitted draft Safety Assessment /Collision Risk Modeling on 10 May.
RNP 10 or RNP 4 Authorization Job Aids	8/1/2011	FAA	Complete. Job Aids updated to reflect S-LRNS and posted to Gulf Webpage
RNP 10 and RNP 4 authorization criteria including S-LRNS eligibility.	8/1/2011	FAA, SENEAM	Complete. 1. Reviewed ICAO Performance Based Navigation (PBN) Manual (ICAO Doc 9613) for current criteria for RNP 10 and RNP 4 authorization. (Third Edition - 2008 is current) 2. Determined that RNP 10 can be authorized for single LRNS equipped aircraft for Gulf operations. Reference: ICAO PBN Manual, Vol II, Part B, Chapter 1, paragraph 1.3.6.2. FAA Order 8400.12C, Operations Specifications, LOA's, Inspector Handbook material completed.
Provider State ATS Policy Documents	8/15/2011	FAA, SENEAM	Complete. Provider States review or develop Air Traffic Services policy documents, as necessary. FAA Order 7110.65 has been updated and submitted.
State Regulations and Guidance	9/1/2011	States	States revise regulations and guidance, as necessary and prepare responsible offices for operator authorization tasks.
ICAO Regional Supplementary Procedures	9/1/2011	ICAO NACC Office	Complete. CAR Regional SUPPS updated to add Houston, Miami on Gulf side and Mexican FIRs in Gulf airspace as areas where 50-lat can be applied.
RNP 10 Operator Authorization Documents	10/1/2011	FAA, SENEAM	Complete. Finalize operator authorization documents: Operations Specifications (OpSpecs), Intl. General Aviation LOA's (Letters of Authorization), etc

APÉNDICE B
(Disponible únicamente en inglés)

<u>SUBJECT</u>	<u>TARGET DATE</u>	<u>LEAD</u>	<u>SUMMARY/STATUS OF KEY IMPLEMENTATION TASKS</u> – update 30 Jan 12
Establish Target Implementation Date	12/1/2011	FAA, SENEAM	Complete. Agreement reached to target 20 Sept 2012 as the date for Phase 2 implementation.
NACC WG/9: 5-9 March 2012	3/5/2012	FAA, SENEAM	Attend NACC WG/9 meeting at ICAO Offices in Mexico City. FAA and SENEAM to be provided rooms for break out meetings on Gulf RNAV project.
RNAV Route Structure & Route Operating Policies	3/7/2012	FAA, SENEAM	On-going. Review RNAV route structure and route operating policies during ICAO NACC WG/9 meeting (5-9 March 2012).
Examination of Costs and Benefits	3/7/2012	FAA, SENEAM	OPEN. 1. FAA Tech Center Route Analysis results available for 7 March. (Minimal cost to operators: aircraft already equipped with at least single LRNS).
Plan Working Papers for Regional ICAO Working Groups	3/7/2012	FAA, SENEAM	Ongoing. Submit Working Papers and Information Papers to appropriate ICAO Working Groups in the region, as needed.
Revision to ICAO Doc 8733 (CAR/SAM Air Navigation Plan (ANP))	3/7/2012	FAA, SENEAM, ICAO	OPEN. Review list of revisions to ICAO Doc 8733 (CA/SAM ANP) and establish date for submission to ICAO NACC Office.
ATC Systems	3/7/2012	FAA, SENEAM	On-going. Review any issues related to ATC systems.
Plan and schedule for aeronautical chart data publication	3/7/2012	FAA, SENEAM	OPEN. Review key dates for route publication: a. Stand-alone Transition Waypoints (if adopted): data by 4/27/12 for publication on 5/29/12. b. Gulf RNAV Route/Waypoint: data by 6/22/12 for publication on 7/24/12 for 9/20/12 Gulf RNAV route implementation
Transition Plan	3/7/2012	FAA, SENEAM	OPEN. Develop sequence of events for day prior and day of implementation.
Safety Risk Management Document (SRMD) and Safety Assessment	4/1/2012	FAA, SENEAM	In progress. Update as necessary
Advance Notice	4/1/2012	FAA, SENEAM	OPEN. Publish notice of intent to implement (key dates, basic plan and operating policy, etc.).
ICAO State Letter	4/1/2012	ICAO	OPEN. Distribute ICAO State letter on Gulf RNAV Routes project. Outline project and use of RNP 10 and RNP 4 Job Aids and other guidance posted on the Gulf of Mexico Webpage.

<u>SUBJECT</u>	<u>TARGET DATE</u>	<u>LEAD</u>	<u>SUMMARY/STATUS OF KEY IMPLEMENTATION TASKS – update 30 Jan 12</u>
Information Dissemination Program	4/1/2012	FAA	OPEN. 1. Action: update Web Page content and post documents. (Web page is online). 2. Distribute material to operator, flight planning, flight products, training and appropriate State authorities using distribution list.
Establish measures to inform Flight Operations inspectors	4/1/2012	FAA, SENEAM	OPEN. Advance Notice to be distributed to FSDO, Regional and Industry contacts. SENEAM contacts have been added. Take action to inform Flight Operations inspectors of Gulf program requirements.
Project status review	6/1/2012	FAA, SENEAM	OPEN. FAA and SENEAM review factors related to implementation and determine whether to proceed with implementation on 9/20/12.
Operator/aircraft fleet readiness projection	7/1/2012	FAA	OPEN. Need to assess percentage of flights filing RNP 10 or RNP 4. Gulf aircraft are currently equipped with at least a single long range navigation system (LRNS) that will meet RNP 10. Know Your Airspace (KYA) data is available.
Operational Policy & Procedures Documents	7/15/2012	FAA, SENEAM	OPEN. FAA update FAA Notice. SENEAM update DGAC Circular Obligatoria.
Notice of Decision to Implement	7/20/2012	FAA, SENEAM	OPEN. Provider States issue NOTAM of intent to implement on 20 Sept 2012. Provide notification to States and operators of decision to implement
State Controller Training	8/20/2012	FAA, SENEAM	OPEN. ATS provider States start controller training. FAA and SENEAM to share training materials.
Operators Obtain RNP 10 or RNP 4 Authorization	8/20/2012	Operators	OPEN. Operators of RNP 10 or RNP 4 capable aircraft try to obtain RNP 10 or RNP 4 authorization one month in advance of implementation. Will need to follow up with operator groups.
Target Implementation Date and time	9/20/2012	All	OPEN. Need to determine time of implementation. Time UTC?
Post Implementation Monitoring: 30-day Review	10/20/2012	FAA, SENEAM	Conduct 30-day post implementation review. Convene specialists as necessary for monitoring.
12-month Review	10/20/2012	FAA, SENEAM	Conduct 12-month review.
90-day Review	12/20/2012	FAA, SENEAM	Conduct 90-day review.

DRAFT GULF RNAV ROUTES



APÉNDICE D
(Disponible únicamente en inglés)

APÉNDICE E
(Disponible únicamente en inglés)

Draft 27 Jan 12

ROUTE (RUTA) SEGMENTS PROPOSED TO BE DELETED <u>IN GULF CTA'S</u>		
AIRWAY	RNAV REPLACEMENT	CTA's
UA552	RUTA 1	MTY/MEX/HOU
UA649	RUTA 2	MTY/MEX/HOU
UT7	RUTA 2	MTY/MEX
UT21	RUTAS 3 & 4	MID
UB753	RUTA 4	MID/HOU
UL674	5A	HOU/MID/HAV
A766	RUTA 5 & 6	MID/HOU
UA770	6A	MID/HOU
A626	RUTA 6 & 7	MID/HOU
A321	RUTA 8	MID/HOU
UA509	RUTA 11	MEX/MID/MIA
UA758	9	MID/MIA
UB881	10	MID/MIA

ROUTES PROPOSED TO REMAIN	CTA's
UT11, UJ2, J177, UJ34	MTY/HOU
UR522, UT11,UJ2, B646	MID/MIA

APÉNDICE F
(Disponible únicamente en inglés)

DRAFT 31 Jan 2012

GULF OF MEXICO RNAV ROUTE OPERATING POLICY

1. Introduction

a. Purpose of This Document. This document contains the draft Air Traffic Management (ATM) operating policies proposed to be applied to the proposed Gulf RNAV routes. It focuses on policies such as: bidirectional versus unidirectional operations and route usage.

b. Tentative Gulf RNAV Route Implementation Date. The tentative implementation date being considered is 20 Sept 2012. The implementation date may be affected by factors such as the FAA ERAM/ATC automation upgrade schedule.

2. Key Policies Proposed For Specific Routes

a. Miscellaneous Policies Applicable To Routes 1-11.

(1) During RADAR outages - Non-RADAR rules will apply

(2) Control Areas (CTAs): to facilitate RADAR handoffs

AIRWAY	WAYPOINT	CTA´s
1	NABIL	ZHU-MTY
2	AXEXO	ZHU-MTY
3	IPSEV	ZHU-MID
4	KOBOS	ZHU-MID
5	LERIL	ZHU-MID
6	EMOKO	ZHU-MID
7	COFRE	ZHU-MID
8	PISAD	ZHU-MID
8	PISAD	ZHU-MID
10	MYDIA	ZHU-MID
11	COFRE	ZHU-MID

(3) IATA has requested that FAA/SENEAM consider life raft equipage rule (162 NM from shore) in developing routes paralleling the coast.

b. Policies Applicable to SENEAM/FAA Proposed RNAV Routes

- (1) Proposed minimum track spacing is 50 NM.
- (2) 50 NM lateral separation will only be applied to operators/aircraft authorized RNP 10 or RNP 4.
- (3) Operators/aircraft not authorized RNP 10 or RNP 4 are proposed to be accommodated, however, 50 NM lateral separation will not be applied to them.
- (4) FAA and SENEAM will allow aircraft equipped with one Long Range Navigation System to qualify for RNP 10 operations (S-LRNS).
- (5) At this time, S-LRNS qualification for RNP 10 will only apply to GoMex operations. Any expansion of this provision will require assessment and agreement by the appropriate State authorities.

3. **Operating Policy In Houston (ZHU) and Monterrey (MTY) Centers**

#Route 1: -Planned to be unidirectional – northbound in MTY airspace
-Planned to be published as unidirectional
(Editorial note: is only Route 1 to be published uni-directional?)
-Planned to be operated as bidirectional in ZHU airspace

#Route 2: -Planned to be bidirectional in ZHU airspace
 -Planned to be unidirectional southbound only in MTY airspace

4. **Operating Policy In ZHU and Merida (MID) Centers**

a. **General Notes:**

- (1) Operating policy to/from Cancun (MMUN) also applies to Cozumel (MMCZ)
- (2) “**Over flights**” refers to flights over flying MMUN, Merida (MMMD) and MMCZ to/from destinations in the Caribbean, Central and South America.

b. **Proposed Route Operating Policies.**

#Route 3: -Planned to be bidirectional
-Over flights allowed to/from destinations in Caribbean, Central and South America
 -No MMUN/MMCZ arrivals
 -No altitude restrictions
 -Campeche (CPE) and Merida (MMMD) arrivals allowed

#Route 4: -Planned to be bidirectional
 -Over flights allowed
 -MMUN/MMCZ/MMMD arrivals allowed
 -No altitude restriction

#Route 5: -Planned to be bidirectional in FAA airspace
-Planned to be unidirectional Southbound in SENEAM airspace
-MMUN/MMCZ arrivals allowed

#Route 5A (LERIL-LITGU)
 -Planned to be bidirectional

— F3 —

- Over flights allowed
- No altitude restriction

#Route 6: -Planned to be bidirectional in FAA airspace
-Planned to be unidirectional Southbound in SENEAM airspace
-MMUN/MMCZ arrivals only
-No over flights
-No altitude restriction

#Route 6A: -Planned to be bidirectional
-Over flights allowed
-MMMD arrivals allowed.
-No altitude restriction

#Route 7: -Planned to be bidirectional in FAA airspace
-Planned to be unidirectional Southbound in SENEAM airspace
-MMUN/MMCZ arrivals allowed
-Southbound over flights.
-No altitude restriction.

#Route 8: -Planned to be bidirectional
-No altitude restriction
-MMUN/MMCZ arrivals (PISAD, Route 9 NUDIS, MMUN) allowed
-Over flights allowed

#Route 7A CUN-IRBEK-MISEX-COFRE
-Planned to be unidirectional
-Departures from Cancun only

#Route 8A CUN-IRBEK-PISAD
-Planned to be unidirectional
-Departures from Cancun only

#Route 9: -Planned to be bidirectional
-No altitude restriction
-MMUN/MMCZ arrivals allowed
-MMMD arrivals allowed
-Military flights to join Route 8 southbound to remain clear of sovereign
Airspace

CA/ANE/WG/7 / C/CAR/WG/9
NE/23

— F4 —

#Route 10: -Planned to be northbound only
-No altitude restriction
- Procedurally separated from Route 9 (can use inappropriate altitude for direction)

#Route 10A: under ZMA/ZHU discussion.

#Route 11: -Miami to MMMX routing: Route 11 to MINOW to COFRE to NUBEL
-Planned to be bidirectional
-No altitude restriction
-Route is planned to be operated under radar and VHF coverage.

#Route 11A: NAU - NUBEL for departures from MMMX

#Route 11B: NUBEL - PAZ for arrivals into MMMX

— FIN —