



International Civil Aviation Organization

Third North Atlantic/Caribbean (NAT/CAR) ATS Routes Working Group Meeting

(NAT/CAR WG/3)

Miami, Florida, USA, 13 to 15 November 2007

NAT/CAR WG/3 - WP/05

08/11/07

Agenda Item 3:

ATS Route Structure Redesign Issues

3.2 Review of proposal for amendment to the CAR/SAM Air Navigation Plan (ANP)

PROPOSALS FOR THE AMENDMENT OF CAR AND NAT REGIONAL SUPPLEMENTARY PROCEDURES (SUPPs) (Doc 7030)

(Presented by the Secretariat)

SUMMARY

The Appendices to this Working Paper contain draft amendments to the Caribbean (CAR) and North Atlantic (NAT) Doc 7030 Regional Supplementary Procedures (SUPPs). These drafts contain proposed criteria for the implementation of 50 NM lateral separation in designated airspace of the CAR and NAT Regions. The group is requested to review and endorse the draft amendments.

ICAO Strategic Objective:

A: Safety – Enhance global civil aviation safety

D: Efficiency – Enhance the efficiency of aviation operations

E: Continuity – Maintain the continuity of aviation operations

Global Performance Indicator:

GPI-5 Performance Based Navigation

1. Discussion

1.1 The airspace proposed for introduction of 50 NM lateral separation falls within both the Caribbean (CAR) and North Atlantic (NAT) ICAO regions. The Appendices to this Working Paper contain proposed revisions for both, the CAR and NAT Regional Supplementary Procedures (SUPPs).

1.2 **Appendix A**, draft CAR SUPPS amendment reflects content and wording endorsed in the CCAR/DCA/9 Meeting held in Aruba, in July 2007. It contains a draft proposal that will enable 50 NM lateral separation to be implemented in WATRS Plus Control Areas airspace in the CAR region and to enable New York Oceanic FIR/CTA airspace outside WATRS to be utilized as transition airspace.

1.3 **Appendix B** contains a draft proposal for amendment of the NAT SUPPs to enable 50 NM lateral separation to be implemented in WATRS airspace in the NAT region and to enable New York Oceanic FIR/CTA airspace outside WATRS in the NAT region to be utilized as transition airspace.

2. Amendment processing

2.1 ICAO Headquarters has tasked the ICAO North American, Central American and Caribbean Office (NACC) with distributing the CAR and NAT amendment proposals for State and organization comment. The CAR and NAT proposals are planned to be distributed soon as a single document. NACC is coordinating this effort with the ICAO European/North Atlantic (EUR/NAT) Office.

3. Coordination efforts to date

3.1 Doc 7030 is currently in a complete reviewing process. The ICAO EUR/NAT Regional Office and ICAO Headquarters specialists have provided updated information to ICAO NACC Office for the development of the CAR draft amendments.

4. Suggested action

4.1 The Meeting is invited to review and endorse the Draft CAR SUPPs amendment.

APPENDIX A

WATRS PLUS PROJECT PROPOSAL FOR AMENDMENT OF CAR REGIONAL SUPPLEMENTARY PROCEDURES (SUPPS) (Doc 7030)

(Serial No. NACC 07/01 - ATM)

a) **Proposed by:** The United States of America

b) **Proposed amendment:**

(Regional Supplementary Procedures, Doc 7030/4, CAR, Part 1— Rules of the Air, Air Traffic Services and Search and Rescue)

Amend the SUPPs applicable in the **CAR Region** as shown below;

5.0 SEPARATION OF AIRCRAFT

5.1 Lateral separation

5.1.1 *Minimum lateral separation shall be:*

Insert new text as follows:

- 1) 93 km (50 NM) between aircraft authorized RNP 10 or RNP 4 by the State of the Operator or the State of Registry, as appropriate, operating on oceanic routes or areas:
 - a) Within the control area of the San Juan FIR, the Atlantic portion of the Miami Oceanic control area or the West Atlantic Route System (WATRS);
 - b) Outside WATRS within the control area of the New York Oceanic FIR except, minimum lateral separation between aircraft transitioning from airspace in the New York Oceanic FIR/CTA to MNPS airspace shall be 110 km (60 NM);

Note: RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation. See other provisions for application of 93 km (50 NM) lateral separation in paragraph 5.1.2.

- 2) 60 NM between aircraft which meet the North Atlantic minimum navigation performance specifications (MNPS) which, while operating in the control area of San Juan FIR control area, are in transit to or from the NAT MNPS airspace;

Note: The NAT MNPS are set forth in NAT SUPPS, Section 3.0. NAT MNPS airspace is identified in NAT SUPPS, 3.2.

- 3) 90 NM between aircraft not authorized RNP 10 or RNP 4 operating between the United States, Canada or Bermuda and points in the CAR Region in the control areas of San Juan and New York Oceanic FIRs and the Atlantic portion of the Miami Oceanic control area;
- 4) 100 NM west of 60W (only in Oceanic areas) between aircraft not covered in 1) and 2) above, and between aircraft in the control area of Piarco FIR west of 55W;
- 5) 120 NM between aircraft operating east of 60W in the New York Oceanic FIR, and between aircraft in the control area of Piarco FIR east of 55W; except that lower minima as detailed in 5.4.1.1.2 of the PANS ATM may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS ATM provisions are met (see 5.4).

5.1.2 For 93 km (50 NM) lateral separation to be applied between aircraft authorized RNP 10 or RNP 4 in the oceanic control areas listed in paragraph 5.1.1 operators and civil aviation authorities must follow the provisions listed below.

5.1.2.1 The aircraft and Operator must be authorized RNP 10 or RNP 4 by the State of the Operator or the State of Registry, as appropriate. RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation.

5.1.2.2 States shall ensure, when granting authorization for RNP 10 or RNP 4, that Operators establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error.

Note: The ICAO Performance Based Navigation (PBN) Manual Volume I – Concept and Implementation Guidance (Doc 9613) provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification. Doc 9613 will be supplemented and updated as required and as new material becomes available.

5.1.2.3 All operators authorized RNP 10 or RNP 4 shall include the letter “R” and the letter “Z” in Item 10 of the Filed Flight Plan and NAV/RNP10 or NAV/RNP4, as appropriate, in Item 18.

5.1.2.4 A target level of safety (TLS) of 5×10^{-9} fatal accidents per flight hour per dimension shall be established for route systems operating a 93 km (50 NM) lateral separation minimum. The safety level of such airspace shall be determined by an appropriate safety assessment.

Note: Detailed guidance material on conducting safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

5.1.2.5 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of the achieved lateral navigation performance of the population in relation to the lateral separation minimum. These data shall include statements of the core of the lateral navigational performance, the proportion greater than one-half the lateral separation minimum and the proportion in the vicinity of the adjacent route centreline as these measures have been shown to have a direct link to the risk of collision. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met. Data shall include operational errors due to all causes.

Note: Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO. Detailed guidance is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

End of new text

c) Intended date of implementation:

5 June 2008

d) Proposal circulated to the following States and international organizations:

Algeria	Gabon
Argentina	Gambia
Angola	Germany
Australia	Ghana
Austria	Greece
Bahamas	Guinea Bissau
Bangladesh	Guyana
Barbados	Haiti
Belgium	Hungary
Bolivia	Iceland
Brazil	India
Brunei Darussalam	Indonesia
Bulgaria	Ireland
Cambodia	Israel
Cameroon	Italy
Canada	Jamaica
Cape Verde	Japan
Central African Republic	Jordan
Chile	Kazakhstan
China	Kenya
Colombia	Lebanon
Congo	Luxembourg
Cote d'Ivoire	Madagascar
Cuba	Malaysia
Czech Republic	Mexico
Democratic People's Republic of Korea	Monaco
Democratic Republic of the Congo	Mongolia
Denmark	Morocco
Dominican Republic	Mozambique
Ecuador	Namibia
Egypt	Nepal
Ethiopia	Netherlands
Finland	New Zealand
France	Niger
	Nigeria

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Norway	Tunisia
Pakistan	Turkey
Panama	Uganda
Paraguay	Ukraine
Peru	United Arab Emirates
Philippines	United Kingdom
Poland	United Republic of Tanzania
Portugal	United States*
Republic of Korea	Uruguay
Romania	Uzbekistan
Russian Federation	Venezuela
Saudi Arabia	Viet Nam
Senegal	ASECNA*
Sierra Leone	COCESNA*
Singapore	EUROCONTROL*
Somalia	IACA*
South Africa	IAOPA*
Spain	IATA*
Suriname	IBAC*
Sweden	IFALPA*
Switzerland	IFATCA*
Tajikistan	
Thailand	
Trinidad and Tobago	

For information purposes only

e) Originator's reasons for amendment:

1) On 5 June 2008, the United States, in coordination with States, ATS providers and with international organizations in the Caribbean and North Atlantic, is planning to implement a redesigned route structure in conjunction with a reduction of lateral separation within the control area of the San Juan FIR, the Atlantic portion of the Miami Oceanic control area and the West Atlantic Route System (WATRS).

2) 93 km (50 NM) lateral separation is planned to be applied between aircraft authorized Required Navigation Performance 10 (RNP 10) or RNP 4 by the State of Registry or State of Operator, as appropriate, operating on oceanic routes or areas.

Note: Guidance and direction for RNP authorization is provided in ICAO Annex 6, Parts I and II, paragraph 7.2 (Navigation equipment). Guidance on the application of 93km (50NM) lateral separation between aircraft authorized RNP 10 or RNP 4, is provided in ICAO Annex 11, Attachment B.

3) Reduction of lateral separation from 167 km (90 NM) to 93 km (50 NM) will enable an increase of approximately 40% in the number of routes and associated altitudes. Increased availability of routes and altitudes will enable more aircraft to operate on time and fuel efficient routes and altitudes thereby reducing fuel burn and engine emissions. In addition, en route capacity and Air Traffic Management (ATM) flexibility will be enhanced.

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4) Analysis of aircraft types operating in the oceanic areas affected by this initiative indicates that approximately 90% of the flights conducted in the airspace are now flown by aircraft meeting RNP 10 or RNP 4 standards without modification.

5) Aircraft that are not authorized RNP 10 or RNP 4 (Non-RNP 10 aircraft) will be allowed to continue to file any route at any altitude in areas listed above. They will be cleared to operate on their preferred routes and altitude as traffic permits and will be separated from other aircraft by the existing 167 km (90 NM) standard. The FAA enhanced air traffic control automation system, Ocean21, will aid the controller in applying the applicable separation standard between aircraft authorized RNP 10 or RNP 4, and Non-RNP 10 aircraft.

6) 93 km (50 NM) lateral separation has been applied between operators/aircraft authorized RNP 10 or RNP 4 since 1998 in Pacific oceanic areas. It is also currently applied in the European-South American Corridor; on routes between Santiago, Chile and Lima, Peru; on routes connecting Australia, Asia, the Middle East and Europe south of the Himalayas and, it is planned for trans-Africa routes. Project planners will apply the experience gained in these operations.

f) Secretariat comments:

1) The United States, working together with the North Atlantic Systems Planning Group (NAT SPG) and its sub bodies and the States/Territories of the Caribbean Region has undertaken the task of redesigning the West Atlantic Route System (WATRS) based on the implementation of Required Navigation Performance 10 (RNP 10) specifications for use of 50 NM lateral separation.

2) Implementation of RNP 10 in the U.S. controlled portions of CAR (excluding Gulf of Mexico) and NAT airspace will allow 50 NM lateral separation to be applied. This is a pre-requisite for the redesign of the WATRS and will allow operators to receive benefits from a 40% increase in the number of routes as well as more direct route trajectories.

3) Monitoring arrangements for pre and post RNP 10 implementation have been established through the North American Approvals Registry and Monitoring Organization (NAARMO).

APPENDIX B

WATRS PLUS PROJECT PROPOSAL FOR AMENDMENT OF NAT REGIONAL SUPPLEMENTARY PROCEDURES (SUPPS) (Doc 7030)

(Serial no.:

a) **Proposed by:** The United States of America

b) **Proposed amendment:**

“Amend the SUPPs in the **NAT Region** as shown below:

4.0 REQUIRED NAVIGATION PERFORMANCE (RNP)

4.1 Means of Compliance

(A2 – 5.1.1; A11 – 2.7 and ATT B; A6, Part I – 7.2.2 and Chapter 3, Note 1; A6, Part II – 7.2.2 and Chapter 3, Note 1; P-ATM – 2.4)

4.1.1 In order for 93 km (50 NM) lateral separation to be applied between aircraft in the New York Oceanic FIR/CTA, the requirements listed below shall be met.

4.1.1.1 The aircraft and Operator must be authorized RNP 10 or RNP 4 by the State of the Operator or the State of Registry, as appropriate. RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation.

4.1.1.2 States shall ensure, when granting authorization for RNP 10 or RNP 4, that Operators establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error.

Note.— The ICAO Performance Based Navigation (PBN) Manual Volume I – Concept and Implementation Guidance (Doc 9613) provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification. Doc 9613 will be supplemented and updated as required and as new material becomes available.

4.1.1.3 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of the achieved lateral navigation performance of the population in relation to the lateral separation minimum. These data shall include statements of the core of the lateral navigational performance, the proportion greater than one-half the lateral separation minimum and the proportion in the vicinity of the adjacent route centreline as these measures have been shown to have a direct link to the risk of collision. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met. Data shall include operational errors due to all causes.

Note.— Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO. Detailed guidance is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

4.2 Area of Applicability

4.2.1 93 km (50 NM) lateral separation may be applied between aircraft authorized RNP 10 or RNP 4 in all controlled airspace within the New York Oceanic FIR/CTA.

5.0 FLIGHT PLANS

5.1.5 Approval status and aircraft registration

5.1.5.1 All RVSM-approved aircraft intending to operate in the NAT Region shall include the letter “W” in Field 10 of the flight plan. Furthermore, all RVSM-approved aircraft intending to operate in the NAT Region shall include the aircraft registration in Item 18 of the flight plan.

5.1.5.2 All MNPS-approved aircraft intending to operate in the NAT Region shall include the letter “X” in Field 10 of the Flight Plan.

5.1.5.3 All operators authorized RNP 10 or RNP 4 shall include the letter “R” and the letter “Z” in Item 10 of the Filed Flight Plan and NAV/RNP10 or NAV/RNP4, as appropriate, in Item18.

9.0 SEPARATION OF AIRCRAFT

9.1 Lateral separation
(P-ATM, 5.4.1 and 5.11)

9.1.1 Minimum lateral separation shall be:

a) 93 km (50 NM) between aircraft authorized RNP 10 or RNP 4 operating within the New York Oceanic FIR/CTA except, minimum lateral separation between aircraft transitioning from MNPS airspace in the New York Oceanic FIR/CTA to other MNPS airspace shall be 110 km (60 NM);

b) 110 km (60 NM) between aircraft which meet the minimum navigation performance specifications (MNPS) provided that a portion of the route of the aircraft is within, above, or below MNPS airspace;

c) 167 km (90 NM) between aircraft operating outside the MNPS airspace and at least one aircraft does not meet the MNPS;

- 1) between the Iberian Peninsula and the Azores Islands; and
- 2) between Iceland and points in Scandinavia and in the United Kingdom;

d) 167 km (90 NM) between aircraft not authorized RNP 10 or RNP 4 operating outside MNPS airspace where no portion of the route of the aircraft is within, above, or below the MNPS airspace:

- 1) between the United States or Canada and Bermuda; and
- 2) West of 55°W between the United States, Canada or Bermuda and points in the CAR

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Region; or

- e) 223 km (120 NM) between other aircraft;

except that lower minima in 5.4.1.2 of the PANS-ATM (Doc 4444) may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS-ATM provisions are met (see 9.4).”

“Re-number all subsequent paragraphs.”

- c) **Intended date of implementation:** 5 June 2008
- d) **Proposal circulated to the following States and international organizations:** TBD
- e) **Originator’s reasons for amendment:** TBD

- END -