

INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICAN OFFICE



REPORT OF THE SAT TASK FORCE MEETING (SAT/8-TF/1)

(Madrid, Spain, 22 - 26 May 2000)

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History of the meeting

i-1 Introduction

i-1.1 The first meeting of the SAT/8 Task Force (SAT/8-TF/1) was convened pursuant to SAT/8 Conclusion 2/5 b) in accordance with the terms of reference shown in **Appendix A**. The meeting took place at the Gran Hotel Velazquez, Madrid, Spain from 22 - 26 May 2000.

i-1.2 Mr. Angel Villa, Deputy Director of the Spanish Civil Aviation Administration (DGAC), opened the meeting with expressions of appreciation and welcome to all participants. The speaker emphasized the importance of this Task Force Meeting and the work at hand for the implementation over the SAT airspaces and Flight Information Regions (FIR) of new technologies based on Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) derived systems. He also emphasized the need for continuing close relations and co-ordination among States providing services over the South Atlantic. The Director of ATS of Aena Air Navigation, Mr. Francisco Quereda and the Head of the International Management Division, Mr. Ignacio Iglesia also attended the opening of the meeting.

i-2 Attendance

i-2.1 The SAT/8-TF Meeting was attended by 37 participants from 6 ICAO contracting States (Brazil, Cape Verde, France, Portugal, Senegal and Spain) and 3 international organizations (ASECNA, ARINC and IATA).

i-2.2 A list of participants and contact addresses is at **Appendix H**.

i-3 Organization and conduct of the meeting

i-3.1 Mr. Francisco Castro Rodriguez, ATC Expert and ICAO Co-ordinator at the International Management Division of Aena Air Navigation and member of the Spanish Delegation was elected as Chairman and Rapporteur of the meeting.

i-3.2 Mr. Dhiraj Ramdoyal, Regional Officer (RO/ATM) from the ICAO Regional Office in Dakar was the Secretary of the meeting. Mr. Jacques Vanier, RO/ATM from the ICAO European and North Atlantic Office and Mr. Jorge Fernandez, RO/ATM from the ICAO Lima Office assisted him.

i-4 Working languages

i-4.1 The meeting was conducted in English only.

i-5

Agenda

i-5.1

The meeting adopted the following agenda:

Agenda Item 1: Results/status of the safety assessments being carried out by Spain

-Analysis of air traffic statistical data

Agenda Item 2: Finalization of an AIC for the implementation of the new SAT route network

- Amendments to the Regional Supplementary Procedures (Doc.7030)
- Implementation strategy

Agenda Item 3: Finalization of an Aeronautical Information Circular (AIC) for the evolutionary implementation of reduced vertical separation minimum (RVSM) in the EUR/SAM corridor including amendments to the Regional Supplementary Procedures Doc.7030

Agenda Item 4: Communications

- Aeronautical Fixed Telecommunication Network (AFTN)
- Air Traffic Services Direct Speech (ATS/DS) circuits
- CAFSAT Network and other related Communications developments

Agenda Item 5: Preparation of a document to assist States in the operational approval of aircraft in a Required Navigation Performance (RNP10) environment

Agenda Item 6: Review and harmonization of the CNS/ATM system evolution tables for the evolutionary implementation of CNS/ATM in the AFI, SAM and other adjacent regions

Agenda Item 7: Any other business

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CONCLUSIONS OF THE SAT TASKFORCE MEETING (SAT/8-TF/1)

Madrid, Spain 22 – 26 May 2000-05-29

Conclusion 1/1 : Safety assessment

That:

- a) the safety risk assessment to be carried out by Spain in order to ensure the safe implementation of RNP 10/ 50 NM lateral spacing and RVSM in the EUR/SAM corridor will start very shortly; and
- b) Brazil, Cape Verde, Senegal, Spain, IATA and IFALPA provide necessary traffic data to assist in the evaluation process and closely monitor the progress of the safety assessment.

Note: The safety risk assessment will be carried out in accordance with guidance material provided by ICAO and will ensure that all technical and operational parameters are taken into account during the evaluation process

Conclusion 1/2: Air traffic statistical data in the EUR/SAM corridor

That States concerned continue to provide the necessary air traffic statistical data on a regular basis to Spain in accordance with SAT/8 conclusion 1/1.

Conclusion 2/1: EUR/SAM route network

That the implementation of the route network indicated at **Appendix B** to this part of the Report be carried out as soon as the results of the safety assessment being carried out by Spain are conclusive.

Conclusion 2/2: Civil Military co-ordination

That:

- a) Spain co-ordinates with the military authorities with a view to reconsider the effective period of prohibited area GCD 79 and to ensure that ATS routes passing through that area be made available to international civil air transport operations at agreed time slots; and
- b) when prohibited area GCD 79 is activated, Canarias ACC will tactically handle traffic intending to pass the Canarias TMA.

Conclusion 2/3: Amendment to the Regional Supplementary procedures (Doc7030)

That the Secretariat initiates action aimed at the approval of the Regional Supplementary Procedures (Doc 7030) for the inclusion of provisions regarding in-flight contingencies and RNP10/50 NM lateral /Longitudinal spacing in the AFI Part of the SUPPs as indicated at **Appendices C-1 and C-2** to this part of the Report.

Note: Implementation will be carried out only when the results of the safety assessments are conclusive.

Conclusion 2/4: Creation of new ATS routes

That the proposal for the creation of two ATS routes from Cape Town and Johannesburg to Atlanta be discussed at the SAT/9 Meeting.

Conclusion 2/5: AIC for implementation of RNP10/50 NM Lateral spacing in the EUR/SAM corridor

That States responsible for the provision of air traffic services in the EUR/SAM corridor publish on 10 July 2000, the draft AIC indicated at **Appendix D** to this part of the Report for the safe introduction of RNP10/ 50 NM lateral spacing. A NOTAM will also be published to that effect.

Conclusion 2/6: Implementation time-scales for the implementation of RNP 10

That States and organizations concerned ensure that a mechanism be put in place in order to implement the requirements for the safe implementation of RNP 10 within the EUR/SAM corridor in accordance with the time-scales indicated in **Appendix F-2**.

Conclusion 3/1: Amendment to the Regional supplementary Procedures (Doc.7030)

That the Secretariat expedites action for the amendment of the AFI and SAM Parts of the Regional Supplementary Procedures (Doc 7030) in order to include the provisions at **Appendix C-3** to this part of the Report regarding the implementation of RVSM .

Conclusion 3/2: Publication of an AIC regarding the implementation of RVSM in the EUR/SAM corridor

That States responsible for the provision of air traffic services in the EUR/SAM corridor publish on 10 July 2000, the AIC at **Appendix E** to this part of the Report. A NOTAM will also be published to that effect.

Conclusion 3/3: Co-operation with other States/Organizations

That States and/or organizations in a position to do so, assist the States responsible for the provision of air traffic services in the EUR/SAM corridor in order to ensure that all necessary steps are taken for the safe implementation of RVSM on 24 January 2002.

Conclusion 3/4: Implementation time-scales for the implementation of RVSM

That States and organizations concerned ensure that a mechanism be put in place in order to implement the requirements for the safe implementation of RVSM within the EUR/SAM corridor in accordance with the time-scales indicated in **Appendix F-1**.

Conclusion 4/1: Processing of flight plans

That:

- a) The European and North Atlantic (EUR/NAT) Office draws the attention of Eurocontrol to the significant number of flight plans which are not being received at the level of Casablanca, Sal and Recife ACCs and explores ways and means of identifying the source of the problem and come up with a solution; and
- b) Senegal, Brazil, Cape Verde, Morocco and Spain perform during the first week of September 2000 a survey on flight plan reception by the ACCs of Dakar, Recife, Sal, Casablanca and Canarias.

Conclusion 4/2: Introduction of the active supervision node (ASN) and Back-up sub-network supervision node (BSSN) concepts and a maintenance strategy

That:

- a) States finalize the proposal for the introduction of the ASN and BSSN concepts at the SAT/9 meeting; and
- b) a maintenance strategy be considered by the SAT/9 meeting.

Conclusion 5/1: Operational approval of aircraft intending to operate in an RNP10 environment

That States use the guidance material published by ICAO or any other relevant materials developed by other States in order to carry out the operational approval of aircraft intending to operate in an RNP 10 environment.

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Agenda Item 1: Results/status of the safety assessments being carried out by Spain**-Analysis of air traffic statistical data****-Safety assessments**

1.1 Under this Agenda Item the Task Force was informed by Spain, the monitoring agency established for ensuring the safe implementation of RNP 10 in a 50 NM lateral spacing environment and RVSM in the EUR/SAM corridor, that arrangements are being made for ARINC to carry out a safety assessment.

1.2 The Task Force noted that the risk analysis evaluation process will be in accordance with the guidance material provided by ICAO and will take into account experiences of other ICAO Regions to ensure that all parameters have been addressed when carrying out the safety assessment. The meeting was also apprised of the methodology to be used in carrying out the safety risk assessment. The need to take into account any adverse meteorological conditions prevailing in the corridor as well as delays in the reception and processing of flight plans was emphasized.

1.3 The Task Force also recognized the need to expedite the evaluation process and pointed out that it is delaying the implementation of RNP 10/50 NM lateral spacing and RVSM in the EUR/SAM corridor. The meeting was informed work on the safety risk assessment process will start very shortly and it is expected to take about six months for completion. The need for the co-operation of all States and organizations concerned in providing necessary data was stressed.

1.4 The meeting was informed that the safety risk assessment will take into account the projected traffic growth in the EUR/SAM corridor for the next 10 years and will also give due considerations to crossing track operations. The meeting noted the request by South Africa for the creation of two ATS routes from Cape Town and Johannesburg to Atlanta and agreed that the traffic density would be considered in the evaluation process. Based on the foregoing the Task Force concluded that:

Conclusion 1/1 : Safety assessment

That:

- a) the safety risk assessment to be carried out by Spain in order to ensure the safe implementation of RNP 10/ 50 NM lateral spacing and RVSM in the EUR/SAM corridor will start very shortly; and
- b) Brazil, Cape Verde, Senegal, Spain, IATA and IFALPA provide necessary traffic data to assist in the evaluation process and closely monitor the progress of the safety assessment.

Note: *The safety risk assessment will be carried out in accordance with guidance material provided by ICAO and will ensure that all technical and operational parameters are taken into account during the evaluation process.*

Analysis of air traffic statistical data

1.5 The meeting noted with appreciation the air traffic data collection and analysis carried out by Spain and urged States and organizations concerned to assist in providing all necessary information in accordance with the methodology established by SAT/8 Conclusion 1/1 b) and c).

1.6 The meeting noted that, as compared to 1999, a two weeks survey (1st weeks of January and April) carried out by Canarias Area Control Center (ACC) indicated that there had been an increase in traffic of **12.8% in year 2000**. It was also pointed out that at least **10.3% of aircraft were assigned non-preferential flight levels**. As compared to similar periods of 1999, it was also noted that there has been a major shift of traffic from ATS route UR609 to ATS route UB602 which resulted in an increase of 37% along UB602. Based on the foregoing the meeting concluded that:

Conclusion 1/2: Air traffic statistical data in the EUR/SAM corridor

That States concerned continue to provide the necessary air traffic statistical data on a regular basis to Spain in accordance with SAT/8 conclusion 1/1.

Agenda Item 2: Finalization of an AIC for the implementation of the new SAT routing network

- **Amendments to the Regional Supplementary Procedures (Doc.7030)**
- **Implementation strategy**

2.1 Under this agenda item the Task Force was apprised of action taken by the Secretariat as a follow-up to the approval by the ICAO Council of those segments of the EUR/SAM routing network, which were developed within the framework of the SAT group and related co-ordination meetings. It was noted that those portions of the route segments within the AFI Region would be included in the AFI ANP through an editorial amendment.

2.2 The meeting noted that due to airspace restrictions by the military authorities in Spain, some route segments would be implemented at variance with the ANP within the Canarias TMA and a “note 3” should be added to the implementation status of these routes. It was however pointed out that action is being taken in order to review the duration at which prohibited area GCD79 remains effective and it might eventually be made available during specific period(s).

2.3 The meeting noted the draft proposal for the amendment of the Regional Supplementary Procedures (Doc 7030) for the implementation of RNP10/50 NM lateral spacing and provisions regarding species procedures for in-flight contingencies in the EUR/SAM corridor. The meeting accordingly reviewed these provisions and instructed the Secretariat to initiate the amendment proposal as soon as possible. Provisions regarding wake vortex turbulence were also included in these provisions. Based on the foregoing the meeting concluded that:

Conclusion 2/1: EUR/SAM route network

That the implementation of the route network indicated at **Appendix B** to this part of the Report be carried out as soon as the results of the safety assessment being carried out by Spain are conclusive.

Conclusion 2/2: Civil Military co-ordination

That:

- a) Spain co-ordinates with the military authorities with a view to reconsider the effective period of prohibited area GCD 79 and to ensure that ATS routes passing through that area be made available to international civil air transport operations at agreed time slots; and
- b) when prohibited area GCD 79 is activated, Canarias ACC will tactically handle traffic intending to pass the Canarias TMA.

Conclusion 2/3: Amendment to the Regional Supplementary procedures (Doc7030)

That the Secretariat initiates action aimed at the approval of the Regional Supplementary Procedures (Doc 7030) for the inclusion of provisions regarding special procedures for in-flight contingencies and RNP10/50 NM lateral /Longitudinal spacing in the AFI Part of the SUPPs as indicated at **Appendices C-1 and C-2** to this part of the Report.

Note: Implementation will be carried out only when the results of the safety assessments are conclusive.

2.4 The meeting noted a proposal by South Africa for the creation of two ATS routes from Cape Town and Johannesburg to Atlanta respectively. It was agreed that the safety assessment would also take into account these two routes in the evaluation process. The meeting agreed that this proposal be discussed at the next SAT/9 meeting and concerns were expressed regarding the rationale for the creation of these routes. Based on the foregoing the meeting concluded that:

Conclusion 2/4: Creation of new ATS routes

That the proposal for the creation of two ATS routes from Cape Town and Johannesburg to Atlanta be discussed at the SAT/9 Meeting.

2.5 The meeting also developed an AIC for publication by States as soon as possible, with target dates for the implementation of RNP/10 50 NM lateral/longitudinal spacing along the EUR/SAM corridor. Based on the foregoing the meeting concluded that:

Conclusion 2/5: AIC for implementation of RNP10/50 NM Lateral spacing in the EUR/SAM corridor

That States responsible for the provision of air traffic services in the EUR/SAM corridor publish on 10 July 2000, the draft AIC indicated at **Appendix D** to this part of the Report for the safe introduction of RNP10/ 50 NM lateral spacing. A NOTAM will also be published to that effect.

Conclusion 2/6: Implementation time-scales for the implementation of RNP 10

That States and organizations concerned ensure that a mechanism be put in place in order to implement the requirements for the safe implementation of RNP 10 within the EUR/SAM corridor in accordance with the time-scales indicated in **Appendix F-2**.

Agenda Item 3: Finalization of an AIC for the evolutionary implementation of RVSM in the EUR/SAM corridor including amendments to the Regional Supplementary Procedures, Doc.7030

3.1 Under this Agenda Item the Task force developed an AIC for the evolutionary implementation of RVSM in the EUR/SAM corridor. The meeting noted the tasks to be performed by airlines and a time-scale for actions to be taken by States and service providers for the completion of all the requirements was developed. The meeting agreed that the tentative date for the implementation of RVSM in the area is 24 January 2002. A trial period will be initiated and is tentatively planned for 17 April 2001.

3.2 The meeting also reviewed the draft amendment proposal for the implementation of RVSM in the EUR/SAM corridor which was prepared by the Secretariat. It was agreed that this proposal would be sent to ICAO for processing and that implementation would be subject to the conclusive results of the safety assessments being carried out by Spain.

3.3 Based on the foregoing the meeting concluded that:

Conclusion 3/1: Amendment to the Regional supplementary Procedures (Doc.7030)

That the Secretariat expedite action for the amendment of the AFI and SAM Parts of the Regional Supplementary Procedures (Doc 7030) in order to include the provisions at **Appendix C-3** to this part of the Report regarding the implementation of RVSM in the EUR/SAM corridor.

Conclusion 3/2: Publication of an AIC regarding the implementation of RVSM in the EUR/SAM corridor

That States responsible for the provision of air traffic services in the EUR/SAM corridor publish on 10 July 2000, the AIC at **Appendix E** to this part of the Report. A NOTAM will also be published to that effect.

Conclusion 3/3: Co-operation with other States/Organizations

That States and/or organizations in a position to do so, assist the States responsible for the provision of air traffic services in the EUR/SAM corridor in order to ensure that all necessary steps are taken for the safe implementation of RVSM on 24 January 2002.

Conclusion 3/4: Implementation time-scales for the implementation of RVSM

That States and organizations concerned ensure that a mechanism be put in place in order to implement the requirements for the safe implementation of RVSM within the EUR/SAM corridor in accordance with the time-scales indicated in **Appendix F-1**.

Agenda Item 4: Communications

- **AFTN**
- **ATS/DS**
- **CAFSAT Network and other related COM developments**

4.1 Under this agenda Item the Task Force was apprised of the results of a survey carried out by Brazil pursuant to SAT/8 Conclusion 3/2 concerning availability of flight plans. It noted that the situation was not satisfactory and on occasions, flight plans originating from Europe never reached their destinations. It was pointed out that immediate action needed to be taken over the issue as it would have an impact on the safe introduction of RVSM and RNP10 in the EUR/SAM corridor. The meeting was informed that part of the problem may lie at the level of the Initial Flight Plan Processing System (IFPS) Centre in Brussels and the need to investigate the matter was emphasized. Based on the foregoing the meeting concluded that:

Conclusion 4/1: Processing of flight plans

That:

- a) the European and North Atlantic (EUR/NAT) Office draws the attention of Eurocontrol to the significant number of flight plans which are not being received at the level of Casablanca, Sal and Recife ACCs and explores ways and means of identifying the source of the problem and come up with a solution; and
- b) Senegal, Brazil, Cape Verde, Morocco and Spain perform during the first week of September 2000 a survey on flight plan reception by the ACCs of Dakar, Recife, Sal, Casablanca and Canarias.

4.2 The Task Force noted the progress of implementation of the CAFSAT network. It was pointed out that some States need to contact the service provider as soon as possible in order to ensure that they meet their commitments for the reservation of the IBS service before 1 June 2000.

4.3 The meeting was informed that:

- a) Portugal has decided to incorporate two new nodes to the CAFSAT network at Lisbon and Santa Maria respectively;.
- b) with respect to the technical supervision of the CATSAT network, concepts of ASN and BSSN have been introduced and a protocol has been proposed;

Note: ASN (Active Supervision Node) refers to a global supervision and BSSN (Backup Subnetwork Supervision Node) for backup.

- c) the requirements and responsibilities of ASN and BSSN be finalized at the SAT/9 meeting;
- d) the progress of implementation is as follows:

- Canarias node is fully tested and is ready to operate;
- Dakar and Cape Verde are in the process of implementation and the system will be operational in June and July 2000 respectively; and
- Brazil and Morocco are in "Call for Tender" process.

States should consider the proposal for a maintenance strategy during SAT/9 meeting.

4.4 Based on the foregoing the meeting concluded that:

Conclusion 4/2: Introduction of the active supervision node (ASN) and Back-up sub-network supervision node (BSSN) concepts and a maintenance strategy

That:

- a) States finalize the proposal for the introduction of the ASN and BSSN concepts at the SAT/9 meeting; and
- b) a maintenance strategy be considered by the SAT/9 meeting.

Agenda Item 5: Preparation of a document to assist States in the operational approval of aircraft in an RNP10 environment

5.1 Under this agenda item the Task Force was of the view that enough guidance materials have been developed for assisting States in carrying out the operational approval of aircraft intending to operate in an RNP10 environment. The meeting referred to the FAA Circular 8400.12 which could be used and pointed out that it was in accordance with the guidance material prepared by ICAO. Based on the foregoing the meeting was of the view that there is no need to develop any document for assisting States in carrying out operational approvals and concluded that:

Conclusion 5/1: Operational approval of aircraft intending to operate in an RNP10 environment

That States use the guidance material published by ICAO or any other relevant materials developed by other States in order to carry out the operational approval of aircraft intending to operate in an RNP 10 environment.

Agenda Item 6: Review and harmonization of the CNS/ATM system evolution tables for the evolutionary implementation of CNS/ATM in the AFI, SAM and other adjacent regions

6.1 Under this Agenda item the Task Force noted that the ADS/CPDLC facility at Canarias ACC was operational and recalled that any new system being developed in the EUR/SAM corridor be in accordance with the provisions of SAT/8 conclusion 4/2 which specifies that:

“ States and organizations intending to make/making ADS/CPDLC trials and demonstrations in the EUR/SAM corridor share relevant technical information with adjacent States to ensure compatibility of systems and ensure their interoperability”.

6.2 The meeting also noted a proposal by Spain for the extension of the ADS/CPDLC capability in the EUR/SAM corridor through the CAFSAT network and it was agreed that this matter be discussed within the framework of the SAT/9 meeting.

6.3 The meeting discussed the potential benefits for the introduction of ADS/CPDLC capabilities in the Region and was apprised of operational trials taking place in the NAT Region related to the ADS functionality of the FANS- 1/A equipped aircraft. The meeting was also informed that data link trials using HF would be initiated in the fall of 2000. In this connection, it was noted that although the *Standards and Recommended Practices* (ICAO) (Doc 7333) (SARPS) existed, they had never been validated for use for the provision of ATS. The meeting recalled that the FANS- 1/A package is not ATN compliant.

6.4 It was pointed out that the implementation of ADS/CPDLC was in accordance with the objectives of the AFI and SAM CNS/ATM Implementation Plans. It was however emphasized that, at this stage, aircraft equipage was limited to aircraft participating in the operational trials only and the cost-benefit considerations should be taken into account prior to full implementation and commitment. The meeting was informed that this functionality is now available on some aircraft as a standard kit.

6.5 The meeting noted the experiences of France in the fields of ADS/CPDLC and the potential benefits of the VIVO system, which has been developed by the French Civil Aviation Administration. The meeting was informed that the system (Eurocat-X) has been operationally tested and proven in the Pacific region and many States have already committed to it. The meeting was of the view that the system is presented to the SAT/9 meeting for consideration.

Agenda Item 7: Any other business

SAT/9 Meeting

7.1 Under this agenda item the Task Force noted that the next SAT meeting will be organized in Lima from 6 to 10 November 2000.

7.2 The meeting agreed that any other issues likely to crop up before the next SAT meeting will be addressed by the Secretariat through correspondence.

7.3 The Task Force expressed its sincere thanks and appreciation to Mr. Francisco Castro-Rodriguez for his active participation and contributions as Rapporteur and Chairman of the SAT Task Force, and previous SAT-Group meetings . The meeting wished him a happy retirement.

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APPENDIX A

TERMS OF REFERENCE OF TASK FORCE ESTABLISHED BY THE SAT/8 MEETING

Taking into account of the evolutionary implementation of CNS/ATM systems in the EUR/SAM corridor, the Task Force should explore ways and means of achieving further enhancements in airspace capacity in the area and in particular take necessary steps to ensure the smooth implementation of RNP 10/50 NM lateral spacing and **RVSM**.

Note: The Task Force will adopt a pragmatic approach and may wish to set up sub-groups if necessary in order to carry out specific tasks.

Work programme

Finalize the draft AIC concerning the new ATS routing including flight level utilization in the EUR/SAM corridor;

Finalize the draft AIC for the evolutionary implementation of RVSM in the EUR/SAM corridor;

AFI ANP and consequential amendments to the AFI Part of the Regional Supplementary Procedures (Doc 7030) concerning procedures to be applicable in an RNP 10/50 NM lateral spacing environment;

Follow-up on the status of the safety assessment to be carried out by Spain for RNP 10/50 NM lateral spacing and RVSM operations in the EUR/SAM corridor;

Consider any other element, which may have an impact on the smooth and evolutionary implementation of RVSM in the area;

Review and harmonize the CNS/ATM system evolution tables for the evolutionary implementation of CNS/ATM in the AFI, SAM and other adjacent Regions;

Follow-up on VSAT technology and implementation of CNS/ATM systems;

The Task Force should complete its work and submit its proposal to the SAT/9 meeting;

Rapporteur:

Spain has been appointed as Rapporteur of the Task Force

Composition:

The Task Force of multi-disciplinary nature shall comprise of experts from States responsible of the FIRs of the EUR/SAM corridor, and experts from adjacent FIRs and international organizations

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APPENDIX B**ATS ROUTE STRUCTURE IN THE EUR/SAM CORRIDOR**

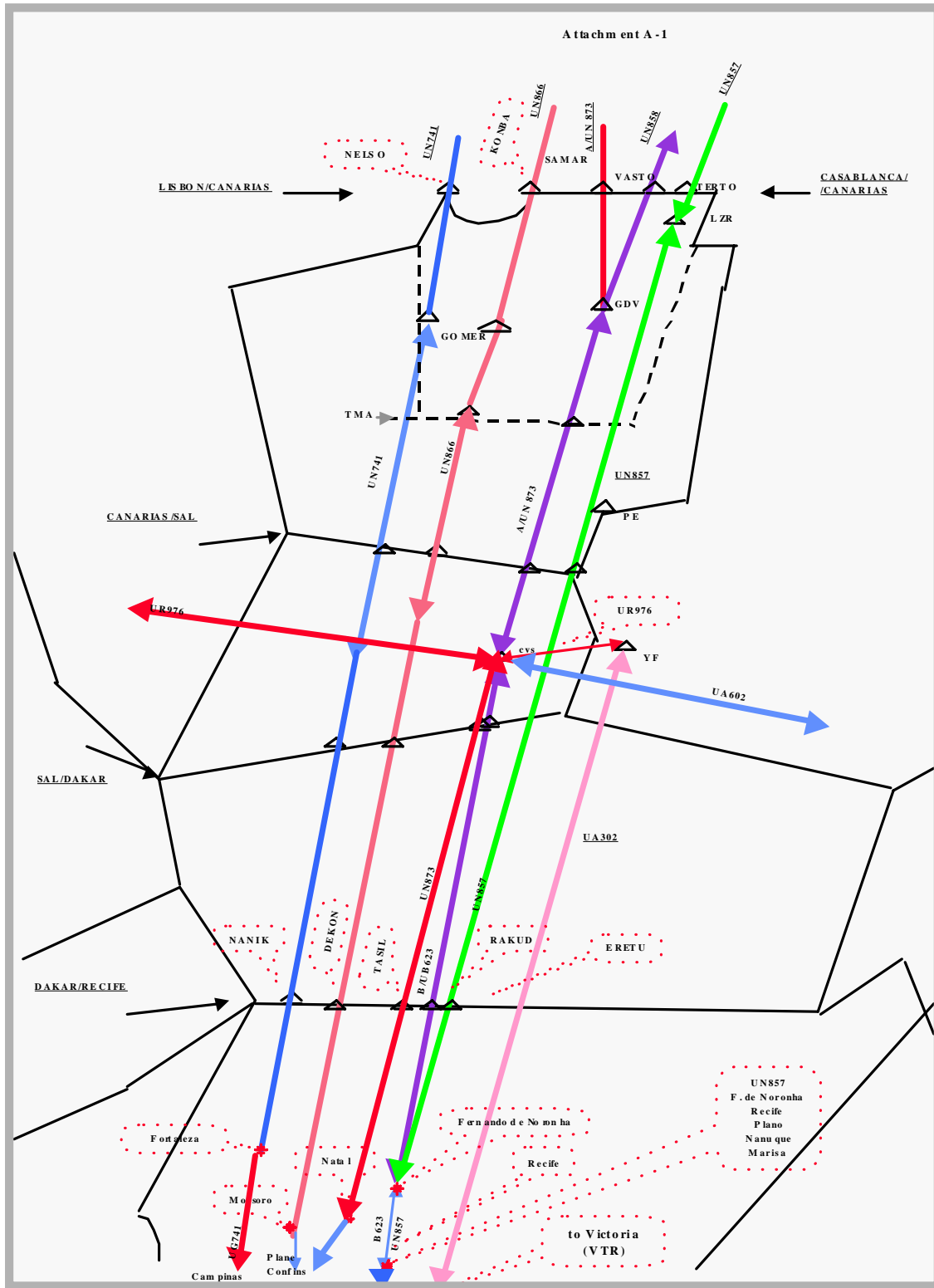
As a result of the approval by the ICAO Council of the routes/ route segments, within the Recife FIR developed within the framework of informal South Atlantic (SAT) co-ordination meetings and recommended by the CAR/SAM/3 RAN Meeting, consequential amendments to the AFI ANP for the inclusion of those routes/ route segments are being made. The editorial amendments to the AFI ANP (27th Edition) to be carried out by HQ are as follows:

Amend the requirements in the table ATS 1 : Basic ATS route network in the lower and upper airspace (cf. Pages 2-1-15, 2-1-16, 2-1-18, 2-1-19, 2-1-31, 2-1-32, 2-1-33) and relevant charts ATS 2 and 3 as shown hereunder :

AFI ANP Doc. 7474/27

ATS ROUTES					
PAGE	LOWER	UPPER		ROUTE SEGMENTS	REMARKS
2-1-33		UR609	Delete	A requirement for an ATS route UR609 between Fortaleza and Porto Santo	Route designator changed to UN741
2-1-31		UN741	Add	A requirement for an RNAV route between (Fortaleza) -NANIK (0621N 03310W) NELSO (3142N 01727W) (Porto Santo)	
2-1-18		UB602	Delete	A requirement for an ATS route between (Espichel)- BUREL (3613N 01056W) El Hierro (Mossoro)	Route designator changed to UN866 with slight realignment.
2-1-32	N866		Add	A requirement for segment (Espichel) KONBA GOMER	
2-1-32		UN866	Delete	A requirement for segment GOMER-SONKA	Route proceeds from GOMER to Mossoro.
2-1-32		UN866	Add	A requirement for segments GOMER DEKON (Mossoro)	

2-1-15		UA858	Delete	A requirement for segment between Las Palmas - Gran Canarias-Sal - (Fernando de Noronha)	Note : 1. Segment Gran Canarias-Sal : New designator N/UN873. 2. Segment Sal-TASIL-(Natal) , designated UN873. 3. Segment Sal- Fernando de Noronha extended to Recife new designator B/UB623
2-1-16	A873	UA873	Delete	A requirement for segment Gran Canaria -SONKA	
2-1-32		UN873	Delete	A requirement for segment Gran Canaria - SONKA	New RNAV route proceed from Gran Canaria direct to Sal
2-1-16	A873	UA873	Add	A requirement for segment Gran Canaria direct to Sal	
2-1-32		UN873	Add	A requirement for segment Gran Canarias Sal TASIL (Natal)	
2-1-19	B623	UB623	Add	A requirement of ATS route for segments Sal RAKUD (Fernando de Noronha) (Recife)	
2-1-31		UN857	Add	A requirement of RNAV route for segments, Lanzarote ERETU (Fernando de Noronha) (Recife)	



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APPENDIX C1

**DRAFT PROPOSAL FOR AMENDMENT OF THE ICAO
REGIONAL SUPPLEMENTARY PROCEDURES
(DOC 7030)**

-Special procedures for in-flight contingencies in the EUR/SAM corridor
(Serial No.: WACAF-S 00/1-AFI RAC)

a) **Regional Supplementary Procedures:**

Doc 7030/4-AFI, Part 1-Rules of the Air, Air Traffic Services and Search and Rescue, as modified by Amendment Y. This amendment proposal has been developed within the framework of Informal Meetings on the Improvement of Air Traffic Services over the South Atlantic organized pursuant to AFI/7 RAN Meeting Recommendation 5/11 and as a follow-up to CAR/SAM/3 RAN Meeting Recommendation 5/26.

b) **Proposed Amendment**

Amend the SUPPs applicable in the AFI Region as follows:

- a) **Add** the following requirements for “Special procedures for in-flight contingencies” under Chapter 4.
- b) **Renumber** existing Chapter 4 to 13 to read 5 B14 accordingly.

(cf. Regional Supplementary Procedures, Doc 7030/4-AFI, Part 1 - Rules of the Air, Air Traffic Services and Search and Rescue, as amended by Amendment Y)

c) **Originated by:**

Brazil
Senegal
IATA

Cape Verde
Spain

d) **Originator’s reason for amendment:**

With the proposed introduction of a reduction in longitudinal/ lateral separation in an RNP10/50 NM lateral spacing environment, and the evolutionary implementation of reduced vertical separation in the EUR/SAM corridor, there is a need to introduce special procedures for in-flight contingencies.

e) **Intended date of implementation:**

As soon as practicable, after approval by the ICAO Council. Subject to all requirements being met including safety assessments.

Note:

Implementation will be carried out in two phases as follows:

- Implementation in an RNP10/50 NM lateral spacing, non-RVSM environment on (17 February 2001(tentative date)); and*
- Implementation in an RVSM environment as from 24 January 2002 (tentative date).*

f) Proposal circulated to the following States and organizations:

Algeria	Ecuador	Morocco	Surinam
Argentina	Egypt	Namibia	Sweden
Angola	France	Netherlands	Trinidad and Tobago
Austria	Germany	Nigeria	United Kingdom
Belgium	Ghana	Norway	United States
Brazil	Haiti	Paraguay	Uruguay
Bulgaria	Hungary	Poland	Venezuela
Canada	Iceland	Portugal	Eurocontrol
Cape Verde	Ireland	Roumania	ASECNA
Chile	Italy	Russian Federation	IATA
Colombia	Jamaica	Senegal	IFALPA
Côte d'Ivoire	Luxemburg	South Africa	
Cuba	Mauritania	Spain	
Denmark	Mexico		
Dominican Rep	Monaco.		

g) **Secretariat's comments:**

Procedures for special in-flight contingencies have so far not been introduced in the AFI Part of the Regional SUPPs. These procedures will enhance the safety of air traffic services along the EUR/SAM corridor, in particular, in the proposed RNP10/50 NM lateral and longitudinal spacing and RVSM environment.

Note: As the implementation of RNP/10/50 NM lateral spacing route network will be earlier than the implementation of RVSM, both non-RVSM and RVSM environment procedures have been included.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

4.1 Introduction

4.1.1 The following procedures are intended for guidance only and will be applicable within the EUR/SAM corridor. Although all possible contingencies cannot be covered, they provide for the more frequent cases of:

- a) inability to maintain assigned level due to weather, aircraft performance, pressurization failure and problems associated with high level supersonic flight;
- b) loss of, or significant reduction in, the navigation capability when operating in parts of the airspace where high accuracy of navigation is a prerequisite to the safe conduct of flight operations; and
- c) En-route diversion across the prevailing EUR/SAM traffic flow.

Note: With regard to a) and c) above, the procedures are applicable primarily when rapid descent, turn-back or both are required. The pilot's judgement shall determine the sequence of actions taken, and air traffic control shall render all possible assistance having regard to the specific circumstances.

4.2 General procedures

4.2.1 The following general procedures apply to both subsonic and supersonic aircraft:

4.2.1.1 If an aircraft is unable to continue flight in accordance with its air traffic control clearance, and/or an aircraft is unable to maintain the navigation performance accuracy specified for the airspace, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using radio telephony distress or urgency signal as appropriate. Subsequent air traffic control action with respect to that aircraft shall be based on the intentions of the pilot and the over-all traffic situation.

4.2.1.2 If prior clearance cannot be obtained, an air traffic control clearance shall be obtained as the earliest possible time and, in the meantime, the aircraft shall:

- a) broadcast its position and intentions, on the frequency in use, as well as on frequency 121.5 MHz, at suitable intervals stating: flight identification (operator call sign), flight level, ATS route designator, and extent of deviation expected until air traffic control clearance is received.
- b) make maximum use of aircraft lights to make the aircraft visible;
- c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);
- d) switch on the SSR transponder at all times; and
- e) initiate such action as necessary to ensure safety of the aircraft.

4.3 Subsonic aircraft

4.3.1 Initial action

4.3.1.1 If unable to comply with the provisions of 4.2, to obtain air traffic control clearance, the aircraft should leave its assigned route or track by turning 90° to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system (e.g whether the aircraft is outside, at the edge of, or within the system). Other factors, which may affect the direction of the turn are the direction to an alternative airport, terrain clearance and the flight levels allocated to adjacent routes.

4.3.2 Subsequent action (RVSM airspace)

4.3.2.1 In an RVSM airspace, an aircraft able to maintain its flight level should:

- a) turn to acquire and maintain in either direction a track laterally separated by 25 NM from its assigned route or track in a multi-track system spaced at 50 NM or otherwise, at a distance which is mid-point from the adjacent parallel route structure; and
- b) if above FL410, climb or descend 300 m (1000 ft); or
- c) if below FL410, climb or descend 150 m (500ft); or
- d) if at FL410, climb 300m (1000ft) or descend 150m (500 ft).

4.3.2.2 An aircraft not able to maintain its level flight should:

- a) initially minimize its descent rate to the extent that it is operationally feasible;
- b) turn while descending to acquire and maintain in either direction a track laterally separated by 25 NM from its assigned route or track in a multi-track system spaced at

50 NM or otherwise, at a distance which is mid-point from the adjacent parallel route structure; and

- c) for the subsequent level flight, a level should be selected which differs from those normally used by 300 m (1000ft) in above FL410 or by 150 m (500 ft) if below FL410.

4.3.3 Subsequent action (Non RVSM environment)

4.3.3.1 In an non RVSM environment, an aircraft able to maintain its flight level should:

- a) turn to acquire and maintain in either direction a track laterally separated by 25 NM from its assigned route or track; and
- b) if above FL290, climb or descend 300 m (1000 ft); or
- c) if below FL290, climb or descend 150 m (500ft); or
- d) if at FL290, climb 300m (1000ft) or descend 150m (500 ft).

4.3.3.2 An aircraft not able to maintain its level flight should:

- a) initially minimize its descent rate to the extent that it is operationally feasible;
- b) turn while descending to acquire and maintain in either direction a track laterally separated by 25 NM from its assigned route or track; and
- c) for the subsequent level flight, a level should be selected which differs from those normally used by 300 m (1000ft) in above FL290 or by 150 m (500 ft) if below FL290.

4.4 Supersonic flight

4.4.1 Turn-back procedures

4.4.1.1 If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

- 1) when operating on an outer track or multi-track system, turn away from the adjacent track;
- 2) when operating on a random track or on an inner track of a multi-track system, turn either left or right as follows:
 - a) if the turn is to be made to the right, the aircraft should attain a position 25NM to the left of the assigned track and then turn to the right into its reciprocal heading, at the greatest practical rate of descent;
 - b) if the turn is to be made to the left, the aircraft should attain a position 25 NM to the right of the assigned track and then turn to the left into its reciprocal heading, at the greatest practical rate of descent;
- 3) while executing the turn-back, the aircraft should lose height so that it will be at least 1850 m (6000 ft) below the level at which turn-back was started, by the time the turn-back is completed;
- 4) when turn-back is completed, heading should be adjusted to maintain a lateral displacement of 25 NM from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

Note: For other multi-track systems where the route spacing is greater than 50 NM, the mid-point distance would be used instead on 25 NM.

4.5 Weather Deviation Procedure

4.5.1 General

4.5.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions taken and ATC shall render all possible assistance.

4.5.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, air traffic clearance shall be obtained at the earliest possible time. In the mean time, the aircraft shall broadcast its position including the ATS route designator and intentions on the frequency in use as well as on the frequency 121.5 MHz and , when available, send its position by data link at suitable intervals until ATC clearance is received.

4.5.1.3 The pilot shall inform ATC when weather deviation is no longer required, or when a weather deviation has not been completed and the aircraft has returned to the centre line of its cleared route.

4.5.2 Obtaining priority from ATC

4.5.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating AWEATHER DEVIATION REQUIRED@ to indicate that priority is desired on the frequency and for ATC response.

4.5.2.2 The pilot still retains the option of initiating the communications using the urgency call APAN PAN" three times to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

4.5.3 Actions to be taken when controller-pilot communications are established

4.5.3.1 The pilot notifies ATC and requests clearance to deviate from track, advising when possible the extent of the deviation expected.

4.5.3.2 ATC takes one of the following actions:

- 1) if there is no conflicting traffic in the horizontal plane, ATC will issue clearance to deviate from track; or
- 2) if there is conflicting traffic in the horizontal plane, ATC separates aircraft by establishing appropriate separation; or
- 3) if there is conflicting traffic in the horizontal plane and ATC is unable to establish appropriate separation, ATC shall:
 - a) advise the pilot that standard separation cannot be applied;
 - b) provide essential traffic information for all affected aircraft; and
 - c) if possible, suggest an alternative course of action taking into account the traffic situation

4.5.3.3 The pilot will take the following action:

- a) comply with air traffic control clearance issues; or
- b) follow a level suggested by ATC when approximately 10 NM from track, along with the procedures detailed in 4.2.1.2 a),b) and c) above;

- c) execute the procedures detailed in 4.5.4.1 below. The pilot shall immediately inform ATC of intentions and ATC will issue essential traffic information to all affected aircraft.

4.5.4 Actions to be taken if controller-pilot communications are not established or revised air traffic control clearance is not available.

4.5.4.1 If contact cannot be established or revised air traffic control clearance is not available and deviation from track is required to avoid weather, the Pilot will take the following action:

Comply with air the provisions of 4.2.1.2 a) to d);

- 1) if possible, deviate away from the organized track or route system;
- 2) for deviation of less than 10 NM, aircraft should remain at a level assigned by ATC;
- 3) when the aircraft is approximately 10 NM from route track, initiate a level change based on the following criteria:

Route centre line track	Deviations >10 NM	Level change
EAST 000° - 179° magnetic	LEFT RIGHT	DESCEND 500 ft CLIMB 500 ft
WEST 180° - 359° magnetic	LEFT RIGHT	CLIMB 500ft DESCEND 500 ft

- 4) when turning to track, be at its assigned level, when the track is within approximately 10 NM of centre line; and
- 5) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

Note: When operating in a parallel route system, pilots need to exercise caution if weather deviation requires the aircraft to enter the protected airspace of the adjacent track. In particular, pilots need to be alert for same direction traffic on an adjacent track at the same level which may also be deviating in the same general direction.



Appendix C2

DRAFT PROPOSAL FOR AMENDMENT OF THE ICAO REGIONAL SUPPLEMENTARY PROCEDURES (DOC 7030)

The implementation of RNP 10/50 NM lateral and longitudinal spacing

a) Regional Supplementary Procedures:

Doc 7030/4-AFI, Part 1- Rules of the Air, Air Traffic Services and Search and Rescue, as modified by Amendment 195. This amendment proposal has been developed within the framework of informal meetings on the improvement of air traffic services over the South Atlantic organized pursuant to AFI/7 RAN meeting recommendation 5/11 and as a follow-up to CAR/SAM/3 RAN meeting recommendation 5/26.

b) Proposed amendment:

Amend the SUPPs applicable in the AFI Region as follows:

Add the following requirements for lateral separation and longitudinal separation under chapter 6 (6.1 and 6.2).

Note: With the proposed inclusion of special procedures for in-flight contingencies under chapter 4, existing chapters 4 to 13 have been renumbered to read 5 B14.

(cf. Regional Supplementary Procedures, doc 7030/4-AFI, Part 1 - Rules of the Air, Air Traffic Services and Search and Rescue, as amended by Amendment 195.

c) Originated by:

Brazil	Cape Verde
Senegal	Spain
IATA	

d) Originator's reason for amendment:

The reduction in longitudinal and lateral separation in an RNP10/50 NM lateral/longitudinal spacing environment will improve the provision of air traffic services in the areas concerned and is in line with the implementation strategy adopted in the AFI AND SAM CNS/ATM implementation plans. In addition, it will reduce the level of difficulty in providing ATS to Southbound traffic in Canaries fir therefore improving ATC efficiency and airspace capacity.

e) Intended date of implementation:

As soon as practicable after approval by the ICAO Council. Subject to all requirements being met including safety assessment, the implementation date will be on 17 July (*tentative date*).

f) Proposal circulated to the following states and organizations:

Algeria	Ecuador	Morocco	Trinidad
Argentina	Egypt	Namibia	Trinidad and Tobago
Angola	France	Netherlands	United Kingdom
Austria	Germany	Nigeria	United States
Belgium	Ghana	Norway	Uruguay
Brazil	Haiti	Paraguay	Venezuela
Bulgaria	Hungary	Poland	Eurocontrol
Canada	Iceland	Portugal	ASECNA
Cape Verde	Ireland	Roumania	IATA
Chile	Italy	Russian Federation	IFALPA
Colombia	Jamaica	Senegal	
Côte D'ivoire	Luxemburg	South Africa	
Cuba	Mauritania	Spain	
Denmark	Mexico	Suriname	
Dominican Rep.	Monaco	Sweden	

g) Secretariats comments:

- a. This proposal has been developed within the framework of informal SAT co-ordination meetings and is in accordance with the AFI and SAM CNS/ATM implementation plans (AFI/7 recommendation 5/11).
- b. Implementation of the proposed 50 nm lateral track spacing route structure will be carried out only after conclusive results of safety assessments.
- c. Spain, has accepted to establish a monitoring agency in order to assist with the safe implementation of RNP 10 operations.

Add the following requirement for lateral separation and longitudinal separation under chapter 6 (6.1, 6.2 accordingly):

Note: renumbering of chapters 4 B 13 to read 5 B 14 as a result of proposed inclusion of special procedures for in-flight contingencies under chapter 4)

Separation of aircraft

6.1 Lateral separation

(Annex 11, Attachment B and PANS/RAC, Part III -7 and 9)

6.1.1 For flights within designated controlled oceanic routes or areas within the Canarias FIR (Southern sector), Dakar Oceanic, Sal Oceanic and Recife FIRs the minimum lateral separation shall be:

- a) 100 nm;
- b) except that the minimum lateral separation between RNAV equipped aircraft established on the centre line of parallel tracks or ATS routes shall be 50 nm (93 km) provided that:

1. The aircraft and the operator have been approved by the state of registry or the state of the operator, as appropriate, for RNP 10 operations;
2. The letter R is annotated in item 10 (equipment) of the flight plan to indicate that appropriate RNP approvals have been obtained; and
3. A safety assessment of the airspace has been undertaken by states prior to implementation to establish that a target level of safety (TLS) of not less than 5×10^{B9} fatal accidents per flight hour per dimension will be met, and a safety assessment will be undertaken periodically to verify that the safety level is being maintained.

Note 1. B Guidance material on the application of this minimum is contained in Annex 11. Attachment B, section 3.

Note 2.- As part of the operational assessment of airspace system safety, for areas affected by frequent weather convection, consideration should be given to the need for direct controller /pilot communication.

Note 3.- Guidance material on safety assessment and collision risk models is provided in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689).

6.1.2 the following criteria is used in the operational assessment of airspace system safety:

- a) the proportion of the total flight time spent by aircraft 25 nm (46 km) or more off the cleared track shall be less than 7.0×10^{-4} ; and
- b) the proportion of the total flight time spent by aircraft between 40 and 60 (74 and 111 km) off the cleared track shall be less than 4.1×10^{B5} .

6.2 Longitudinal separation

PANS-RAC, Part III paragraphs 8 and 9

6.2.1 minimum longitudinal separation shall be in accordance with the provisions of the PANS-RAC, Part 111, paragraph 8 or further reduced in accordance with paragraph 9 of the same part, where the conditions specified in the relevant PANS/RAC provisions are met.

6.2.2 in the EUR/SAM corridor (Canarias (Southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs the minimum longitudinal separation minima between RNAV equipped aircraft cruising, climbing or descending on the same track, in accordance with PANS-RAC Part III section 8.6 shall be 50 nm provided that

- a) the aircraft and the operator have been approved by the State of Registry or the State of the Operator, as appropriate, for RNP 10 operations;
- b) the letter R is annotated in item 10 (equipment) of the flight plan to indicate that appropriate RNP approvals have been obtained; and
- c) a safety assessment of the airspace has been undertaken by states prior to implementation to establish that a target level of safety (TLS) of not less than 5×10^{B9} fatal accidents per flight hour per dimension will be met, and a safety assessment will be undertaken periodically thereafter to verify that the safety level is being maintained.

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APPENDIX C3

DRAFT PROPOSAL FOR AMENDMENT OF THE ICAO REGIONAL SUPPLEMENTARY PROCEDURES (DOC 7030)

THE IMPLEMENTATION OF RVSM IN THE EUR/SAM CORRIDOR

(Serial No.: WACAF-S 00/3-AFI RAC)

a) **Regional Supplementary Procedures:**

Doc 7030/4-AFI, Part 1-Rules of the Air, Air Traffic Services and Search and Rescue, as modified by Amendment 195. This amendment proposal has been developed within the framework of Informal Meetings on the Improvement of Air Traffic Services over the South Atlantic organized pursuant to AFI/7 RAN Meeting Recommendation 5/11 and as a follow-up to CAR/SAM/3 RAN Meeting Recommendation 5/26.

Note 1: With the approval of the EUR/SAM corridor route network by the CAR/SAM/3 RAN Meeting, consequential editorial amendments to the AFI ANP will be carried out accordingly.

b) **Proposed Amendment:**

Amend the SUPPs applicable in the AFI and SAM Regions as follows:

Add the following requirements for Vertical separation under Chapter 6 Para. 6.3.

Note: As a result of the inclusion of the proposed special procedures for in-flight contingencies under Chapter 4 in the AFI Part of the SUPPs, existing Chapters 4 13 have been amended to read 5- 14 accordingly)

(cf. Regional Supplementary Procedures, Doc 7030/4-AFI, Part 1 - Rules of the Air, Air Traffic Services and Search and Rescue, as amended by Amendment 195)

c) **Originated by:**

Brazil
Senegal
IATA

Cape Verde
Spain

d) Originator's reason for amendment

The reduction in vertical separation will improve the provision of Air Traffic Services in the areas concerned and is in line with the implementation strategy adopted in the AFI and SAM CNS/ATM implementation plans. In addition, it will reduce the level of

difficulty in providing ATS to Southbound traffic in Canaries FIR therefore improving ATC efficiency and airspace capacity.

e) **Intended date of implementation:**

As soon as practicable, after approval by the Council of ICAO. Subject to all requirements being met, including safety assessment, the implementation date will be on 24 January 2002 (*tentative date*).

f) **Proposal circulated to the following States and organizations:**

Algeria	Dominican Rep.	Mexico	Spain
Argentina	Ecuador	Monaco	Surinam
Angola	Egypt	Morocco	Sweden
Austria	France	Namibia	Trinidad and Tobago
Belgium	Germany	Netherlands	United Kingdom
Brazil	Ghana	Nigeria	United States
Bulgaria	Haiti	Norway	Uruguay
Canada	Hungary	Paraguay	Venezuela
Cape Verde	Iceland	Poland	Eurocontrol
Chile	Ireland	Portugal	ASECNA
Colombia	Italy	Roumania	IATA
Côte d'Ivoire	Jamaica	Russian Federation	IFALPA
Cuba	Luxemburg	Senegal	
Denmark	Mauritania	South Africa	

g) **Secretariat's comments:**

1. This proposal has been developed within the framework of informal SAT co-ordination meetings and is in accordance with the AFI and SAM CNS/ATM implementation plans (AFI/7 Recommendation 5/11) and had been co-ordinated with the AFI Planning and Implementation Regional Group (APIRG) and the CAR/SAM Regional Planning and Implementation Group (GREPECAS).
2. implementation of RVSM in the EUR/SAM corridor would enable aircraft operating to/from European RVSM airspace to continue its flight under RVSM, thereby enhancing the efficiency of flight operations.
3. Following the successful implementation of RVSM in the NAT and Pacific Regions and in co-ordination with the European Region, RVSM is being introduced on designated airspace within the EUR/SAM corridor.
4. The first phase of the implementation of RVSM in the EUR/SAM corridor will be on a phased basis to coincide with European implementation. The first phase will be on a single route within the EUR/SAM organized track system to facilitate traffic operating to/from European RVSM airspace, and will be gradually extended to other routes as experience is gained.
5. A monitoring agency will be established by Spain, to monitor the safety of RVSM and RNP 10 operations.

Add the following requirement for Vertical separation under Chapter 6 Para. 6.3 :

6. Vertical Separation

The minimum vertical separation that shall be applied between FL 290 and FL410 inclusive is 300 m (1 000 ft)

6.3.2 Area of applicability

- 6.3.1.1 RVSM shall be applicable in parts of the following volume of airspace between FL290 and FL410 inclusive, in the Flight Information Regions (FIRs) of: Canarias (Southern Sector), Dakar Oceanic, Sal Oceanic and Recife FIRs (Oceanic portions):

Limits of RVSM areas: *See attached chart at Attachment A)*

From **25° 00' N/ 15°30' W;** 19° 00' N/ 19° 00' W ; 17° 20' N/ 20° 00' W
 15° 00' N/ 20° 00' W; 12° 58' N/ 021° 22' W ; 08° 30.6' S/ 34°21' W
 08° 08.2' S/ 34° 55.6' W (Recife VOR) then follow the Northern continental limits of Brazil until
 the point 01°20.7= S/ 43°07.5' W ;
 07° 40'N/ 3 5° 00' W; 13°30'N 37° 30' W; 17° 00' N/ 37° 30' W
 24° 00'N/ 25° 00' W; 30°00' N/ 25°00'W; 30° 00' N/ 20° 00'W
 25°00' N/ 20° 00'W; **25° 00'N/ 15°30'W**

Note . Implementation will be carried out in phases and will be promulgated by appropriate AIP Supplements and included in the respective AIPs.

6.3.1.2 Establishment of 300 m (1 000 ft) vertical separation minimum (VSM) transition areas

(A2, Appendix 3; A6, Parts I and 11, 7.2.3; All, 3.3.4; P-RAC, Part III - 3.1)

6.3.1.2.1 In order to allow for the transition of flights to and from EUR/SAM RVSM airspace, the ATS authorities responsible for *Canarias, Dakar Oceanic, Sal Oceanic and Recife FIRs* may establish designated RVSM transition areas. A 300 m (1,000 ft) vertical separation minimum can be applied between RVSM approved aircraft within these transition areas.

6.3.1.2.2 An RVSM transition area shall have a vertical extent of FL 290 to FL 410 inclusive, be contained within horizontal dimensions determined by the provider States, be overlapping with or contained within EUR/SAM RVSM airspace and should have direct pilot/controller communications.

6.3.2 RVSM approval

6.3.2.1 The minimum separation in 6.3 shall only be applied between aircraft and operators that have been approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

6.3.3 MASPS

6.3.3.1 The MASPS height-keeping requirements are as follows:

- a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;
- b) for groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):
 - 1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and
 - 2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft).
- c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft: the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and
- d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:
 - 1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3} ;
 - 2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6} ;

- 3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6} ;
- 4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7} ; and
- 5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7} .

Note.— Guidance material regarding the initial achievement and continued maintenance of the height-keeping performance in 6.3.3.1 is contained in the Guidance Material on the Implementation of a 300 m (1000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM corridor.

6.3.4 Target level of safety

6.3.4.1 Application of RVSM in the airspace designated in 6.3.1.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

6.3.5 Approval status and aircraft registration

6.3.5.1 Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

6.3.6 Operation of aircraft not approved for RVSM

6.3.6.1 Except for areas where transition areas have been established, aircraft not meeting the requirements of 6.3.3.1 shall not be allowed to operate in EUR/SAM RVSM airspace.

6.3.6.2 Exceptionally, aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the State provided that 600 m (2000 ft) vertical separation is applied.

Note.— Transitions to and from EUR/SAM RVSM airspace will normally take place in the first FIR in EUR/SAM RVSM airspace.

6.3.7 Monitoring

6.3.7.1 Adequate monitoring of flight operations in the EUR/SAM RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 6.3.3.1. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 6.3.4.1 is not exceeded.

6.3.8. Wake turbulence procedures

6.3.8.1 The following special procedures are applicable to mitigate wake turbulence encounters in Pacific airspace where RVSM is applied.

6.3.8.1.1 An aircraft that encounters wake turbulence should notify air traffic control (ATC) and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:

- a) the pilot should establish contact with other aircraft, if possible, on the appropriate VHF inter-pilot air-to-air frequency; and
- b) one (or both) aircraft may initiate lateral offset(s) not to exceed 2 NM from the assigned route(s) or track(s), provided that:
 - 1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and
 - 2) the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).

Note.— In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

6.3.9 Contents of flight plans

(A2 - 3.3; P-RAC, Part II - 8.1 and Appendix 2)

6.3.4.1 For flights conducted wholly or partly in the volume of airspace specified in 6.3.1.1 EUR/SAM RVSM airspace, the approval status of the aircraft shall be indicated in Item 10 of the flight plan by using the letter W to indicate that the aircraft is RVSM approved. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

6.4 Information on application of separation minima

A11-3.4; PANS-RAC Part 111 -7, 8 and 9

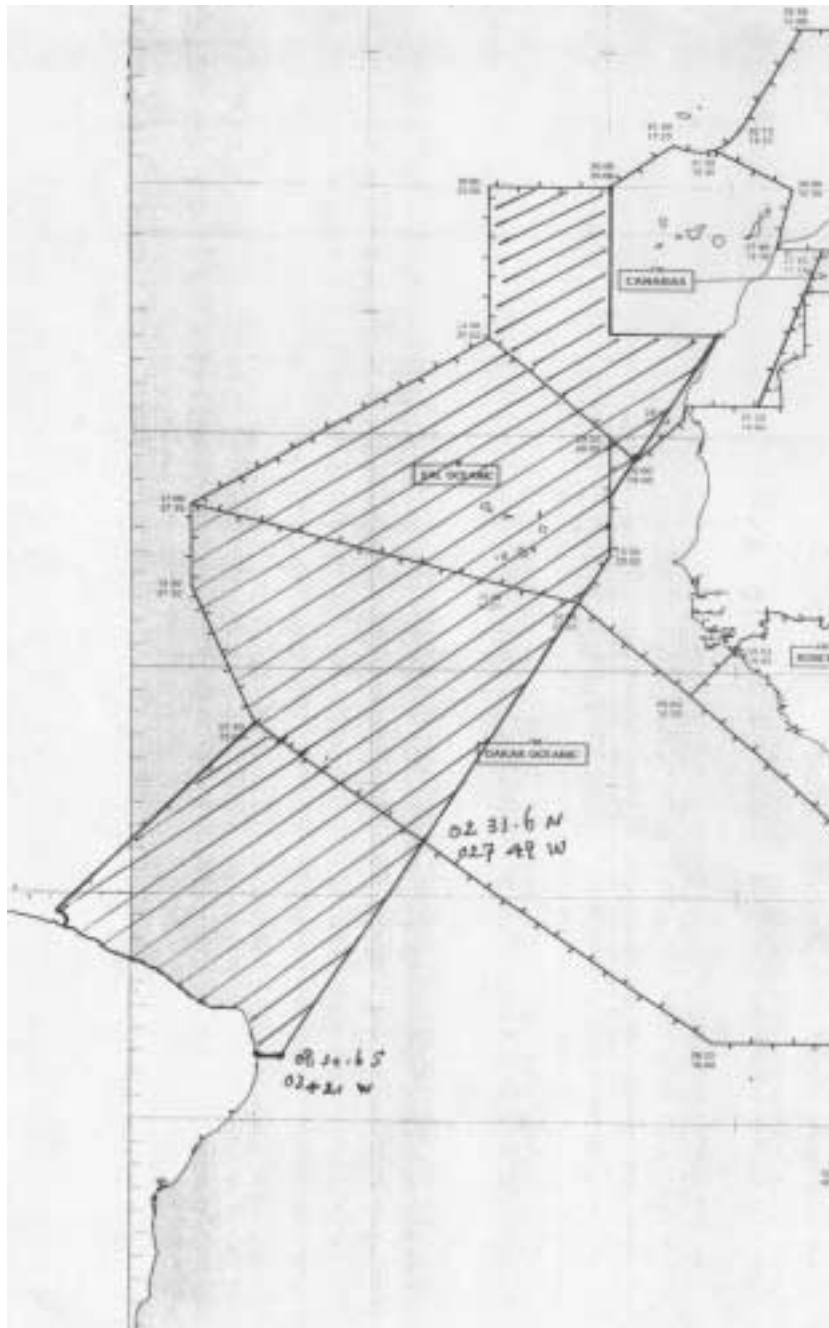
6.4.1 Where circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 and will be applied in accordance with the PANS-RAC, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of the airspace where reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

* * * * *

ATTACHMENT A

LIMITS OF THE EUR/SAM CORRIDOR RVSM AREAS

FROM **25° 00' N / 15° 30' W;** 19° 00' N / 19° 00' W ; 17° 20' N / 20° 00' W
 15° 00' N / 20° 00' W; 12° 58' N / 21° 22' W ; 08° 30.6' S / 34° 21' W
 08° 08.2' S / 34° 55.6' W (RECIFE VOR) THEN FOLLOW THE NORTHERN CONTINENTAL
 LIMITS OF BRAZIL UNTIL THE POINT 01° 20.7' S / 43° 07.5' W ;
 07° 40' N / 35° 00' W; 13° 30' N / 37° 30' W ; 17° 00' N / 37° 30' W ;
 24° 00' N / 25° 00' W; 30° 00' N / 25° 00' W ; 30° 00' N / 20° 00' W
 25° 00' N / 20° 00' W ; **25° 00' N / 15° 30' W**



APPENDIX D**AIC FOR THE IMPLEMENTATION OF RNP 10
DRAFT
AERONAUTICAL INFORMATION CIRCULAR**

Address: Telephone: Other information:
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(NAME OF STATE)

AIC No DATE OF PUBLICATION

IMPLEMENTATION OF RNP10 IN THE CORRIDOR BETWEEN EUROPE AND SOUTH AMERICA (EUR/SAM CORRIDOR)**1. INTRODUCTION**

1.1 The EUR/SAM corridor is the airspace over the South Atlantic (SAT) area, which lies within Flight Information Regions of Canarias, Dakar Oceanic, Recife and Sal Oceanic

1.2 The International Civil Aviation Organization (ICAO) has specified that Required Navigation Performance (RNP) is an important element of the Communications, Navigation and Surveillance / Air Traffic Management System (CNS/ATM) and is encouraging early implementation in the en-route environment.

1.3 In accordance with the approved SAT strategy for the Air Traffic Flow in the South Atlantic (AFI AR1/SAM AH1 homogeneous areas), Brazil, Cape Verde, Senegal and Spain plan to implement a new RNAV/ATS Route Network based on RNP10 in the EUR/SAM Corridor. Flight level restriction will be published as required.

1.4 The implementation will follow approval of proposal of amendments to the AFI Air Navigation Plan (DOC7474) and to AFI Regional Supplementary Procedures (AFI Part of DOC 7030). The SAM Air Navigation Plan (DOC8733) and the SAM Regional Supplementary Procedures (SAM Part of DOC 7030) was agreed during the RAN CAR/SAM 3 meeting, and approved by ICAO Council.

2. PURPOSE

2.1 The intention of this Circular is to disseminate initial information in respect of the plan to implement RNP 10 in the Airspace of the EUR/SAM corridor, as well as for aircraft operational approval process.

3. AREA OF APPLICATION

As determined by the SAT GROUP and as reflected in the Proposal for Amendment of the ICAO Supplementary Procedures, Doc 7030, AFI/SAM Region, RNP-10 shall be applicable in that volume of airspace between FL 310 and FL 410 in the following airspace:
(See at attachment A)

From **25° 00' N/ 15°30' W**; 19° 00' N/ 19° 00' W ; 17° 20' N/ 20° 00' W
15° 00' N/ 20° 00' W; 12° 58' N/ 21° 22' W ; 08° 30.6' S/ 34°21' W
08° 08.2' S /34° 55.6' W (Recife VOR) then follow the Northern continental limits of Brazil
until the point 01°20.7' S/43°07.5' W ;
07° 40'N/ 35° 00' W ; 13°30'N 37° 30' W ; 17° 00' N/ 37° 30' W
24° 00'N/ 25° 00' W ; 30°00' N/25°00'W ; 30° 00' N 20° 00'W
25°00' N/20° 00'W ; **25° 00'N/15°30'W**

4 OPERATIONS WITHIN THE EUR/SAM CORRIDOR RNP-10 AIRSPACE

4.1 Except aircraft mentioned in 4.2 below, only aircraft which are RNP-10 approved, will be authorized to operate within the EUR/SAM Corridor RNP-10 airspace.

4.2 However, non-RNP-10 approved State aircraft will be authorized to enter and operate within the EUR/SAM Corridor RNP-10 airspace. Special ATS procedures have been developed for handling such aircraft. It is however expected that, state aircraft operating extensively within the EUR/SAM Corridor RNP-10 airspace will be modified as necessary to comply with the RNP-10 requirements.

4.3 Special procedures for flight planning in the context of RNP-10 implementation have been developed. These procedures will be introduced into AFI Regional Supplementary Procedures (ICAO Doc 7030) by the end of 2000 and will include the requirement to indicate, in Item 10 of the ICAO Flight Plan, RNP-10 approval of a flight by insertion of the letter "R".

Note: *Special procedures for flight planning were included in the SAM Regional Supplementary Procedures (SAM Part of DOC 7030) agreed during the RAN CAR/SAM 3 meeting, approved by ICAO Council.*

5. RNP APPROVAL

5.1 It is assumed that RNP approval is provided by the State of Registry or State of the Operator, as appropriate.

5.2 The RNP approval process could be based on the United States Federal Aviation Administration Order 8400.12A or similar.

5.3 (NAME OF STATE) operators shall contact Civil Aviation Department (XXXX) to obtain operational approval for RNP 10 capability. Other operators shall consult their relevant State Authority.

6. RNP IMPLEMENTATION SCHEDULE

6.1 The States responsible for the provision of Air Traffic Service in the EUR/SAM corridor foresees the implementation of RNP-10 in the EUR/SAM Corridor airspace on 17 April 2001. Prior to this date, a go/delay decision has been scheduled for 17 February 2001, in which a final decision will be made on the feasibility of implementation of RNP-10 in the EUR/SAM Corridor airspace on 17 April 2001. This decision will be based on, inter alia:

- a) the outcome of the pre-implementation safety assessment,

- b) the readiness of airspace users for RNP-10 operations, i.e. the number of aircraft intending to operate in EUR/SAM Corridor RNP-10 airspace which have been approved, and
- c) the State and ATS provider readiness for RNP-10 operations.

6.2 In order to allow a go/delay decision on 17 February 2001, it will be necessary that:

- a) Aircraft intending to operate in EUR/SAM Corridor RNP-10 airspace should obtain the RNP 10 approval before the end of January 2001.
- b) Aircraft operators intending to fly in the EUR/SAM Corridor RNP-10 airspace shall provide the intention of being approved to the South Atlantic Monitoring Agency (SATMA).
- c) An adequate and approved pre-implementation safety assessment is available for the go/delay decision.

Note: A percentage of 90% of approved aircraft that will fly in the EUR/SAM Corridor will be considered for the go/delay decision. It is therefore highly recommended that RNP-10 approvals are obtained as early as possible to allow for an effective and successful implementation.

7. INFORMATION REGARDING RNP-10 ATS PROCEDURES

7.1 The ATS procedures required for the application of RNP-10 will be described in a future AIC after the amendment proposal to ICAO Doc. 7030 (AFI Supplementary Procedures) has been approved.

8. REFERENCE DOCUMENTS

ICAO: Doc. 7030/4 - AFI/SAM, Part 1, Rules of the Air, Air Traffic Services and Search and Rescue.

ICAO. Doc. 7474 AFI Air Navigation Plan.

ICAO. Doc. 8733 SAM Air Navigation Plan.

ICAO: Doc. 9613 - "Manual on Required Navigation Performance (RNP)".

FAA: Order 8400.12A Required Navigation Performance 10 (RNP-10) Operational Approval.

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9. ADDITIONAL INFORMATION

9.1 Further information on policy, planning and implementation issues for RNP-10 can be obtained from: South Atlantic Monitoring Agency (SATMA)

Centro de Control de Tránsito Aéreo de Canarias
Apartado 69
Las Palmas de Gran Canaria - ESPAÑA
TEL: 34 928577002 FAX: 34 928577003 e-mail: satma@aena.es

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APPENDIX E

**AIC FOR THE IMPLEMENTATION OF RVSM
DRAFT
AERONAUTICAL INFORMATION CIRCULAR**

Address:
Telephone:
Other information:

(NAME OF STATE)

AIC No
DATE OF
PUBLICATION

**IMPLEMENTATION OF RVSM IN THE CORRIDOR BETWEEN EUROPE AND SOUTH
AMERICA (EUR/SAM CORRIDOR)**

1. INTRODUCTION

1.1 The EUR/SAM corridor is the airspace over the South Atlantic (SAT) area which lies within Flight Information Regions of Canarias, Dakar Oceanic, Recife and Sal Oceanic.

1.2 The International Civil Aviation Organization (ICAO) has specified that Reduced Vertical Separation Minimum is an important element of the Communications, Navigation and Surveillance / Air Traffic Management System (CNS/ATM) and is encouraging early implementation in the en-route environment.

1.3 In accordance with the approved SAT strategy for the Air Traffic Flow in the South Atlantic (AFI AR1/SAM AH1 homogeneous areas), Brazil, Cape Verde, Senegal and Spain plan to implement RVSM in the EUR/SAM Corridor.

1.4 The implementation will follow approval of proposal of amendments to the Regional Supplementary Procedures (AFI and SAM Parts of DOC 7030).

2. PURPOSE

2.1 The intention of this Circular is to disseminate initial information in respect of the plan to implement RVSM in the Airspace of the EUR/SAM corridor, as well as for aircraft operational approval process.

3. AREA OF APPLICATION

As determined by the SAT GROUP and as reflected in the Proposal for Amendment of the ICAO Supplementary Procedures, Doc 7030, AFI/SAM Region, RVSM shall be applicable in that volume of airspace between FL 310 and FL 410 in the following airspace:

From **25° 00' N/ 15°30' W**; 19° 00' N/ 19° 00' W ; 17° 20' N/ 20° 00' W
 15° 00' N/ 20° 00' W; 12° 58' N/ 21° 22' W ; 08° 30.6' S/ 34°21' W
 08° 08.2' S /34° 55.6' W (Recife VOR) then follow the Northern continental limits
 of Brazil until the point 01°20.7' S/43°07.5' W ;
 07° 40' N/ 35° 00' W ; 13°30' N 37° 30' W ; 17° 00' N/ 37° 30' W
 24° 00' N/ 25° 00' W ; 30°00' N/25°00' W ; 30° 00' N 20° 00' W
 25°00' N/20° 00' W ; 25° 00' N/15°30' W
(See attachment A)

3.2 Flight levels within the EUR/SAM Corridor RVSM airspace will be organized on the basis of their intended use in regards to direction of flight, in accordance with ICAO Annex 2, Appendix 3, para. a), Table of Cruising Levels.

3.3 The organization of flight levels within the RVSM airspace does not preclude the establishment of uni-directional ATS Routes where deemed necessary.

4 OPERATIONS WITHIN THE EUR/SAM CORRIDOR RVSM AIRSPACE

4.1 Except for RVSM airspace where transition tasks are carried out and with the exception of State aircraft, only aircraft which are RVSM approved, will be authorized to operate within the EUR/SAM Corridor RVSM airspace.

4.2 Non-RVSM approved State aircraft will be authorized to enter and operate within the EUR/SAM Corridor RVSM airspace. Special ATS procedures have been developed for handling such aircraft. It is however expected that, state aircraft operating extensively within the EUR/SAM Corridor RVSM airspace will be modified as necessary to comply with the RVSM requirements.

4.3 Special procedures for flight planning in the context of RVSM implementation have been developed. These procedures will be introduced into ICAO Doc 7030 (AFI and SAM Regional Supplementary Procedures) by the end of 2000, and will include the requirement to indicate, in Item 10 of the ICAO Flight Plan, RVSM approval of a flight by insertion of the letter "W".

5. RVSM CERTIFICATION

5.1 It is assumed that RVSM certification is provided by the State of Registry or State of the Operator, as appropriate.

5.2 The RVSM certification process could be based on the FAA Interim Guidance 91, JAA Leaflet-06 or similar.

5.3 (NAME OF STATE) operators shall contact Civil Aviation Department (XXXX) to obtain operational approval for RVSM capability. Other operators shall consult their relevant State Authority.

6. RVSM IMPLEMENTATION SCHEDULE

6.1 The States responsible for the provision of Air Traffic Services in the EUR/SAM corridor foresees the implementation of RVSM in the EUR/SAM Corridor airspace on 24 January 2002. Prior to this date, a go/delay decision has been scheduled for 15 September 2001, in which a final decision will be made on the feasibility of implementation of RVSM in the EUR/SAM Corridor airspace on 24 January 2002.

6.2 Meanwhile, limited application is foreseen in 15 April 2001 along the UR-1, between FL 330 and FL 370, i.e. additional FL 340 and FL 360 will be available.

- 6.3 The decisions mentioned in the 6.1 and 6.2 above will be based on, inter alia:
- a) the outcome of the pre-implementation safety assessment,
 - b) the readiness of airspace users for RVSM operations, i.e. the number of aircraft intending to operate in EUR/SAM Corridor RVSM airspace which have been approved, and
 - c) the State and ATS provider readiness for RVSM operations.

6.4 In order to allow a go/delay decision on 15 September 2001 for a full implementation, it will be necessary that:

- a) Aircraft intending to operate in EUR/SAM Corridor RVSM airspace should obtain the RVSM approval before the end of March 2001.
- b) Aircraft operators intending to fly in the EUR/SAM Corridor RVSM airspace shall provide the intention of being approved to the South Atlantic Monitoring Agency (SATMA).
- c) An adequate and approved pre-implementation safety assessment is available for the go/delay decision.

Note: A percentage of 90% of approved aircraft that will fly in the EUR/SAM Corridor will be considered for the go/delay decision. It is therefore highly recommended that RVSM approvals are obtained as early as possible to allow for an effective and successful implementation.

7. HEIGHT-KEEPING PERFORMANCE MONITORING OF RVSM APPROVED AIRCRAFT

7.1 Taking into consideration that most of the Civil Airspace Users in the EUR/SAM Corridor goes to or come from Europe, the EUR/SAM Corridor RVSM program will adopt to extent as practicable the results of Europe height-keeping performance monitoring of RVSM approved aircraft for the RVSM operations in the EUR/SAM Corridor RVSM airspace.

8. INFORMATION REGARDING RVSM ATS PROCEDURES

8.1 The ATS procedures required for the application of RVSM will be described in a future AIC after the amendment proposal to ICAO Doc. 7030 (AFI/SAM Supplementary Procedures) has been approved.

9. REFERENCE DOCUMENTS

ICAO: Doc. 7030/4 - AFI/SAM, Part 1, Rules of the Air, Air Traffic Services and Search and Rescue.

ICAO: Doc. 9574 - "Manual on Implementation of a 300 m (1000 ft) Vertical Separation Minimum between FL 290 and FL 410 Inclusive".

JAA: Temporary Guidance Leaflet on Approval of Aircraft and Operators for Flight in RVSM Airspace - TGL N°.6.

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FAA: Interim Guidance Material on the Approval of Operators/Aircraft for RVSM Operations. No.: 91-RVSM

10 ADDITIONAL INFORMATION

10.1 Further information on policy, planning and implementation issues for RVSM can be obtained from:

South Atlantic Monitoring Agency (SATMA)
Centro de Control de Tránsito Aéreo de Canarias
Apartado 69
Las Palmas de Gran Canaria - ESPAÑA
TEL: 34 928577002
FAX: 34 928577003
e-mail: satma@aena.es

* * * * *

APPENDIX F

TIME SCALES FOR THE IMPLEMENTATION OF RVSM EUR/SAM CORRIDOR RVSM Program

SAT GROUP

Spain was committed by SAT Group to establish a Monitoring Agency and to carry out the Pre-implementation Safety Assessment.

SAT GROUP	END DATE	REV END DATE	IMPACT	RECOMMENDATION/ COMMENT
Monitoring Infrastructure				
Set Up Monitoring Agency	23/08/00			
Safety Assessment				
Conduct Pre-implementation Safety Assessment	15/06/00			Contract between Spain and ARINC is on going.
Produce final Pre-Implementation Report assessing each Safety Objective	15/12/00			
Monitoring Operations				
Produce height keeping and non height keeping results for safety case	TBD			To be carried out by Spain.
GO/DELAY Decision				
Decide Go/Delay implementation	15/09/01			

ICAO

ICAO are responsible for providing a framework for enabling the introduction of National regulations needed to be in place for the introduction of RVSM.

ICAO	END DATE	REV END DATE	IMPACT	RECOMMENDATION/ COMMENT
Develop EUR/SAM CORRIDOR RVSM Guidance Material	OK			Complete
Approve and issue RVSM Technical and Operational Amendment to Doc 7030	23/11/00			

RVSM STATES

State organizations identified as separate Stakeholders include National Civil Aviation Authority, Certification/Regulation Authorities and ATS Providers. Together they are responsible for the provision of regulations to enable ATCs to safely handle aircraft flying in RVSM airspace, as well as approving National users for RVSM operations.

RVSM STATES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
NATIONAL CIVIL AVIATION AUTHORITIES				
Programme Management				
Establish National RVSM programme organization and budget	23/07/00		Lack of commitment to programme could mean delay in required activities.	
Awareness				
Launch National RVSM awareness programme	23/07/00			
Aeronautical Publications				
RVSM NOTAM	10/07/00		Lack of communication with aviation community and lack of preparation in aviation community.	
Publish RVSM Aeronautical Information Circulars	First AIC: 10/07/00		Lack of communication with aviation community and lack of preparation in aviation community.	
EUR/SAM Corridor Generic RVSM ATC Procedures				
Agree operational and technical Doc 7030 amendment on National level	Ok			
Legal Issues				
Implement National Legislation/Regulations	23/01/01			
STATE CERTIFICATION/REGULATORY AUTHORITIES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
RVSM Approval				
Launch assessment of RVSM Approval Rate	23/08/00			
Adopt Technical Doc 7030 into National regulations	23/01/01			
Provide certification criteria to National Operators	23/01/01			
Approve suitably modified aircraft	30/05/01			

RVSM aircraft certification	End March 2001			The South Atlantic Monitoring Agency (SATMA) will be in charge to collect data Go/delay implementation decision depends on 90% aircraft certification rate
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STATE ATS PROVIDER	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
Training Simulator Modifications				
Establish Simulator Modification Schedule	23/08/00			
Validate and accept simulator modifications	23/10/00			
ATS System Modifications				
Establish ATS System modification schedule	23/08/00			
Validate and accept system modifications	23/11/00			
ATC Procedures				
Adapt/Integrate RVSM ATC procedures in National local Ops Manual	23/01/01			
Preparation of Airspace				
Agree on National Airspace Structure and sectorization changes	23/01/01			
Letters of Agreement				
Completion of all Letters of Agreement amendments	31/8/01			
Integrate Letters of Agreement amendments into local ATC Ops Manual	01/11/01			
Controller Training for RVSM				
Finalize National local training programme	9/11/00			
Complete National ATC training	30/11/01			
Implement RVSM	24/01/02			

NON-RVSM STATES

Non-RVSM States are responsible for certifying aircraft requiring access to RVSM airspace. In addition, Non-RVSM States adjacent to the RVSM area may require airspace and procedure modifications to handle transition between RVSM airspace and non-RVSM airspace.

NON-RVSM STATES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
RVSM Approval				
Translate Technical Doc 7030 into National regulations	23/01/01			
Provide certification criteria to National Operators	23/01/01			
Approve suitably modified aircraft	30/05/01			
Monitor approval rate of National aircraft modifications	27/8/01			The South Atlantic Monitoring Agency (SATMA) will be in charge to collect data Go or not go implementation decision depends on 90% aircraft certification rate

CIVIL AIRSPACE USERS

Users wishing to fly in RVSM airspace must gain RVSM approval. Taking in consideration that most of the Civil Airspace users in the EUR/SAM corridor goes to or comes from Europe, the EUR/SAM corridor RVSM program will use the same dates used for European RVSM Program.

CIVIL AIRSPACE USERS	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
Aircraft Modifications				
Identify modification requirements	31/5/00			Date reflects agency's ability to collect date from the Operators. All dates now aligned with the monitoring programme.
Set up modification programme	31/12/00			Date reflects agency's ability to collect date from the Operators. All dates now aligned with the monitoring programme.
Develop Amendments to Ops Manual	30/3/01			Date reflects agency's ability to collect date from the Operators. All dates now aligned with the monitoring programme.
Undertake aircraft modifications	29/12/00			
RVSM Approval				
Commence participation in European RVSM monitoring program	25/5/00			
Request RVSM certification	19/3/01			
Deadline for RVSM certification	End Mar/01			
Flight Crew Training				
Conduct flight crew training	10/10/01			

APPENDIX G

TIME SCALES FOR THE IMPLEMENTATION OF RNP 10

EUR/SAM CORRIDOR RNP-10 Program

SAT GROUP

Spain was committed by SAT Group to establish a Monitoring Agency and to carry out the Pre-implementation Safety Assessment.

ICAO	END DATE	REV END DATE	IMPACT	RECOMMENDATION/ COMMENT
Monitoring Infrastructure				
Set Up Monitoring Agency	23/08/00			
Safety Assessment				
Conduct Pre-implementation Safety Assessment	15/06/00			
Produce final Pre-Implementation Report assessing each Safety Objective	15/12/00			
GO/DELAY Decision				
Decide Go/Delay implementation	17/02/01			

ICAO

ICAO are responsible for providing a framework for enabling the introduction of National regulations needed to be in place for the introduction of RNP-10.

ICAO	END DATE	REV END DATE	IMPACT	RECOMMENDATION/ COMMENT
Approve and issue AFI RNP-10 Technical and Operational Amendment to Doc 7030	23/11/00			RNP-10 for the SAM Region was approved during RAN CAR/SAM 3 meeting.

RNP-10 STATES

State organizations identified as separate Stakeholders include National Civil Aviation Authority, Certification/Regulation Authorities and ATS Providers. Together they are responsible for the provision of regulations to enable ATCs to safely handle aircraft flying in RNP-10 airspace, as well as approving National users for RNP-10 operations.

RNP-10 STATES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
NATIONAL CIVIL AVIATION AUTHORITIES				
Programme Management				
Establish National RNP-10 programme organization and budget	23/07/00		Lack of commitment to programme could mean delay in required activities.	
Awareness				
Launch National RNP-10 awareness programme	23/07/00			
Aeronautical Publications				
RNP-10 NOTAM	10/07/00		Lack of communication with aviation community and lack of preparation in aviation community.	
Publish RNP-10 Aeronautical Information Circulars	First AIC: 10/07/00		Lack of communication with aviation community and lack of preparation in aviation community.	
EUR/SAM Corridor Generic RNP-10 ATC Procedures				
Agree operational and technical Doc 7030 amendment on National level	ok			
Legal Issues				
Implement National Legislation/Regulations	23/01/01			

STATE CERTIFICATION/REGULATORY AUTHORITIES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
RNP-10 Approval				
Launch assessment of RNP-10 Approval Rate	23/08/00			
Adopt Technical Doc 7030 into National regulations	23/01/01			
Provide approval criteria to National Operators	17/09/00			Complete for some States.
RNP-10 aircraft approval	17/02/01			The South Atlantic Monitoring Agency (SATMA) will be in charge to collect data Go or not go implementation decision depends on 90% aircraft certification rate

STATE ATS PROVIDER	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
Training Simulator Modifications				
Simulator modification	23/08/00			
ATS System Modifications				
ATS System modification	23/08/00			
Preparation of Airspace				
National Airspace Structure and sectorisation changes	23/01/01			
Letters of Agreement				
Completion of all Letters of Agreement amendments	SAT/9 Meeting (6-10 Nov 2000)			
Integrate Letters of Agreement amendments into local ATC Ops manual	10/12/00			
Controller Training for RNP-10				
Finalize National local training programme	10/11/00			
Complete National ATC training	17/02/01			
Implement RNP-10	17/04/01			

NON-RNP-10 STATES

Non-RNP-10 States are responsible for certifying aircraft requiring access to RNP-10 airspace. In addition, Non-RNP-10 States adjacent to the RNP-10 area may require airspace and procedure modifications to handle transition between RNP-10 airspace and non-RNP-10 airspace.

NON-RNP-10 STATES	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
RNP-10 Approval				
Translate Technical Doc 7030 into National regulations	23/01/01			
Provide approval criteria to National Operators	17/09/00			
Monitor approval rate of National aircraft	17/02/01			The South Atlantic Monitoring Agency (SATMA) will be in charge to collect data Go or not go implementation decision depends on 90% aircraft certification rate.

CIVIL AIRSPACE USERS

Users wishing to fly in RNP-10 airspace must gain RNP-10 approval.

CIVIL AIRSPACE USERS	TARGET DATE	REV TARGET DATE	IMPACT	RECOMMENDATION/ COMMENT
Aircraft Modifications				
Develop Amendments to Ops Manual	10/09/00			
RNP-10 Approval				
Request RNP-10 approval	10/10/00			
Deadline for RNP-10 approval	End Jan/01			
Flight Crew Training				
Conduct flight crew training	10/01/01			

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APPENDIX H**LIST OF PARTICIPANTS****BRAZIL**

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H-2

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