



INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICAN OFFICE

**REPORT OF THE FIFTEENTH MEETING ON THE IMPROVEMENT OF AIR TRAFFIC
SERVICES OVER THE SOUTH ATLANTIC (SAT/15)**

(LISBON, PORTUGAL, 19 - 21 May 2010)

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History of the meeting

1. Place and duration of the meeting

1.1 The Fifteenth Informal Coordination Meeting on the improvement of air traffic services over the South Atlantic (SAT/15) was held in Lisbon, Portugal from 19 to 21 May 2010. The meeting was hosted by Nav Portugal and was held at the Hotel Tivoli Oriente.

2. Opening Ceremony

2.1 The meeting was officially opened by Mr. Fernando CARVALHO, Adviser to the Administrative Board of Nav Portugal, who welcomed the participants and wished them fruitful deliberations and a nice stay in Portugal. In his welcome address, Mr. Carvalho emphasized the importance of the SAT Group meetings with regards to the improvement of ATS services and the safety of flight operations over the South Atlantic (SAT). He took the opportunity to reaffirm Portugal's commitment to the work carried out by the SAT Group and highlighted the permanent support provided by the concerned States to SAT meetings.

3. Organization, Secretariat and attendance

3.1 Mr. Albert Taylor, (Ghana CAA), was unanimously elected as Chairperson of the meeting.

3.2 Mr. Sadou MARAFA, ATM Regional Officer of the ICAO WACAF Office, was the Secretary of the meeting. He was assisted by François Salambanga, CNS Regional Officer, ICAO Dakar Office.

3.3 The meeting was attended by forty-six (46) participants from twelve (12) ICAO contracting States namely: Angola, Argentina, Brazil, Cape Verde, Cote d'Ivoire, Ghana, Mauritania, Portugal, South Africa, Senegal, Spain and Uruguay and 5 International/Interregional Organizations (ARINC/USA, ASECNA, IATA, IFALPA and INSA).

3.4 The list of participants and their contact addresses is at **Appendix A** to this report.

4. Working languages

4.1 The meeting was conducted the in English language and its relevant documentation was presented in this language.

5. Agenda of the meeting

5.1 The meeting adopted the following agenda:

Agenda Item 1: Air traffic management (ATM)

- 1 Follow up of SAT/14 and SAT/14/TF/1 Conclusions pertaining to the ATM field.
- 2 Follow up of the AORRA airspace implementation.
- 3 SATMA report on Traffic Statistics, Safety procedures and operational procedures in the EUR/SAM corridor.
- 4 ATS Contingency planning.
- 5 Any other ATM business

Agenda Item 2: Communications, Navigation and Surveillance (CNS)

- 1 Follow up of SAT/14 Conclusions pertaining to the CNS field.
- 2 Review of AFS performance.
- 3 Interoperability between aeronautical VSAT networks and potential use of digital VSAT networks to support ATM applications.

Agenda Item 3: Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) Systems

- 1 Harmonization of ADS/CPDLC programmes
 - Review of the Report of the Second SAT FANS 1/A Interoperability Team (SAT/FIT/5).
- 2 Introduction of Performance Based Navigation (PBN) in the South Atlantic.
- 3 Harmonization of CNS/ATM systems evolution tables.

Agenda Item 4: Future Work Programme

Agenda Item 5: Any Other Business.

6. Conclusions and Decisions of the meeting

The meeting adopted the following conclusions and decisions:

Conclusion SAT 1/01: Implementation of Phases 3 and 4 of AORRA Airspace

That States concerned publish by the AIRAC date of 05 July, 2010 a common AIP Supplement for implementing phases 3 and 4 of AORRA airspace by 26 August, 2010.

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Conclusion SAT15/02: Direct Transitions to/from AORRA Airspace

*That a coordination meeting be held by the end of June 2010 between Angola, Brazil, Côte d'Ivoire, Ghana, Sao Tome and Principe, Senegal, ASECNA, Roberts FIR and IATA to discuss the direct transitions to/from AORRA airspace as proposed by IATA in **Appendix D** to this report.*

Note: Ghana accepted the request to host the meeting; date and venue to be confirmed

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Conclusion SAT15/03: Proposed Amendment to doc 7030

*That SAT members forward to the secretariat their comments on the proposed amendment to doc 7030 as shown in **Appendix E** to this report, by the end of June 2010.*

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Conclusion SAT15/04: Operational Procedure

*That Brazil, Cape Verde, Senegal and Spain will implement on AIRAC date 12 January 2011 the operational procedure based on ADS-C/CPDLC reflected in **Appendix F** to this SAT 15 report.*

.....

Conclusion SAT15/05: Common additional procedures to prevent LHDs

That

SAT/15 Meeting having expressed its concern about the LHDs due to operational errors in ATC unit to unit coordination, implores ACCs to apply the coordination procedures for flight level changes near the common boundaries reflected on their respective LoAs, and decided to propose the modification to ICAO Doc.7030 as follows:

Supplementary safety procedures for aircraft in cases of air/ground communications problems (radio or CPDLC) and relay with other aircraft is not available.

Procedures for aircraft flying along the EUR-SAM Corridor, aircraft will perform a lateral right offset up to 2 NM in cases where:

- a) Impossible, difficult or incomprehensive radio or CPDLC communications with the relevant ACC after trying to establish the communications at least during 10 minutes;*
- b) Doubts and impossible confirmation of a clearance issued by ATC; and*
- c) When performing an ATC clearance with additional restriction (time to reach the cleared flight level, Mach number, etc.) and the position of the aircraft is 10 minutes or less to the next boundary.*

In all cases, aircraft will inform the ATC about this lateral offset as soon as suitable communications are re-established.

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Decision SAT 15 01: LHD reporting

That SATMA, as coordinator of LHD Monitoring Team, will send to ACCs involved in one specific deviation the LHD report received, for its investigation.

.....

Conclusion SAT15/06: Contingency plan for the SAT Area

That South Africa coordinates with other SAT members the development of a comprehensive ATS contingency plan for the SAT airspace based on the existing EUR-SAM corridor contingency plan and in accordance with ICAO Annex 11 provisions, and presents the final draft to the next SAT/16 Meeting.

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Conclusion SAT15/07: Unknown traffic in the South Atlantic*That*

- 1) *the SAT Group expresses its concern about the unknown traffic coming to/from Malvinas Islands, Ascension Island and other uncontrolled flights in the South Atlantic, and calls for the involvement of ICAO to find a solution.*
- 2) *Argentina, Brazil and Uruguay agree to hold a coordination meeting to improve operational procedures in order to enhance safety in the area concerned.*

.....

Conclusion SAT15/08: ATS deficiencies in the SAT Area

That, based on the projected increase in traffic provided by IATA and the deficiencies reported, the SAT group agrees to develop an airspace infrastructure plan along the lines of the Global PBN Plan.

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Conclusion SAT/15/09: Implementation of ATS/DS circuit for Luanda/Atlantico*That:*

- 1) *Angola and Brazil hold a technical coordination meeting to conduct the Implementation process of a CAFSAT node in Luanda in order to clear, before the forthcoming SAT meeting, the pending Luanda/Recife ATS/DS circuit deficiency;*
- 2) *ASECNA as team leader of Task 2 of the CNS/WG Work Programme assist, if necessary, Angola and Brazil for the technical study; and*
- 3) *ICAO to continue to support Angola and Brazil by coordinating the implementation process.*

.....

Conclusion SAT/15/10: ATS-Voice Numbering Plan for AFI*That:*

- 1) *APIRG creates an AFI Working Group to conduct the technical study for the development of a global ATS voice numbering plan for the AFI Region and harmonize its implementation frame;*
- 2) *Meanwhile, SAT States be encouraged to pursue their efforts on bilateral ATS voice numbering trials and provide the AFI working group with available relevant material;*
- 3) *ICAO continue to support the development of an ATS voice numbering plan for the AFI Region as stated in the recommendation contained within the ICAO Manual on ATS Ground-Ground Voice Switching and Signaling (Doc 9804, Chapter 2 Section 2.3).*

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Conclusion SAT/15/11: Trials for extension of ATS-N5 Voice switching protocol

That:

SAT States continue their collaborative technical arrangements to conduct trials for extension of ATS-N5 voice switching protocol by adopting the following steps:

- 1) Spain to provide an updated form containing the technical requirements for VCSSs capability to support ATS-N5 voice switching protocol;*
- 2) Other SAT States to assess their current VCSSs capability in line with the technical requirements provided by Spain and take into account these requirements when updating their VCSSs and report the assessment results to ICAO; and*
- 3) ICAO to coordinate the process by compiling the available information to be forwarded to all stakeholders.*

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Decision SAT/15/02: ADS Data Sharing

That:

- 1) SAT States delay ADS data sharing as stated in conclusion SAT 14/12 and conduct, if necessary, comprehensive complementary studies taking into account the ATM requirements and involving various technical, financial and legal aspects;*
- 2) The SAT ATM/WG conducts a study and provides the SAT CNS/WG with the operational requirements for ADS data sharing.*

Conclusion SAT/15/12: Implementation and Interconnection of AMHS systems

That:

- 1) SAT States that have already implemented AMHS systems conduct trials for their interconnection and report to the other stakeholders;*
- 2) SAT States that have not implemented AMHS systems pursue their effort in modernizing their systems to support AMHS capability taking into account the experience gained by their neighbouring States;*
- 3) In the framework of regional collaboration, SAT States to report when requested, the results of the trials of interconnection of AMHS systems to AFI AMHS Implementation Task force in order to support AMHS implementation process in the AFI region.*

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Decision SAT/15/03: Adoption of the Terms of Reference of CAFSAT Network Management Committee

*That the CAFSAT Network Management Committee (CNMC) Terms of Reference be adopted as presented in **Appendix G** to the present report.*

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Conclusion SAT/15/13: Investigation of missing Flight Plans

That SAT States set up a consolidated investigation form involving both technical and operational aspects to conduct periodic assessment of missing flight plans.

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Conclusion SAT/15/14: Harmonization of AFS maintenance procedures and AFS statistics data collection

That:

- 1) *SAT States endeavour to agree to minimize the Mean Time Between Failure (MTBF) of AFS systems by harmonizing their maintenance methodologies in terms of maintenance organization, procedures and maintenance personnel exchange;*
- 2) *The statistics of AFS performance be collected and shared among SAT States with copy to ICAO for compilation and analysis.*

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Conclusion SAT/15/15: Modernization of CAFSAT Network

That:

- 1) *In the framework of the Terms of Reference of the CAFSAT Management Committee, SAT States develop a joint technical evaluation for a comprehensive modernization and re-engineering of the CAFSAT Network.*
- 2) *The modernization process should ensure a balanced interconnection with existing networks and guarantee end to end operations interoperability.*

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Conclusion SAT/15/16: Implementation of AIDC /OLDI in SAT

That SAT States be encouraged to implement AIDC messages interchange where possible, as technical action to reduce human errors in coordination operations between neighbouring ACCs.

Conclusion SAT/15/17: SAT/FIT/5 Report

The SAT/15 Meeting approved the SAT/FIT/5 Report and its conclusions.

Summary of Discussions

Agenda Item 1: Air traffic management (ATM)

1.1 Follow up of SAT/14 and SAT/14/TF/1 Conclusions pertaining to the ATM field

1.1.1 The Secretariat presented the status of implementation of conclusions emanating from the fourteenth meeting of the improvement of air traffic control in the South Atlantic (SAT/14), which was held in Montevideo, Uruguay, from 7 to 9 May 2008. The meeting reviewed and noted the actions taken by SAT Members and the Secretariat on the conclusions. The status of implementation of these Conclusions is shown at **Appendix B** to this report.

1.1.2 The meeting revised the implementation status of Conclusions and Decisions adopted by the SAT/14/TF/1 Meeting, which was held in Sal, Cape Verde, from 10 to 12 June 2009, and actions taken thereon by SAT Members and the Secretariat. In this connection the revised Conclusions and Decisions are shown in **Appendix C** to this part of the report.

1.2 Follow up of the AORRA airspace implementation

1.2.1 The meeting recalled the benefit expected by users from the random routing system and the history of the process which must soon lead to the full implementation of the AORRA. In this regard, the meeting was reminded that Conclusion SAT 14TF1/05 called for the implementation of AORRA phases 3 and 4 by April 2010.

1.2.2 As this target date could not be met, the meeting was of the view that States concerned should agree to the earliest AIRAC date for the implementation of the last part of the AORRA. Taking into account preparatory actions to be carried out prior to the implementation itself, the meeting agreed to the following conclusion:

Conclusion SAT 1/01: Implementation of Phases 3 and 4 of AORRA Airspace

That States concerned publish by the AIRAC date of 05 July, 2010 a common AIP Supplement for implementing phases 3 and 4 of AORRA airspace by 26 August, 2010.

1.2.3 The meeting's attention was then drawn to the following key issues related to AORRA implementation and acknowledged by successive SAT meetings:

- All routes within AORRA should be suspended in order to allow full random routing operations and remove any misunderstanding of the application. These routes may be reactivated in case of an emergency situation.
- Direct route transitions are required from Waypoints on the existing Airway structure to discrete Latitude/Longitude Waypoints on the AORRA boundaries, in order to optimize random routing benefits.

1.2.4 In this regard, IATA submitted to the meeting a working paper proposing additional Entry/Exit waypoints on the AORRA boundary along with suitable transitions from the existing Domestic airway structure.

1.2.5 The meeting recognized the need for SAT States and concerned ACCs to define Entry/Exit Waypoints on the AORRA boundary and efficient hook-ups to the existing conventional fixed routes outside of the AORRA area. However, the meeting was of the view that ANSPs should take time to consider the proposal and assess the safety aspect before implementation. Furthermore, in some cases, there is a need for dialogue and agreement between adjacent FIRs.

1.2.6 The meeting therefore formulated the following conclusion:

Conclusion SAT15/02: Direct transitions to/from AORRA airspace

That a coordination meeting be held by the end of June 2010 between Angola, Brazil, Côte d'Ivoire, Ghana, Sao Tome and Principe, Senegal, ASECNA, Roberts FIR and IATA to discuss the direct transitions to/from AORRA airspace as proposed by IATA in Appendix D to this report.

Note: Ghana accepted the request to host the meeting; date and venue to be confirmed
(P.S: meeting scheduled 29-30 June 2010 in Accra, Ghana)

Proposed amendment to doc 7030, regional supplementary Procedures

1.2.7 The meeting was presented with a need identified for amendment to the Regional Supplementary Procedures (DOC 7030), in particular with regards to operations within the Random Routing Areas.

1.2.8 The identified requirement to amend sections of the AFI Regional Supplementary Procedures amendments was presented to the ATS/AIS/SAR Sub Group meeting which was convened recently in Nairobi, Kenya, for consideration. The proposed amendments were accepted, conditional to the amendments being presented to the SAT Group for review taking into account the effect the proposed amendments may have on neighboring airspaces.

1.2.9 The meeting reviewed the amendments proposed and agreed to the following conclusion:

Conclusion SAT15/03: Proposed amendment to doc 7030

That SAT members forward to the secretariat their comments on the proposed amendment to doc 7030 as shown in Appendix E to this report, by the end of June 2010

1.3 SATMA report on Traffic Statistics, Safety procedures and operational procedures in the EUR/SAM corridor.

1.3.1 SATMA presented global information on SAT States and detailed information about the air traffic statistics of the EUR-SAM Corridor during the year 2009 as well as the evolution of these figures since 2004; main figures are as follows:

- 2009/2008: 16% decrease
- Traffic on main ATS routes: UN741 22%, UN866 24%, UN873 38%
- EUR-SAM Corridor: 5 years period 2004- 2009 shows a global positive increase of 10,6%.
- January- March 2010: a descent of air traffic of 5% is detected.

1.3.2 SATMA presented its work on the 2009 collision risk assessment for the EURSAM Corridor. Due to the delay in the reception of the required data, SATMA could not finalize the collision risk assessment itself, and only a preliminary analysis of some parameters was presented to the meeting.

1.3.3 The report emphasized the importance of the evolution of the operational risk in the estimation of the total vertical risk, in particular the LHDs, the status of which is shown in the following tables:

Locations	N° LHDs	Time spent wrong level	N° levels crossed	Reasons
Canaries UIR	2	0.333 h.	0	Coordination errors
Sal UIR	1	1.162 h.	1	Coordination errors
Dakar UIR	8	2.379 h.	0	Coordination errors
Atlantic-Recife UIR	15	1.200 h.	0	Coordination errors

Table 1: LHDs reported from January 2009 to June 2009

Locations	N° LHDs	Time spent wrong level	N° levels crossed	Reasons
Canaries UIR	2	0.333 h.	0	Coordination errors
Sal UIR	7	1.167 h.	0	Coordination errors
Dakar UIR	19	6.908 h.	0	Coordination errors
Atlantic-Recife UIR	6	1.551 h.	0	Coordination errors

Table 2 : LHDs reported from July 2009 to December 2009

1.3.4 With these data, total time spent at a wrong level in the Corridor has been 15.033 hours. As the main contribution to the operational risk will be the one due to the time spent at an incorrect flight level, it is expected that the operational collision risk will still be higher than the TLS.

1.3.5 SATMA will make the final collision risk assessment available as soon as feasible, and in any case before the next SAT Meeting.

1.3.6 The meeting noted that, although detailed and exact calculations need to be performed, it can be anticipated that the problems relating to coordination errors and total vertical collision risk presented in the previous safety assessment are not yet solved and that adequate corrective actions should be taken to reduce this type of errors.

1.3.7 In this regard, the meeting noted that the main cause of the LHD's reported to SATMA for the period June 2009- March 2010 has been "operational error in the ATC unit to unit

coordination". Therefore, after coordination between the ACCs concerned, the meeting agreed to the following conclusion:

Conclusion SAT15/04: ADS-C/CPDLC Operational Procedure in the EUR/SAM Corridor

*That Brazil, Cape Verde, Senegal and Spain will implement on AIRAC date 12 January 2011 the operational procedure based on ADS-C/CPDLC reflected in **Appendix F** to this SAT 15 report.*

1.3.8 In addition to the operational procedures based on the use of ADS-C and CPDLC mentioned before, and as not all aircraft are FANS1/A equipped or not all ADS-C/CPDLC connections are always successful, some complementary safety coordination procedures between adjacent ACC's to prevent LHD's were also recommended by the meeting.

1.3.9 In this regard, the meeting was of the view that these complementary procedures should be reflected in Doc 7030 and therefore formulated the following conclusion:

Conclusion SAT15/05: Common additional procedures to prevent LHDs

That

SAT/15 Meeting having expressed its concern about the LHDs due to operational errors in ATC unit to unit coordination, implores ACCs to apply the coordination procedures for flight level changes near the common boundaries reflected on their respective LoAs, and decided to propose the modification to ICAO Doc.7030 as follows:

"Supplementary safety procedures for aircraft in cases of air/ground communications problems (radio or CPDLC) and relay with other aircraft is not available.

Procedures for aircraft flying along the EUR-SAM Corridor, aircraft will perform a lateral right offset up to 2 NM in cases where:

- a) Impossible, difficult or incomprehensive radio or CPDLC communications with the relevant ACC after trying to establish the communications at least during 10 minutes;*
- b) Doubts and impossible confirmation of a clearance issued by ATC; and*
- c) When performing an ATC clearance with additional restriction (time to reach the cleared flight level, Mach number, etc.) and the position of the aircraft is 10 minutes or less to the next boundary.*

In all cases, aircraft will inform the ATC about this lateral offset as soon as suitable communications are re-established.

1.3.10 The meeting was apprised of the improvement recorded with regards to the reporting of LHD occurrences. In all ACCs, the culture of reporting is increasing and the good work of the LHD Monitoring Team, sending monthly reports, is also noted.

1.3.11 Nevertheless, the meeting recognized that, in order to have a more precise picture of the situation and to determine corrective actions to reduce the number of LHDs, LHD reports should be shared with all ACCs involved for thorough analysis.

1.3.12 Hence the following decision made by the meeting:

Decision SAT 15 01: LHD Reporting

That SATMA, as coordinator of LHD Monitoring Team, will send to ACCs involved in one specific deviation the LHD report received, for its investigation.

1.4 ATS Contingency planning

1.4.1 The meeting recalled that in accordance with Conclusion SAT/14-5, the SAT 14 TF1 Meeting, through conclusion SAT14TF1/12, agreed to a Contingency Plan for the EUR/SAM Corridor and called on Brazil, Cape Verde, Senegal and Spain to implement it according to the following timeframe:

- i. AIC publication: 27 August 2009
- ii. AIC effectiveness: 22 October 2009
- iii. NOTAM Publication: 8 October 2009

1.4.2 All ACCs concerned, confirmed before the meeting that the agreed Contingency plan has been published and enforced.

1.4.3 In view of this achievement, it was argued that, as far as contingency planning is concerned, there is a need for coordination between EURSAM Corridor States which have already implemented the common contingency plan mentioned above and the remaining SAT members. Furthermore, if feasible, it would be better to develop and agree on a comprehensive contingency plan for the whole SAT area. The meeting agreed to proceed in that sense and formulated the following conclusion.

Conclusion SAT15/06: Contingency plan for the SAT Area

That South Africa coordinates with other SAT members the development of a comprehensive ATS contingency plan for the SAT airspace based on the existing EUR-SAM corridor contingency plan and in accordance with ICAO Annex 11 provisions, and presents the final draft to the next SAT 16 meeting.

1.5 Any other ATM business

Unknown traffic in the South Atlantic

1.5.1 The meeting was seized with the worrying situation created by the great number of unknown aircraft flying through Atlantico, Montevideo and Ezeiza FIRs without any coordination.

1.5.2 ACCs concerned reported that, in most of the cases, these flights operate to and from Malvinas/Falklands Island and Ascension Island. Dakar and Abidjan also confirmed the existence of such flights in their airspace.

1.5.3 The meeting expressed its concern about this situation which seriously jeopardizes the safety of flight operations in the area. As the issue seems to present political considerations, the meeting particularly called for the intervention of ICAO at the regional level as well as at the headquarter level to solve the problem.

1.5.4 Besides, States concerned (Argentina, Brazil and Uruguay) were of the view and agreed that they urgently need a coordination meeting with a view to establishing operational procedures that could address the issue.

1.5.5 The meeting formulated the following conclusion in this regard:

Conclusion SAT15/07: Unknown traffic in the South Atlantic

That

1) *the SAT Group expresses its concern about the unknown traffic coming to/from Malvinas Islands, Ascension Island and other uncontrolled flights in the South Atlantic, and calls for the involvement of ICAO to find a solution.*

2) *Argentina, Brazil and Uruguay agree to hold a coordination meeting to improve operational procedures in order to enhance safety in the area concerned.*

ATS deficiencies in the SAT area

1.5.6 Under this item, the meeting considered reports from IATA expressing airline concerns regarding persisting deficiencies which affect flight operations and safety in the SAT area. The deficiencies include air traffic services (ATS), aeronautical information services (AIS), meteorology (MET), and communications (COM).

1.5.7 The existing deficiencies that affect the provision of air navigation services in the region and the need for States to implement programs for their elimination are a matter of urgent concern and of high priority for IATA and its member airlines. IATA conservatively estimates that the deficiencies cost airlines an additional US \$30 million per year in operating cost.

1.5.8 The following few examples of the deficiencies that impact airline operations and are predominant in several States in the region were given:

- Operational errors leading to a large number of LHD incidents
- Difficulties to communicate with ATC
- Limited ATS routes/flight levels in the EURSAM Corridor
- Need for RNP4 (30/30NMs) to maximize airspace efficiency

1.5.9 Corrective action measures must be implemented. In addition to that, IATA called on State Civil Aviation Authorities to take necessary measures aimed at improving the treatment of ATS incidents reports and to determine more precisely the main causes thereof.

1.5.10 The meeting took due note of these reports. However it was recognized that IATA and its member airlines are working closely with ICAO and several Civil Aviation Authorities in a positive and constructive framework, to establish formal review, analysis and resolution of all deficiencies.

1.5.11 Consequently the meeting agreed to the following conclusion.

Conclusion SAT15/08: ATS deficiencies in the SAT area

That, based on the projected increase in traffic provided by IATA and the deficiencies reported, the SAT group agrees to develop an airspace infrastructure plan along the lines of the Global PBN Plan.

Agenda Item 2: Communications, Navigation and Surveillance (CNS)

2.1 Follow up of SAT/14 Conclusions pertaining to the CNS field

Follow up of conclusion SAT14/06: Implementation of ATS/DS circuit for Luanda/Atlantico

2.1.1 The meeting discussed the issue of an ATS/DS direct link between Recife and Luanda and concluded that the reliable and definitive solution is to implement a CAFSAT node in Luanda.

2.1.2 The meeting was informed by Angola and Brazil of their common commitment to organize a technical coordination meeting in order to study the process to implement a CAFSAT node in Luanda to ensure direct ATS/DS link with Recife. ASECNA as team leader of Task 2 of CNS/WG Work Programme was requested to assist, if necessary, Angola and Brazil.

2.1.3 The following conclusion was therefore formulated:

Conclusion SAT/15/09: Implementation of ATS/DS circuit for Luanda/Atlantico

That:

- 1) *Angola and Brazil hold a technical coordination meeting to conduct the implementation process of a CAFSAT node in Luanda in order to clear, before the forthcoming SAT meeting, the pending Luanda/Recife ATS/DS circuit deficiency;*
- 2) *ASECNA as team leader of Task 2 of the CNS/WG Work Programme assist, if necessary, Angola and Brazil for the technical study; and*
- 3) *ICAO to continue to support Angola and Brazil by coordinating the implementation process.*

Follow up of conclusion SAT14/08: ATS-Voice Numbering Plan for AFI

2.1.4 The meeting discussed the status of implementation of conclusion SAT 14/08 pertaining to ATS-voice Numbering Plan for the AFI region and recognized that no study has been conducted to develop a comprehensive numbering plan in this respect. The meeting noted that, due to the lack of such comprehensive numbering plan, some AFI States are currently using the EUR ATS voice numbering Plan.

2.1.5 The meeting recalled also that a successful implementation of such an ATS voice numbering plan as defined by the recommendation contained within the ICAO Manual on ATS Ground-Ground Voice Switching and Signalling (Doc 9804, Chapter 2 Section 2.3) requires an AFI technical coordinating body to develop the technical study and planning arrangements. The meeting encouraged the States that have already undertaken studies and have been conducting trials to pursue their efforts.

2.1.6 The following conclusion was therefore agreed to:

Conclusion SAT/15/10: ATS-Voice Numbering Plan for AFI

That:

- 1) *APIRG creates an AFI Working Group to conduct the technical study for the development of a global ATS voice numbering plan for the AFI Region and harmonize its implementation frame;*
- 2) *Meanwhile, SAT States be encouraged to pursue their efforts on bilateral ATS voice numbering trials and provide the AFI working group with available relevant material;*
- 3) *ICAO continue to support the development of an ATS voice numbering plan for the AFI Region as stated in the recommendation contained within the ICAO Manual on ATS Ground-Ground Voice Switching and Signaling (Doc 9804, Chapter 2 Section 2.3).*

Follow up of conclusion SAT14/ 09: Trials for extension of ATS-N5 Voice switching protocol

2.1.7 The meeting was reminded that Spain has been successfully conducting the ATS-N5 voice switching protocol for years. It was noted that the implementation of such protocol is strongly linked to the availability of ACCs' VCSS capability to support the technical requirements.

2.1.8 In reviewing the VCSS implementation status, the meeting was provided with information from the ongoing projects currently conducted or planned by Portugal, Brazil and Cape Verde to upgrade their VCSS and participate in the trials with Spain.

2.1.9 The meeting then formulated the following conclusion to foster the extension of ATS-N5 voice switching protocol:

Conclusion SAT/15/11: Trials for extension of ATS-N5 Voice switching protocol

That:

SAT States continue their collaborative technical arrangements to conduct trials for extension of ATS-N5 voice switching protocol by adopting the following steps:

- 1) *Spain to provide an updated form containing the technical requirements for VCSSs capability to support ATS-N5 voice switching protocol;*
- 2) *Other SAT States to assess their current VCSSs capability in line with the technical requirements provided by Spain and take into account these requirements when updating their VCSSs and report the assessment results to ICAO; and*
- 3) *ICAO to coordinate the process by compiling the available information to be forwarded to all stakeholders.*

Follow up of conclusion SAT14/ 12: ADS Data Sharing

2.1.10 The meeting examined at length this conclusion and focused its attention on the concerns of SAT States in relation to the implementation of ADS Data sharing. It was recognized that most SAT ADS systems are currently being installed and the development of operational procedures is not yet complete. The communication service provision agreements signed between ANSPs and ACCARs service providers to support ADS-C do not include the ADS data sharing mechanism. In addition, the experience learnt from a neighbouring region where ADS is fully operating (NAT) tends to confirm that ADS data sharing is not implemented yet.

2.1.11 Taking into account these concerns, the meeting concluded that it is necessary to let the system meet its maturity status in order to gain enough experience in Data sharing.

2.1.12 The meeting therefore requested the ATM/WG to provide the CNS/WG with the necessary operational ADS data to be shared.

2.1.13 In view of the above, the meeting formulated the following decision:

Decision SAT/15/02: ADS Data Sharing

That:

- 1) ***SAT States delay ADS data sharing as stated in conclusion SAT 14/12 and conduct, if necessary, comprehensive complementary studies taking into account the ATM requirements and involving various technical, financial and legal aspects;***
- 2) ***The SAT ATM/WG conducts a study and provides the SAT CNS/WG with the operational requirements for ADS data sharing.***

Follow up of conclusion SAT14/15: Trials for the interconnection of AMHS systems

2.1.14 Under this agenda item, the meeting reviewed the status of planning and implementation of AMHS in SAT regions. Some SAT States (Argentina, Cape Verde, Portugal and Spain) have already implemented AMHS systems and intend to carry out trials for their interconnection. Other States/Organizations (Brazil and ASECNA) are planning to purchase and install the system.

2.1.15 The secretariat provided the meeting with the statement of the draft conclusion formulated by the CNS/SG/3 meeting (Nairobi, Kenya, 26-30 May 2010) that will be reported to APIRG/17 for the creation of an AFI AMHS Implementation Task Force to conduct and coordinate AMHS implementation in the AFI region.

2.1.16 It was noted that this Task Force could benefit from the experience of SAT States in implementing and interconnecting AMHS systems.

2.1.17 As a result, the following conclusion was formulated on the issue:

Conclusion SAT/15/12: Implementation and Interconnection of AMHS systems

That:

- 1) ***SAT States that have already implemented AMHS systems conduct trials for their interconnection and report to the other stakeholders;***

- 2) *SAT States that have not implemented AMHS systems pursue their effort in modernizing their systems to support AMHS capability taking into account the experience gained by their neighbouring states;*
- 3) *In the framework of regional collaboration, SAT States to report when requested, the results of the trials of interconnection of AMHS systems to AFI AMHS Implementation Task force in order to support AMHS implementation process in the AFI region.*

Follow up of conclusion SAT14TF1/01: Establishment of a CAFSAT Management Committee

2.1.18 The secretariat of the meeting presented the draft Terms of Reference of the CAFSAT Network Management Committee. This draft was developed on the basis of the existing network management committee (SNMC) and supervisory body (NAFISAT).

2.1.19 The draft was discussed at length and amended as appropriate. The meeting decided that reports of the CAFSAT Committee will be addressed to SAT CNS/WG.

2.1.20 The meeting was also provided with the draft agenda of the forthcoming SNMC/18 meeting that will be held in Ouagadougou (Burkina Faso) from 1 to 4 June 2010.

2.1.21 The following draft decision was formulated:

Decision SAT/15/03: Adoption of the Terms of Reference of CAFSAT Network Management Committee

That the CAFSAT Network Management Committee (CNMC) Terms of Reference be adopted as presented in Appendix G to the present report.

Follow up of conclusion SAT14TF1/02: Flight plans availability in the South Atlantic

2.1.22 The meeting discussed the issue regarding missing Flight Plans in SAT States and noted that with the automation of the systems, the availability of valid flight Plans has become critical to ensure the continuity and the efficiency of ATM sensitive operations.

2.1.23 It was recalled that previous investigation exercises pointed out the Addressing errors as the main cause of missing Flight Plan messages. However, the meeting pointed out the necessity to tackle the issue by conducting a joint in-depth internal and end to end technical and operational investigation.

2.1.24 The following conclusion was formulated in this regard;

Conclusion SAT/15/13: Investigation of missing Flight Plans

That SAT states set up a consolidated investigation form involving both technical and operational aspects to conduct periodic assessment of missing flight plans.

2.2 Review of AFS performance

2.2.1 Under this agenda, the meeting was provided with the performance results of a portion of SAT AFS (ATS/DS, AFTN). The missing statistical data was due to the lack of a formal AFS performance reporting process in SAT.

2.2.2 The secretariat informed the meeting of the draft conclusion of CNS/SG/3 calling for the set up of a secured data base or website to facilitate AFS performance statistics data collection and analysis.

2.2.3 Reviewing the data presented, the meeting agreed that SAT AFS performance was globally satisfactory except for some dysfunctions experienced between Dakar and Sal ACCs for about 4 months during the year 2009.

2.2.4 Difficulties due to maintenance personnel coordination was pointed out and the meeting recognized the need to harmonize maintenance operations methodologies in terms of organization, maintenance procedures, and personnel exchange.

2.2.5 The following conclusion was formulated

Conclusion SAT/15/14: Harmonization of AFS maintenance procedures and AFS statistics data collection

That:

- 1) *SAT States endeavour to agree to minimize the Mean Time Between Failure (MTBF) of AFS systems by harmonizing their maintenance methodologies in terms of maintenance organization, procedures and maintenance personnel exchange;*
- 2) *The statistics of AFS performance be collected and shared among SAT States with copy to ICAO for compilation and analysis.*

3. Interoperability between aeronautical VSAT networks and potential use of digital VSAT networks to support ATM applications

Modernization of CAFSAT Network

2.3.1 The meeting was provided with the status of the ongoing project related to the modernization of Networks in the SAT and its neighbouring regions.

2.3.2 Portugal informed the meeting about its current modernization project that takes into account the necessity of setting up a reliable ISDN backup system for AFS.

2.3.3 The meeting recognized that the CAFSAT Networks needed to be modernized considering the existing network which may be interconnected to the upgraded CAFSAT (REDDIG, AFISNET, and SADC 2). The meeting also noted that the CAFSAT Network Management Committee (CNMC) gives the opportunity to conduct a comprehensive modernization scheme.

2.3.4 The following conclusion was formulated:

Conclusion SAT/15/15: Modernization of CAFSAT Network

That:

- 1) *In the framework of the Terms of Reference of the CAFSAT Management Committee, SAT States develop a joint technical evaluation for a comprehensive modernization and re-engineering of the CAFSAT Network.*
- 2) *The modernization process should ensure a balanced interconnection with existing networks and guarantee end to end operations interoperability.*

Implementation of AIDC and OLDI in SAT

2.3.5 The meeting was informed that SAT ACCs have implemented or are implementing the surveillance system with AIDC/OLDI capability. It was noted that one of the advantages of the automation of ATM components is the reduction of human errors in coordination operations.

2.3.6 In view of the above, the meeting took the following conclusion.

Conclusion SAT/15/16: Implementation of AIDC /OLDI in SAT

That SAT States be encouraged to implement AIDC messages interchange where possible, as technical action to reduce human errors in coordination operations between neighbouring ACCs.

Agenda Item 3: Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) Systems

3.1 Harmonization of ADS/CPDLC programmes

- **Review of the Report of the Second SAT FANS 1/A Interoperability Team (SAT/FIT/5)**

3.1.1 The report of the SAT/FIT/5 meeting which was held from 17 to 18 May 2010 in Lisbon, just before the SAT 15 meeting was presented by its Rapporteur. The present meeting reviewed the list of conclusions and decisions thereof and endorsed them; hence the following conclusion:

Conclusion SAT/15/17: SAT/FIT/5 Report

The SAT/15 Meeting approved the SAT/FIT/5 Report and its conclusions.

3.2 Introduction of Performance Based Navigation (PBN) in the South Atlantic

3.2.1 Under this item, the secretariat informed the meeting on the works undertaken by the AFI PBN Task Force and the ATS/AIS/SAR Sub-group with regards to the implementation of PBN in the AFI region. As the issue will be reviewed by the forthcoming APIRG/17 meeting, the subject will be discussed by next SAT meetings with a view to harmonizing with the SAM region.

3.3 Harmonization of CNS/ATM systems evolution tables

3.3.1 The meeting was apprised by the secretariat that the whole of the AFI Doc 003 was under revision by APIRG and its subsidiary bodies. Consequently, the CNS/ATM systems evolution tables should be revised too. Therefore the subject will be considered by next SAT meetings.

Agenda Item 4: Future work programme

4.1.1 Under this part of the agenda, the Terms of Reference and Work Programme of the SAT Group and respective IAS/SG, ATM/WG and CNS/WG were presented and updated. The terms of reference are shown in **Appendix H** to this report.

Agenda Item 5: Any other business.

5.1 Dates and venue of SAT/16 meeting

5.1.1 The meeting welcomed the offer of Spain to host the forthcoming SAT/16 meeting, tentatively scheduled for April or May 2011. However, it is expected that some other offers may be presented by SAM States. ICAO will coordinate the precise venue and dates with the host State and SAT members will be informed in due course.



INTERNATIONAL CIVIL AVIATION ORGANIZATION
Western and Central African Office

Fifteenth Meeting on the Improvement of Air Traffic Services over the South Atlantic (SAT/15)
(Lisbon, Portugal, 19-21 May)

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Status of Conclusions and Decisions related to SAT/14 Meeting

Conclusions and Decisions	Implementation Status	Remarks
<p>Conclusion SAT 14/01: Suspension of selected ATS Routes within the AORRA airspace</p> <p>That concerned States publish by the AIRAC date of 3 July, 2008 a common AIP Supplement with effective date 25 September, 2008 to suspend those portions of the routes, shown at Appendix B to this part of the report, which are within the boundaries of the AORRA airspace.</p>	<p>Completed by Brazil and South Africa</p>	<p>Superseded by Conclusion SAT14TF1/07</p>
<p>Conclusion SAT 14/02: Implementation of phase 2 of AORRA airspace</p> <p>That States concerned:</p> <p>a) publish by the AIRAC date of 23 October, 2008 a common AIP Supplement for implementing the phase 2 of AORRA airspace by 18 December, 2008; and</p> <p>b) implement AORRA phases 3 and 4 by 17 December 2009.</p>	<p>AORRA Phase 2 implemented on the 9th of April 2009</p>	<p>Superseded by Conclusion SAT14TF1/05</p> <p>With regard to the implementation AORRA phase 3 and 4</p>
<p>Conclusion SAT 14/03: New safety assessment in the EUR/SAM Corridor</p> <p>That:</p> <p>a) in order to perform a new safety assessment the States concerned in the EUR/SAM corridor provide to SATMA the data traffic information from 5 July 2007 to 31 July, 2008 of the traffic operating outside Canarias FIR; and</p> <p>b) SATMA presents the results of the safety analysis to the SAT 14/TF/1.</p>	<p>completed</p>	<p>Results considered under Agenda item 5 of SAT14/TF/1</p>
<p>Decision SAT 14/04: Cost-benefit analysis in terms of fuel and CO2 emissions reductions</p> <p>That SATMA, in close coordination with IATA and air carriers, periodically perform a cost-benefit analysis in terms of fuel and CO2 emissions reductions to be presented in SAT meetings.</p>	<p>On going.</p>	
<p>Conclusion SAT 14/05: Contingency Plan for the EUR SAM Corridor</p> <p>That:</p> <p>a) States concerned publish by AIRAC date 31 July 2008 an AIC with the contingency procedures shown at Appendix G to this part of the Report, to be effective on 25 September 2008;</p> <p>b) States concerned make the appropriate arrangement before 25 September, 2008 in order to include the contingency procedures approved as an Appendix to the Letters of Agreement;</p> <p>c) Brazil make the necessary arrangements to harmonize its contingency plan with the contingency procedures shown in Appendix C to this part of the report with regard to the EUR/SAM corridor within Atlantico FIR; and</p> <p>d) Cape Verde coordinates the drafting of NOTAM and AIC models, as well as the list of focal points within the ACCs concerned.</p>	<p>Not implemented. Considered under Agenda item 6 of SAT14/TF/1</p>	<p>Superseded by Conclusion SAT14TF1/12</p>

<p>Conclusion SAT 14/06: Implementation of ATS/ADS circuit for Luanda/Atlantico</p> <p>States concerned take the appropriate actions to implement the ATS/DS circuit for Luanda/Atlantico with effective date of May 2009.</p>	<p>Still valid. Action to be completed.</p>	<p>Superseded by Conclusion SAT 15 /09</p>
<p>Conclusion SAT 14/07: Las Palmas/Nouakchott, and LasPalmas/Nouadhibou ATS/DS</p> <p>That ICAO removes from the ICAO list of deficiencies in AFI Region links Las Palmas/Nouakchott, and Las Palmas/Nouadhibou ATS/DS as requirements have been met through the collaboration between ASECNA and Spain.</p>	<p>Completed.</p>	
<p>Conclusion SAT 14/08: ATS Voice Numbering Plans for AFI Region</p> <p>That ICAO take the necessary steps to include in the appropriate working group the need to study the implementation of ATS Voice Numbering Plans for AFI Region, as defined by the recommendation contained within the ICAO Manual on ATS Ground-Ground Voice Switching and Signalling (Doc 9804,Chapter 2 Section 2.3).</p>	<p>Still valid. To be considered by SAT 15</p>	<p>Superseded by Conclusion SAT 15 /10</p>
<p>Conclusion SAT 14/09: Trials for extension of ATS-N5 Voice Switching protocol</p> <p>Encourage SAT States to participate in the trials for extension of ATS-N5 Voice Switching protocol following the successful implementation of ATS-N5 (via CAFSAT) between Cape Verde and Las Palmas</p>	<p>Still valid. To be considered by SAT 15</p>	<p>Superseded by Conclusion SAT 15 /11</p>
<p>Decision SAT 14/10: New Task for the SAT/CNS Working Group</p> <p>That Task N°8 be added to SAT/CNS Working Group Terms of Reference, as follows: Analyse all aspects related to the implementation of ATS-N5 protocol in the SAT area in accordance with ICAO guidance material contained in ICAO Annex 10 and Doc 9804.</p>	<p>Completed.</p>	
<p>Decision SAT 14/11: Reformulation of Task 7 of the SAT/CNS Working Group</p> <p>That Task N° 7 of SAT CNS Working Group Terms of Reference be reformulated, as follows: <i>In coordination with ATM/WG, share relevant technical aspects of different ADS/CPDLC systems to be implemented by SAT States addressing issues regarding work methodology, procedures, data interchange, maintenance, etc.</i></p>	<p>Completed.</p>	
<p>Conclusion SAT/14-12: ADS Data Sharing</p> <p>That States explore, the concept of ADS Data Sharing for the SAT Area, taking advantage of the potential of existing digital VSAT Networks in the area.</p>	<p>Still valid. To be considered by SAT 15</p>	<p>Still valid Completed by Decision SAT 15 /01</p>
<p>Decision SAT/14-13: Creation of the Migration Plan Task Force</p> <p>That the Migration Plan Task Force be created to coordinate all aspects related to the migration of services from Satellite IS-801 that will be retired on October 2008. The terms of reference of this WG are presented in Appendix A to the report on Agenda Item 4.</p>	<p>Completed</p>	

<p>Conclusion SAT/14-14: Resources for the migration process to a new satellite</p> <p>That States take proper actions to ensure within the framework of the schedule, the availability of equipment, budget and resources, so the migration process may be achieved.</p>	<p>Completed.</p>	
<p>Conclusion SAT/14-15: Trials for the interconnection of AMHS systems</p> <p>That SAT Members take the necessary actions to initiate trials for the interconnection of AMHS systems.</p>	<p>Still valid. To be considered by SAT 15</p>	<p>Superseded by Conclusion SAT 15 /12</p>
<p>Conclusion SAT/14-16: SAT/FIT/3 Report</p> <p>The SAT/14 meeting approved the SAT/FIT/3 Report and its conclusions.</p>	<p>Completed.</p>	
<p>Conclusion SAT/14-17: Terms of reference, working programme and Composition of the SAT Group Auxiliary bodies</p> <p>That the term Terms of reference, working programme and Composition of the SAT ATM Working Group (ATM/WG), Study group on the implementation of the airspace structure in the EUR/SAM CORRIDOR (IAS/SG), CNS Working Group (CNS/WG), and Migration Plan Working Group, respectively, are shown in Appendix A to this part of the report.</p>	<p>ATM/WG and CNS/WG TORs are accepted. MP/WG is terminated.</p>	

Status of Conclusions and Decisions related to SAT/14TF/1 Meeting

Conclusions and Decisions	Implementation Status	Remarks
<p>Conclusion SAT14TF1/01 : Establishment of a CAFSAT Management Committee</p> <p>That:</p> <ol style="list-style-type: none"> 1) a CAFSAT Management Committee be established based on the experience gained with AFISNET, NAFISAT and SADC VSAT networks; and 2) the CAFSAT Management Committee participate in the joint meetings recommended by Special AFI RAN 2008 under its Recommendation 6/19. 3) CAFSAT Management committee Terms of Reference to be reviewed by SAT 15 	completed	Decision SAT15/02
<p>Conclusion SAT14TF1/02: Flight plan availability in the South Atlantic</p> <p>That:</p> <ol style="list-style-type: none"> 1) SAT ACCs concerned continue to take the appropriate measures including exchange, investigation on flight availability and coordinated survey to solve the problem of lack of flight plans; and 2) IATA and ANSPs to remind airlines of the need to ensure correct flight plan addressing 3) the AFI AFTN Routing Directory be amended to include Nouakchott/Las Palmas and Nouakchott/Casablanca circuits. 	Still valid	Superseded by Conclusion SAT15/13
<p>Conclusion SAT14TF1/03: Commitment for ICAO New Flight Plan</p> <p>That:</p> <ol style="list-style-type: none"> 1) Effective 15 November 2012, all SAT States: <ol style="list-style-type: none"> a. Accept and disseminate 'NEW' FPLs only; and b. Implement the new FPL system in order to assure a seamless and timely transition with no loss of service. If this cannot be agreed then it is preferable to set a minimum transition period; and 2) In the unlikely event that an ANSP does not implement, the concerned State shall notify the fact in part 1 of its AIP as a 'significant difference' to the PANS-ATM as described under Annex 15, 4.1.2-c, prior to November 15, 2012. 3) ICAO Regional Offices monitor the implementation of the ICAO New Flight Plan in the SAT Region 	On going	
<p>Conclusion SAT14TF1/04: Transition to the new ICAO flight plan</p> <p>That</p> <ol style="list-style-type: none"> 1. SAT States adopt the ICAO Special RAN AFI/08 Recommendation 6/5, requesting States to coordinate their transition to the new ICAO flight plan and follow the checklist in the Performance Framework Form in Appendix D to this report in order to ensure harmonization and orderliness in their transition to the new flight plan by 15 November 2012. 2. SAT ATM Working Group work programme be amended to include activities related to the transition to the ICAO New Flight Plan (see Appendix E) 	On going completed	New flight plan PFF reviewed by ATS/AIS/SAR SG 11

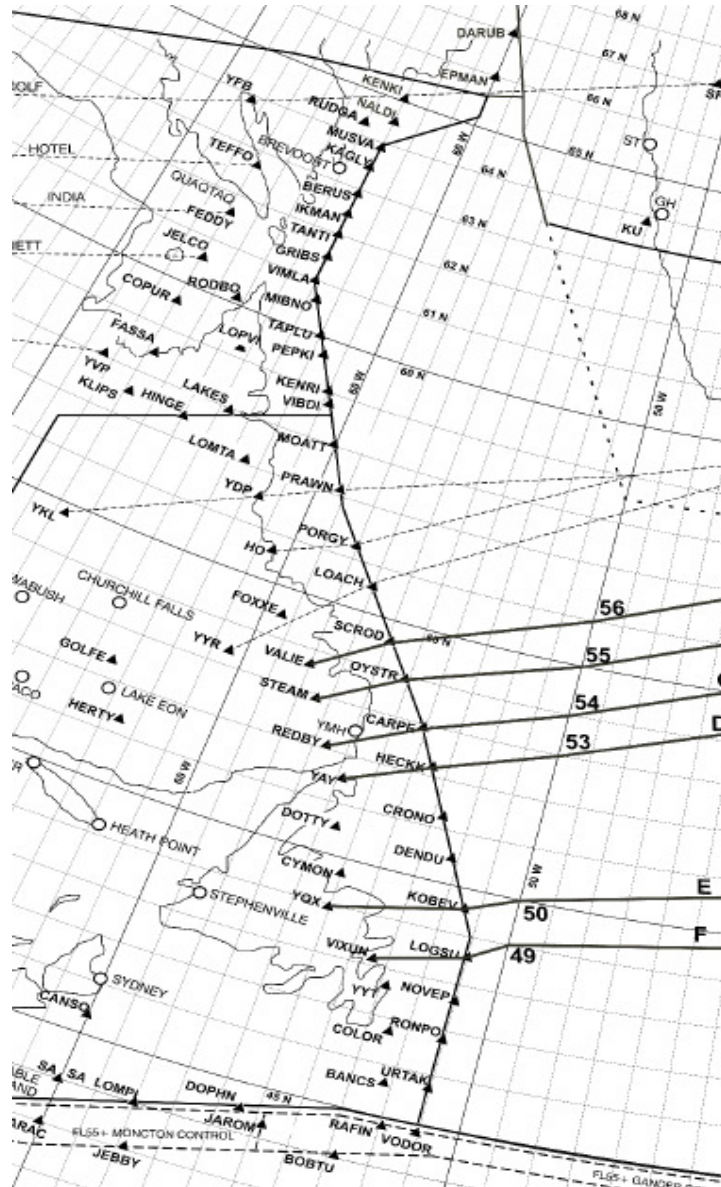
<p>Conclusion SAT14TF1/05 Implementation of AORRA Phases 3 and 4 That</p> <ol style="list-style-type: none"> 1. Recognizing the significant benefits expected from the implementation of AORRA and accepting that the ARMA is at present developing the RVSM POSC which is considering current airspace configuration, the result of the POSC will be distributed to States concerned with AORRA for their review when conducting their own safety assessment as stipulated by the ICAO SMS. 2. States concerned with the implementation of phase 3 and 4 complete implementation no later than end April 2010 	<p>Pending AFI RVSM POSC finalization</p> <p>AORRA phase 3 2010 and 4 to be implemented in August 2010</p>	<p>Superseded by Conclusion SAT15/01</p>
<p>Conclusion SAT14TF1/06 Direct transitions to/from AORRA (Phase II) airspace That</p> <p>The ICAO Regional Offices facilitate coordination, publication and implementation by Angola, Ghana, Sao Tome and Principe, ASECNA and Roberts FIR the direct transitions to/from AORRA airspace proposed in Appendix F, subject to further amendments as necessary</p>	<p>On going</p>	<p>Superseded by Conclusion SAT15/02</p>
<p>Conclusion SAT14TF1/07 Suspension of fixed routes within the AORRA airspace That</p> <p>All States and ANSPs concerned suspend all fixed routes within the AORRA airspace in order to optimize the benefits expected from random routing operations in the South Atlantic at a common AIRAC cycle date. The date to be determined by States concerned in coordination with ICAO.</p>	<p>completed</p>	
<p>Decision SAT14TF1/01: SATMA Studies publication That</p> <p>SATMA will publish the content of the power-point presentations pertaining to:</p> <ul style="list-style-type: none"> • Air Traffic statistics of the EUR-SAM Corridor during 2008 (comparative 2007-2008) and Air Traffic evolution since 2004 • Analysis of the air traffic evolution in the EUR-SAM Corridor during the world economical crisis • “Double Unidirectionality” post-implementation collision risk assessment (EUR/SAM Corridor) <p>on the SATMA website by the end of June 2009</p>	<p>completed</p>	
<p>Conclusion SAT14TF1/08: LHD Monitoring That</p> <ol style="list-style-type: none"> a) The LHD focal point be identified and advised to SATMA by 1st July 2009 b) The LHD Monitoring Team will commence its activities by 1st July 2009 c) The LHD Monitoring Team review and endorse the Monitoring Terms Of Reference as contained in Appendix G 	<p>Completed</p>	

<p>Conclusion SAT14TF1/09: SATMA Assessment</p> <p>That</p> <p>States apply mitigating actions in order to reduce operational coordination errors affecting operational risk.</p>	<p>On going</p>	<p>Superseded by Conclusions SAT15/04 & 05</p>
<p>Conclusion SAT14TF1/10: Improvement of the coordination procedures in the EUR/SAM Corridor</p> <p>That</p> <ul style="list-style-type: none"> a) States concerned review procedures in their LOP/LOAs to ensure the inclusion of procedures relating to the transfer of control of flights at the relevant FIR boundaries . b) States to conclude this review and make necessary amendments by 30th September 2009 c) States must ensure compatibility of electronic data exchange systems 	<p>completed</p>	
<p>Conclusion SAT14TF1/11:Implementation of RNP/4 in the EUR/SAM Corridor</p> <p>That</p> <p>EUR/SAM Corridor States and ANSPs</p> <ul style="list-style-type: none"> 1. Agree on a need for a RNP 4-30/30NM implementation strategy, using available guidance material; 2. Develop a transition plan from the current RNP10 with 10 minutes longitudinal spacing and 50NM lateral spacing; and 3. Adopt an ADS-C updating rate consistent with RNP4 operations. 	<p>Still valid On going</p>	
<p>Conclusion SAT14TF1/12</p> <p>Contingency Plans for the EUR/SAM Corridor</p> <p>That</p> <p>States concerned (Brazil, Cape Verde, Senegal and Spain) implement the agreed to contingency plan as reflected in Appendix H</p>	<p>completed</p>	

APPENDIX D

Direct transitions to/from AORRA airspace

Part A



Gander Oceanic Entry Points

PART C

Airspace users' proposals for AORRA/3 entry/exit points**Accra FIR****TYE VOR to:**

MERID
EDORO
N00 00 00.0 W002 00 00.0
OPUGA

ACC VOR to:

EDORO
N00 00 00.0 W002 00 00.0
OPUGA

Accra/Abidjan FIRs**TYE VOR to:**

N00 00 00.0 W004 00 00.0
N00 00 00.0 W005 00 00.0

ACC VOR to:

N00 00 00.0 W004 00 00.0
N00 00 00.0 W005 00 00.0
N00 00 00.0 W006 00 00.0
N00 00 00.0 W007 00 00.0

Abidjan/Roberts FIRs**ABJ VOR to:**

N00 34 43.0 W007 55 58.0
N01 09 27.0 W008 31 56.0
N01 44 10.0 W009 07 58.0
N02 18 53.0 W009 43 56.0
N02 53 35.0 W010 19 59.0
N03 28 15.0 W010 56 03.0

Roberts FIR**ROB VOR to:**

N03 28 15.0 W010 56 03.0
N04 02 54.0 W011 32 11.0
N04 37 32.0 W012 08 21.0
N05 12 07.0 W012 44 35.0
N05 46 41.0 W013 20 53.0
N06 21 12.0 W013 57 16.0

LGI VOR to:

N06 21 12.0 W013 57 16.0
N06 55 41.0 W014 33 43.0
N07 30 07.0 W015 10 16.0
N08 04 30.0 W015 46 54.0
N08 38 50.0 W016 23 39.0

Roberts/Dakar FIRs**BIS VOR to:**

N08 38 50.0 W016 23 39.0
N09 13 06.0 W017 00 30.0
N09 47 18.0 W017 37 29.0
N10 21 27.0 W018 14 35.0
N10 55 31.0 W018 51 49.0

Dakar FIR**DKR VOR to:**

N10 55 31.0 W018 51 49.0
N11 29 31.0 W019 29 12.0
N12 03 25.0 W020 06 44.0
N12 37 15.0 W020 44 25.0

Brazzaville FIR**DLA VOR to:**

N00 00 00.0 E003 00 00.0
N00 00 00.0 E004 00 00.0
N00 00 00.0 E005 00 00.0
N00 00 00.0 E006 00 00.0
N00 00 00.0 E007 00 00.0

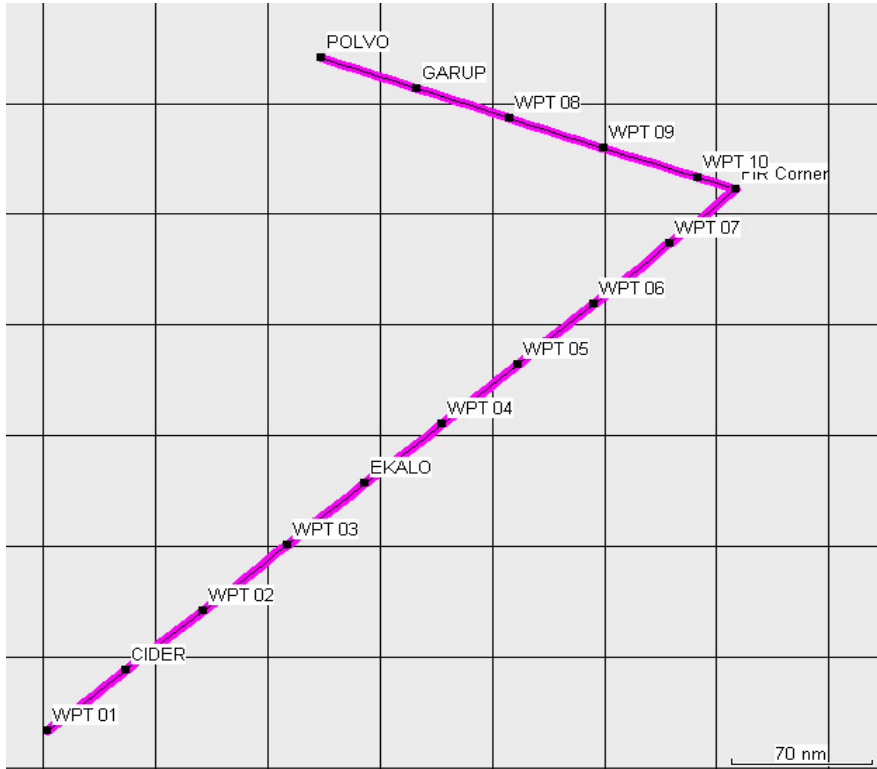
Luanda FIR

MUNDA - S07 00 E011 00
MTI - S07 00 E011 00
MTI - OPAPO
BUDEL - S09 00 E011 15
VNA - S09 00 E011 15
VNA - S11 00 E011 23.1

Atlantico FIR**Suitable Transitions Ebnd & Wbnd from MRC, CPO, & VTR VORs to the following Waypoints:**

WPT 01 S24 39 55.5	W40 57 33.1
WPT 02 S23 34 53.5	W39 34 09.5
WPT 03 S22 58 57.4	W38 49 15.4
WPT 04 S21 53 43.4	W37 26 46.6
WPT 05 S21 21 04.9	W36 46 00.0
WPT 06 S20 48 26.4	W36 05 32.8
WPT 07 S20 15 47.9	W35 25 05.5
WPT 08 S19 08 04.2	W36 50 25.7
WPT 09 S19 24 14.5	W36 00 23.2
WPT 10 S19 39 54.8	W35 10 08.2

Airspace users proposals for AORRA/3 entry/exit points
 - Atlantico FIR -



Airspace users proposals for AORRA/3 entry/exit points
 - Dakar and Roberts FIRs -



Doc 7030



Regional Supplementary Procedures

**Approved by the Council
and published by authority of the Secretary General**

Fifth Edition — 2008

International Civil Aviation Organization

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The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

PROCEDURE FOR THE AMENDMENT OF REGIONAL SUPPLEMENTARY PROCEDURES

(Approved by Council (25-2) 20/5/55, (84-5) 7/3/75, (153-3) 25/2/98)

1. INTRODUCTION

1.1 Regional Supplementary Procedures are normally formulated at regional air navigation meetings and become effective after review by the Air Navigation Commission and approval by the Council.

1.2 Amendments to Regional Supplementary Procedures may be proposed by a Contracting State or group of States as set out in Section 2 or by an international organization as set out in Section 3 or may become necessary as a consequence of action by Council in adopting or amending Standards and Recommended Practices or in approving or amending Procedures for Air Navigation Services as set out in Section 4.

2. AMENDMENTS PROPOSED BY A CONTRACTING STATE OR GROUP OF STATES

2.1 If any Contracting State or group of States of a region wishes to propose an amendment to Regional Supplementary Procedures for that region, it should submit the proposal, adequately documented, to the Secretary General through the Regional Office accredited to that State. The proposal should include the facts that led the State to the conclusion that the amendment is necessary.

2.2 The Secretary General will circulate the proposal, adequately documented, with a request for comments to all provider and user States of the region considered affected, as well as to user States outside the region and international organizations that may be concerned with the proposal. If, however, the Secretary General considers that the proposed amendment conflicts with established ICAO policy or that it raises questions which the Secretary General considers should be brought to the attention of the Air Navigation Commission, the proposal will be first presented, adequately documented, to the Commission. In such cases, the Commission will decide on the action to be taken.

2.3 If, in reply to the Secretary General's inquiry to States and selected international organizations, no objection is raised to the proposal by a specified date, the Secretary General will circulate an amendment memorandum to Representatives on the Council and to Members of the Air Navigation Commission inviting each recipient to advise, normally within seven days,* whether formal discussion of the proposed amendment is desired. The memorandum will explain the proposed amendment, summarize the comments received and include Secretariat comments as appropriate. If, in reply to the Secretary General's inquiry to States and selected international organizations, any objection is raised and if the objection remains after further consultation, the matter will be documented for formal consideration by the Air Navigation Commission and appropriate recommendations of the Commission to the Council.

2.4 If, at the end of the seven-day period,* there has been no request for discussion of the amendment, it will be submitted to the President of the Council who is authorized to approve the amendment on behalf of the Council.

* During recess, a period of three weeks will normally be allowed.

Glossary

ACAS	airborne collision avoidance systems
ACC	area control centre
ADLP	aircraft data link processor
ADS-B	automatic dependent surveillance – broadcast
ADS-C	automatic dependent surveillance – contract
AFCS	automatic flight control system
AFTN	aeronautical fixed telecommunication network
AIM	ATFM information message
AIP	aeronautical information publication
AIRAC	aeronautical information regulation and control
AIS	aeronautical information service
ANM	ATFM notification message
ANP	air navigation plan
AORRA	Atlantic Ocean Random Routing Area
ARO	air traffic services reporting office
ASDA	accelerate-stop distance available
ASE	altimetry system error
ASTER	ATFM system of the EUR region
ATC	air traffic control
ATFM	air traffic flow management
ATIS	automatic terminal information services
ATM	air traffic management
ATS	air traffic service
B-RNAV	basic area navigation
CAP	Code allocation plan
CARSAMMA	CAR/SAM monitoring agency
CFMU	central flow management unit
CHG	modification message
CNL	cancellation message
CPDLC	controller-pilot data link communications
CRAM	conditional route availability message
CTA	control area
CTOT	calculated take-off time
DAP	downlink aircraft parameter
DES	de-suspension message
DME	distance-measuring equipment
DOF	date of flight
EAD	European AIS database
EOBT	estimated off-block time

FIR	flight information region
FIS	flight information service
FL	flight level
FLAS	flight level allocation scheme
FLS	flight suspension message
FPL	flight plan
GAT	general air traffic
HF	high frequency
IFBP	in-flight broadcast by pilots
IFF	identification friend/foe
IFPS	initial flight plan processing system
IFR	instrument flight rules
IGA	international general aviation
INS	inertial navigation system
IORRA	Indian Ocean Random Routing Area
LAM	logical acknowledgement message
MASPS	minimum aviation system performance standards
MFA	minimum flight altitude
MNPS	minimum navigation performance specifications
MSA	minimum sector altitude
NOF	NOTAM offices
NOTAM	notice to airmen
OCA	oceanic control area
OTS	organized track system
PACOTS	Pacific organized track systems
PIB	pre-flight information bulletin
P-RNAV	precision area navigation
RFP	replacement flight plan
RNAV	area navigation
RNP	required navigation performance
RPL	repetitive flight plan
RTF	radiotelephony
RVR	runway visual range
RVSM	reduced vertical separation minimum

SAM	slot allocation message
SRM	slot revision message
SATMA	South Atlantic monitoring agency
SAT NAV	satellite navigation
SATCOM	satellite voice communications
SD	standard deviation
SELCAL	selective calling
SID	standard instrument departure
SIF	selective identification feature
SLC	slot cancellation message
SLOP	strategic lateral offset procedures
SSR	secondary surveillance radar
STAR	standard instrument arrival
STS	special handling
TA	transition altitude
TAS	true airspeed
TLS	target level of safety TMA
	terminal control area
TODA	take-off distance available
TORA	take-off run available
TVE	total vertical error
UAC	upper area control centre
UIR	upper flight information region
VSM	vertical separation minimum
VFR	visual flight rules
VOLMET	meteorological information for aircraft in flight
VOR	VHF omnidirectional radio range
WATRS	West Atlantic Route System

AFRICA-INDIAN OCEAN (AFI) REGIONAL SUPPLEMENTARY PROCEDURES

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Parts I, II and III), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168). The area of application of the AFI Regional Supplementary Procedures is included on the Index to Application of Supplementary Procedures chart.

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Chapter 2. FLIGHT PLANS

2.1 CONTENT – GENERAL

(A2 – Chapter 3; P-ATM – Chapter 4 and Appendix 2)

2.1.1 Date of flight

Nil.

2.1.2 Area navigation (RNAV) specifications

2.1.2.1 Nil, with the exception of those flights intending to operate within the confines of the AORRA and in those portions of the IORRA, or on designated RNAV routes, where the requirement for RNAV 5 and RNP 10 (RNAV 10) has been documented. The letter R shall be inserted in Item 10 (Equipment) of the flight plan to indicate the aircraft meets the RNP type prescribed, has been appropriately approved and can comply with all conditions of that approval.

2.1.3 Required navigation performance (RNP) specifications

2.1.3.1 The letter R shall be inserted in Item 10 (Equipment) of the flight plan to indicate the aircraft meets the RNP type prescribed, has been appropriately approved and can comply with all conditions of that approval.

2.1.4 Minimum navigation performance specifications (MNPS)

Nil.

2.1.5 Reduced vertical separation minimum (RVSM)-approved aircraft

2.1.5.1 The letter W shall be inserted in Item 10 (Equipment) of the flight plan or Item Q of the repetitive flight plan (RPL) if the aircraft and operator have received RVSM State approval, regardless of the requested flight level. The aircraft registration shall be inserted in Item 18 of the flight plan.

2.1.6 Non-RVSM-approved aircraft

Note.— Non-RVSM aircraft intending to operate above FL 410 will need to flight plan in accordance with RVSM procedures of neighbouring regions, should the flight commence or terminate in those regions.

2.1.7 Non-RVSM-approved State aircraft

2.1.7.1 Operators of non-RVSM-approved State aircraft with a requested flight level of 290 or above shall insert STS/NON RVSM in Item 18 of the flight plan.

Note.— Non-RVSM aircraft intending to operate above FL 410 will need to flight plan in accordance with RVSM procedures of neighbouring regions, should the flight commence or terminate in those regions.

Chapter 4. NAVIGATION

4.1 PERFORMANCE-BASED NAVIGATION (PBN)

Note.— As the Africa-Indian Ocean (AFI) Region transitions to PBN as contained in the Performance-based Navigation Manual (Doc 9613), the contents of 4.1 will be amended.*

4.1.1 Area navigation (RNAV) specifications

4.1.1.1 RNAV 10 (RNP 10)

Note.— RNAV 10 retains the RNP 10 designation, as specified in the Performance-based Navigation Manual (Doc 9613), 1.2.3.5.*

Area of applicability

4.1.1.1.1 For flights on designated controlled oceanic routes, **within designated random routing areas**, or **in** areas within the Canarias FIR (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs, and on designated routes over continental Africa, a lateral separation minimum of 93 km (50 NM) may be applied.

4.1.1.1.2 For flights in the EUR/SAM corridor (Canarias (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs), a longitudinal separation minimum of 93 km (50 NM) derived by RNAV may be applied between RNAV-equipped aircraft approved to RNP 10 or better, in accordance with the provisions of the PANS-ATM, 5.4.2.6.

4.1.1.1.3 Longitudinal distance-based separation minima of 93 km (50 NM) between RNAV aircraft on the same track on RNP 10 routes over continental Africa **or within designated random routing areas**, shall not be used. **A time separation as agreed to between Air Traffic Service centres will be applied.**

Means of compliance (This information should be repositioned in order to cover both RNAV and RNP activities)

4.1.1.1.4 ~~For application of 4.1.1.1.1 and 4.1.1.1.2,~~ The aircraft and the operator must have been approved by the State of Registry or the State of the Operator, as appropriate, to meet the following requirements (or equivalent):

- a) aircraft are approved to ~~RNP 10~~ **the required RNP criteria**, in accordance with provisions contained in the *Performance-based Navigation Manual* (Doc 9613);* and
- b) operator programmes shall be established to mitigate the occurrence of large navigational errors due to equipment malfunction or operational error:
 - 1) operator in-flight operating drills shall include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft from inadvertent deviation from an ATC-cleared route; and

* In preparation.

4.1.2 Required navigation performance (RNP) specifications

4.1.2.1 RNP 4

4.1.2.1.1 For flights on designated controlled oceanic routes or areas within the Canarias FIR (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs, and on designated routes over continental Africa, a lateral separation minimum of 55.5 km (30 NM) may be applied.

4.1.2.1.2 For flights in the EUR/SAM corridor (Canarias (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs), a longitudinal separation minimum of 93 km (50 NM) derived by RNAV may be applied between RNAV-equipped aircraft approved to RNP 4 or better, in accordance with the provisions of the PANS-ATM, 5.4.2.6.

4.1.2.1.3 Longitudinal distance-based separation minima of 55.5 km (30 NM) between RNAV aircraft on the same track on RNP 4 routes over continental Africa shall not be used. A time separation as agreed to between Air Traffic Service centres will be applied.

4.1.2.2 Basic RNP 1

Nil.

4.1.2.3 Advanced RNP 1

Nil.

Chapter 5. SURVEILLANCE

(P-ATM – Chapter 8; P-OPS, Vol. I, Part III)

5.3 AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS)

Annex 6 Part 1 and Part 2

5.3.1 Carriage and operation of ACAS II

Nil.

5.4 AUTOMATIC DEPENDENT SURVEILLANCE – CONTRACT (ADS-C)

ADS –C has been promulgated as primary means of communication-surveillance for en-route operations within designated areas of the AFI Region

Nil.

5.5 AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B)

Nil.

Chapter 6. AIR TRAFFIC SERVICES

6.1 AIR TRAFFIC CONTROL (ATC) CLEARANCES

(A11 – Chapter 3; P-ATM – Chapter 4)

6.10 RVSM PROCEDURES

6.10.1 General

6.10.1.1 Operation of aircraft not approved for RVSM

6.10.1.1.1 Except for areas where transition areas have been established, ~~Aircraft not meeting the requirements of 4.2.2 shall not be allowed to operate in EUR/SAM RVSM airspace. (This paragraph is no longer relevant as the AFI Region as whole is RVSM compliant)~~

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6.10.1.1.2 ~~Exceptionally, Aircraft such as State aircraft¹ that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be is applied in accordance with policy and procedures established by the State provided that 600 m (2 000 ft) vertical separation is applied. (State Flights)~~

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

~~6.10.2 Transition to/from RVSM airspace~~

~~(A2 – Appendix 3; A6, Parts I and II, Chapter 7; A11 – Chapter 3; P-ATM – Chapter 5)~~

~~6.10.2.1 — In order to allow for the transition of flights to and from EUR/SAM RVSM airspace, the ATS authorities responsible for Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs may establish designated RVSM transition areas. A 300 m (1 000 ft) vertical separation minimum may be applied between RVSM-approved aircraft within these transition areas.~~

~~6.10.2.2 — 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 controller-pilot communications.~~

6.11 ATS COORDINATION

¹ In terms of ICAO Doc 7300

6.11.1 Between units providing area control services

AFI 6-8

Regional Supplementary Procedures

6.12 ATS MESSAGES

6.12.1 Flight plan and departure

(P-ATM – Chapter 11)

6.12.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 110 km (60 NM) or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions. (Relevancy to AFI Region operations ????) Not sure

6.12.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted. (Relevancy to AFI Region operations ????) Not sure

AFI 7-1

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Chapter 7. SAFETY MONITORING

7.1 STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

(P-ATM - Chapter 15)

- a) SLOP will be applied in those Oceanic FIRs where fixed routes are established excluding defined random routing areas.
- b) SLOP will be applied in all areas of the Continental AFI Region except in those areas where ATC separation is provided by surveillance, unless approved by the State.

Note 1: Pilots may contact other aircraft on the inter-pilot frequency 123.45 MHz to coordinate offset.
Pilots are to note that frequency 126.90 MHz is mostly used in the AFI Region.

7.2 AIRSPACE MONITORING

7.2.1 General

Nil.

7.2.2 RNAV

7.2.2.1 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

AFI 7-3

30/11/07

7.2.4 RVSM

7.2.4.1 Target level of safety (TLS)

7.2.4.1.1 Application of RVSM in the airspace designated in 4.2.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

7.2.4.1.2 Adequate monitoring of flight operations in the EUR/SAM and AFI RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 4.2.2. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 7.2.4.1.1 is not exceeded.

~~Note.— Details of the policy and procedures for monitoring established by the South Atlantic Monitoring Agency (SATMA) are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.~~

Chapter 9. SPECIAL PROCEDURES

Actions to ensure the safety of the flight, in any abnormal circumstance will be executed in accordance with Doc. 4444(PANS ATM) Chapter 15.

9.1 EMERGENCY DESCENT PROCEDURES

9.1.1 Action by the pilot-in-command

Nil.

9.1.2 Action by the ATS unit

Nil.

9.2 CONTINGENCY PROCEDURES INCLUDING TURN-BACKS

Nil.

9.3 AIR-GROUND COMMUNICATION FAILURE

Nil.

9.4 DEGRADATION OR FAILURE OF THE RNAV SYSTEM

APPENDIX F

Operational procedures to prevent LHD's based on ADS-C CPDLC or only ADS-C

2.1. Cases where both collateral ACC's are ADS-C & CPDLC equipped

2.1.1.- The transferring ACC shall send to the aircraft the CPDLC message (UM160) NEXT DATA AUTHORITY (facility designator) at least 1 minute before doing the next step.

2.1.2.- from 15 to 45 minutes before the common boundary, the transferring ACC will initiate the connection transfer procedure sending a FN_CAD message that will instruct the aircraft system to initiate an AFN Log- on to the next ACC (still full connection with the transferring ACC)

2.1.3.- If 10 minutes before reaching the common boundary point the automatic Log- on with the receiving ACC has not been successful, the pilot shall start a manual Log- on

2.1.4.- Once the Log- on is accepted by the receiving ACC, the receiving controller will establish the CPDLC connection which will remain inactive until the CPDLC END SERVICE message is sent from the transferring ACC and received by the aircraft

2.1.5.- Immediately after the reception of the Log- on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a way point change event contract. (Demand contracts will also be used if it is considered necessary)

2.1.6.- The transferring ACC will send the CPDLC END SERVICE message 5 minutes before the common boundary point

2.1.7.- The transferring ACC will not terminate the ADS- C connection before the aircraft has over flown the boundary point

2.2.- Case where the transferring ACC only ADS-C equipped and receiving ACC is ADS-C & CPDLC equipped

2.2.1.- from 15 to 45 minutes before the common boundary the transferring ACC shall initiate the connection transfer procedure sending a FN_CAD message that will instruct the aircraft system to initiate an AFN Log- on to the next ACC (still ADS-C connection with the transferring ACC)

2.2.2.- If 10 minutes before reaching the common boundary point the automatic Log- on with the receiving ACC has not been successful, the pilot shall start a manual Log- on

2.2.3.- Once the Log- on is accepted by the receiving ACC, the receiving controller can establish the CPDLC connection which will be active on the receiving ACC. The receiving ACC will never start the CPDLC message interchange (attend new requests or provide clearances) with the aircraft until reaching the common boundary point

2.2.4.- Immediately after the reception of the Log- on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a waypoint change event contract. (Demand contracts will also be used if it is considered necessary)

2.2.5- The transferring ACC will not terminate the ADS-C connection before the aircraft has over flown the boundary point

2.3. Cases where the transferring ACC is ADS-C & CPDLC equipped and receiving ACC only ADS-C equipped

2.3.1.- from 15 to 45 minutes before the common boundary the transferring ACC shall initiate the connexion transfer procedure sending a FN_CAD message that will instruct the aircraft system to initiate an AFN Log-on to the next ACC (still full connection with the transferring ACC)

2.3.2.- If 10 minutes before reaching the common boundary point the automatic Log-on with the receiving ACC has not been successful, the pilot shall start a manual Log-on

2.2.3.- Immediately after the reception of the Log-on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a waypoint change event contract. (Demand contracts will also be used if it is considered necessary)

2.3.4.- The transferring ACC will send the CPDLC END SERVICE message to CPDLC connected aircrafts 5 minutes before the common boundary point

2.3.5.- The transferring ACC will not terminate the ADS-C connection before the aircraft has over flown the common boundary point

2.4.- General

The implementation of these procedures implies the SAT States should:

- a) a) Any inconsistency of flight level information between the ADS-C track with the previous estimate should be confirmed by the receiving ACC with a call to the transferring ACC
- b) In cases where LHD is detected but solved in advance also a LHD report will be filled with the point “ Estimated time at incorrect flight level” as zero second
- c) The specific FANS1/A procedures and parameters should be reflected on the respective LoA between the adjacent ACC’s and these procedures will be in force on airac date 12 January 2011

APPENDIX G

TERMS OF REFERENCE OF THE CAFSAT NETWORK MANAGEMENT COMMITTEE (CNMC)

1. Mandate of the CAFSAT Management Committee

- 1.1 Decide on the network concept and topology in accordance with the relevant ATM operation requirements and based on ICAO SARPs and guidance materials.
- 1.2 Ensure the continued operation of the CAFSAT network, meeting the CNS/ATM plan requirements of the AFI /NAT/EUR/SAM Regions while taking into consideration CNS/ATM plans of adjacent regions, and including approval of deployment plans and/or extension plans.
- 1.3 Decide on type and levels of service to be provided, and monitor the performance of the Network providers (facilities and leased band) to ensure that service delivery meets Required Communication Performance criteria previously pre-determined in accordance with the Manual of Required Communication Performance (RCP Doc. 9869).
- 1.4 Ensure that participating States/Organizations provide statistics on the Network Performance, and investigate service delivery complaints from users.
- 1.5 Review and take the appropriate actions to clear the service dysfunctions within the RCP defined criteria in line with ATM PBN and SMS requirements.
- 1.6 Monitor the harmonization of the implementation of facilities and services and, where necessary, ensure interregional connectivity, taking due account of cost/benefit analysis, business case development and financing issues:
 - Study the extension of the network to other countries.
 - Propose the network integration and interoperability with other neighboring networks
- 1.7 Monitor and harmonize the Network maintenance operation and management by defining a cooperation methodology between network centers in regard with:
 - Maintenance personnel team training and exchange, redeployment if necessary of a technical assistance;
 - spare parts exchange, fault location/repairs, and turnaround time
 - Development and modernization of CAFSAT after a Joint Technical Evaluation and Re-engineering team assessment.
- 1.8 Review and adopt the annual follow up on the meeting conclusion and update the future work programme.
- 1.9 The report of CAFSAT Network Management Committee is to be addressed to SAT/CNS-WG

2. Composition and organization of the Committee

The CAFSAT Network Management Committee (CNMC) is composed of member States/Organizations hosting/operating CAFSAT nodes namely:

- **AENA (Spain)**
- **NAV Portugal (Portugal)**
- **ASECNA (Côte d’Ivoire, Mauritanie, Sénégal)**
- **ATNS (South Africa)**
- **ONDA (Morocco)**
- **ATLANTICO FIR (Brazil)**
- **ASA (Cape Verde)**

Observers as facilities providers (**INSA**), satellite spectrum providers (**INTELSAT**), Airline Associations (**IATA**), Maintenance Personnel Association (**IFATSEA**), neighboring Networks (**AFISNET**) can join the Committee.

- 2.1 The Chair of the Committee shall be elected by the Committee from among the Committee members every year. The Chair may be re-elected for no more than two periods of one year each. The mandate as Chair of the Committee shall not exceed three years.
- 2.2 ICAO shall be the Secretary of the Committee.
- 2.3 To ensure that the Committee functions optimally, the designated representatives of Air Navigation Service Providers should have experience in the provision of air navigation infrastructure and services. Advisors may accompany the Representative.

3. Participation by International Organizations

Moreover those listed in paragraph 2, the Committee may invite representatives of appropriate regional and international organizations (**ATU, ITU, EUROCONTROL...**) to attend meetings in the capacity of observer.

4. Establishment and Dissolution of Contributory Bodies

- 4.1 In order to assist in its work, the Committee may establish bodies, e.g. task forces, charged with preparatory work on specific issues. Representation in such contributory bodies should be by specialists in the subjects concerned and familiar with the issues under consideration.
- 4.2 The establishment and work of contributory bodies shall be governed by the following provisions:
 - a) A contributory body shall only be formed when it has been clearly identified that it is likely to make a substantial contribution to the resolution of the issue in question.
 - b) A contributory body shall be given clear and concise terms of reference describing its task and an expected target date for its completion.
 - c) The composition of a contributory body shall be such that, although intended to be as small as possible, all participating States and any organization deemed to be able to make valid contributions shall be given an opportunity to participate in it.
 - d) A contributory body shall be dissolved as soon as it has either completed its assigned task or it has become apparent that work on the subject in question cannot be usefully continued.

5. Working arrangements

- 5.1 The Committee ordinary meeting will be hosted by one of the State\organization and held at least once a year;
- 5.2 The committee can hold in case of absolute necessity extraordinary meetings to clear out urgent problems that may be a threat to the service provided by the network;
- 5.3 The invitation letter to the meetings is issued by the Secretariat in coordination with the hosting State/Organization.
- 5.4 Decisions shall be reached by consensus.
- 5.3 Two-thirds of members shall constitute a quorum and, where a quorum is not achieved, decisions will be reached through correspondence under the Chair Person coordination.

APPENDIX H

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE SAT ATM WORKING GROUP (ATM/WG)

<ul style="list-style-type: none"> Considering the evolutionary implementation of CNS/ATM systems in areas of routing AR1/HA1 and AR2/HA8 as defined in the Global Air Navigation Plan (ICAO Doc 9750), the Task Force should explore ways and means to achieve further enhancements in ATM capacity and aeronautical telecommunications, and to implement CNS/ATM elements taking into consideration the timescales agreed for these areas of routing. It will be guided by the requirements identified in the AFI and CAR/SAM CNS/ATM Implementation Plans. <i>Note: The Task Force will adopt a pragmatic approach and may set up auxiliary bodies to carry out specific tasks, as necessary.</i> 		
WORK PROGRAMME		
TASK No.	SUBJECT	TARGET DATE
1.	Analyze ATM deficiencies and make proposals for their elimination.	Continuous
2.	Monitor pre-implementation/post-implementation safety assessments (as applicable) for RVSM and RNP operations in the South Atlantic, including adjacent areas.	<i>Continuous</i>
3.	Study and evaluate RVSM, RNP/RNAV procedures applicable in the AFI/CAR/SAM and EUR/SAM Interface areas.	Continuous
4.	Monitor flight plan availability and propose appropriate corrective measures.	Continuous
5.	Oversee FANS 1/A system performance monitoring to ensure that the system continues to meet safety and interoperability requirements and that operations and procedures are working as specified.	Continuous
6.	Carry out studies on the establishment of a central reporting agency (CRA) and related institutional issues	Completed
7.	Harmonize ADS/CPDLC programmes developed by SAT States/FIRs and analyze cost-benefit aspects related to their implementation.	Continuous
8.	Maintain ADS/CPDLC operational guidance material updated.	Continuous
9.	Conduct studies related to the implementation of the Global ATM Operational Concept and other enabling concepts within the SAT area.	Continuous
10.	Continue studies related to the implementation of the AORRA airspace.	SAT 16
11.	Monitor the implementation of the ICAO New Flight Plan in the SAT Region.	15 November 2012
<ul style="list-style-type: none"> <i>Note: The ATM/WG should take appropriate action on pressing issues and submit its proposal to the SAT/15 meeting.</i> 		
COMPOSITION		
<ul style="list-style-type: none"> <i>The Task Force of multi-disciplinary nature shall comprise of experts from States responsible of FIRs in AFI and SAM routing areas AR1/AH2 and AR2/AH8 as defined in the Global Air Navigation Plan (ICAO Doc 9750), and experts from adjacent FIRs and international organizations.</i> Rapporteur: Spain Tasks Nos. 5, 6, 7 and 8 are assigned to the SAT established FANS-1/A Interoperability Team (FIT) with South Africa as Team Leader. Working arrangements: The ATM/WG should complete its work and submit its proposal to the SAT Group. The ATM/WG should work through electronic correspondence prior to meetings. 		

TERMS OF REFERENCE, WORKING PROGRAMME AND COMPOSITION OF THE SAT STUDY GROUP ON THE IMPROVEMENT OF THE AIRSPACE STRUCTURE IN THE EUR/SAM CORRIDOR (IAS/SG)

<ul style="list-style-type: none"> To develop a strategy for the short-term, mid-term and long term for the implementation of a new airspace structure in the EUR/SAM Corridor with the end to improve the capacity and efficiency of the operations and to meet users needs. 		
WORK PROGRAMME		
TASK No.	SUBJECT	TARGET DATE
1.	Analyze the current operational situation within the EUR/SAM Corridor taking into account statistics and users needs.	Completed
2.	Explore ways and means to restructure the EUR/SAM Corridor airspace	Completed
3.	Develop a short term plan using the current separation standards based on RNP10, including the implementation of new ATS routes.	Completed
4.	Analyze the advantages of introducing unidirectional ATS routes.	Completed
5.	Study the feasibility of implementing RNP4, using ADS/CPDLC functionalities.	SAT/16
6.	Continue studies to implement a random routing area, using ADS/CPDLC functionalities.	SAT16
7.	Develop necessary cost benefit analysis for the different options.	SAT/16
8.	Establish means to develop the safety assessment for the different implementation options.	SAT/16
9.	Develop an action plan for the different implementation options.	SAT/16
COMPOSITION		
<ul style="list-style-type: none"> Brazil, Cape Verde, France, Portugal, Senegal, Spain, Trinidad and Tobago, United States, ASECNA and IATA. Rapporteur: Spain. 		
<ul style="list-style-type: none"> Working arrangements: <i>The IAS/SG should take the appropriate action to complete its work and submit its proposals to the next meeting of the SAT Group. The IAS/SG should work through electronic correspondence prior to meetings.</i> 		

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE SAT CNS WORKING GROUP (CNS/WG)

- Considering the CAR/SAM and AFI Air Navigation Plans, the SAT CNS/WG should explore ways and means of achieving further enhancements in ATM efficiency within in areas of routing AR1/HA1 AR-2/HA8 *as defined in the Global Air Navigation Plan (ICAO Doc 9750)*, by resorting to emerging technologies and, in particular, by taking advantage of rationalization, integration and harmonization of systems where appropriate.
- Implementation of new systems should be sufficiently flexible to accommodate existing and future services in an evolutionary and cost-effective manner.
- The associated institutional arrangements shall not inhibit competition among service providers complying with relevant ICAO Standards, Recommended Practices and Procedures.

WORK PROGRAMME

TASK No.	SUBJECT	TARGET DATE
1.	Analyze CNS deficiencies and make proposals for their elimination.	Continuous
2.	Carry out, as required, studies on the use of existing VSAT networks potentialities to cater for aeronautical telecommunication requirements in the SAT area. Such studies should include coordination issues, service channel interfaces, monitoring and control, system architecture, new services, user interfaces and bandwidth monitoring.	Continuous
3.	Undertake investigations on the lack of flight plans, including individual cases, with emphasis on the aeronautical fixed telecommunication network (links, switching centres, routing directory and transit time statistics).	Continuous
4.	Carry studies and make proposals to achieve end-to-end interoperability of ATM applications, in accordance with the ATM global operational concept.	SAT/16
5.	Evaluate the feasibility of using existing or emerging digital VSAT networks (AFISNET, CAFSAT, REDDIG, SADC, etc.) to support ATS data link applications in an ATN environment.	SAT/16
6.	Considering the implementation time-frames in the AFI and SAM CNS/ATM implementation plans, address cost-benefit aspects for the use of CNS/ATM applications (as required).	Continuous
7.	In coordination with SAT ATM/WG, share relevant technical aspects of different ADS/CPDLC Systems to be implemented by SAT States addressing issues regarding work methodology, procedures, data interchange, maintenance, etc.	SAT/16
8.	Analyze all aspects related to the implementation of ATS-N5 protocol in the SAT area in accordance with ICAO guidance material contained in Annex 10 and Doc. 9804	SAT 16

COMPOSITION

- The CNS/WG being of multi-disciplinary nature shall comprise of experts from States responsible of FIRs in the area concerned, experts from adjacent FIRs and international organizations and the aeronautical industry.
- **Rapporteur:** Senegal.
- **Task Team leaders:** ASECNA (Tasks. Nos.2 and 4), South Africa (Task No.7)
- **Working arrangements:** The CNS/WG should complete its work and submit its proposal to the SAT. The CNS/WG should work through electronic correspondence prior to meetings.