

SAT/20



INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICAN OFFICE

**REPORT OF THE TWENTIETH MEETING ON THE IMPROVEMENT
OF AIR TRAFFIC SERVICES OVER THE SOUTH ATLANTIC (SAT/20)**

(Abidjan, Côte d'Ivoire 3-5 June 2015)

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PART I: HISTORY OF THE MEETING

1 Place and duration of the meeting

1.1 The Twentieth Informal Coordination Meeting on the improvement of air traffic services over the South Atlantic (**SAT/20**) was held at the Conference Room of the hotel, Abidjan, Plateau, Côte d'Ivoire, from 04 to 05 June 2015 back to back with the SAT/FIT/10 held in parallel with the CNMC/5 meetings held from 01 to 03 June 2015), at the kind invitation of the honorable Minister of Transport of Côte d'Ivoire.

2. Opening ceremony

2.1 The meeting was officially opened the 1st June 2015 by **Mr. Boukari Benjamin, Soro** Technical adviser of the minister of Transport of Cote d'Ivoire. He was assisted by **Mr.Sinaly Silué** Director General of the Civil Aviation Authority of Cote d'Ivoire and **Mr. Matthieu Agnimel**, Representative of ASECNA in Côte d'Ivoire. Mr. Soro, firstly welcomed the participants to the three meetings (CNMC/4, SATFIT9 and SAT19) being held back to back and encouraged them to feel at home in Abidjan. Then, he outlined the continuous success of the SAT Group achievements with regard to the tangible improvement of ATS safety, capacity, efficiency and the contribution to the preservation of the environment over the South Atlantic (SAT). In this regard he recalled the participants with several achievements of the SAT Group which were recorded by the aviation community as success stories. He recalled also how Côte d'Ivoire is actively involved in the activities of the SAT Group through ASECNA, his Air Navigation Service Provider and reaffirmed the strong commitment of his State to conduct his part of the work carried out by the SAT Group. Finally he wished fruitful deliberations and a nice stay in Côte d'Ivoire to the participants.

3. Organization, Secretariat and attendance

3.1 Mr. **Amani Yao**, from ANAC, Cote d'Ivoire was unanimously elected as Chairperson of the SAT meeting. He therefore chaired and moderated its plenary sessions.

3.2 **MM. François-Xavier Salambanga**, Regional Officer CNS and **Albert Aidoo Taylor**, Regional Officer ATM & SAR, ICAO WACAF Office served as the Secretary of the meeting and accordingly prepared and aligned the Working and Information papers.

3.3 The meeting was attended by Fifty Seven (**57**) participants from thirteen (13) States of the ICAO AFI, EUR, and SAM regions namely, **Angola, Argentina, Brazil, Cape Verde, Cote d'Ivoire, France, Ghana, Mauritania, Portugal, Senegal, South Africa, Spain, United States of America**, four (04) International Organizations (**ASECNA, IATA, Roberts FIR, SITA**).

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

4. Working languages

4.1 The meeting was conducted in the English language and the documentation was presented in this language. The Cote d'Ivoire ANAC- CI provided simultaneous translation (English and French) for the ATM Working Group and the plenary session's meetings.

5. Agenda of the meeting

5.1 The meeting adopted the following agenda and discussed its items when appropriate, within the ATM Working Group, the CNS Working Group or the plenary sessions:

Agenda Item 1: Election of the chairperson and adoption of the agenda (Plenary session)

Agenda Item 2: Air traffic management (ATM) (by the ATM Working Group)

1 Follow up of SAT/19 Conclusions pertaining to the ATM field

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

3. Follow up on operations in the AORRA airspace.

4. ATS Contingency planning

5. Any other ATM business

Agenda Item 3: Communications, navigation and surveillance (CNS) (by the CNS Working Group)

1. Follow up of SAT/19 Conclusions pertaining to the CNS field

2. Review of the performance of SAT CNS Infrastructure and systems

3. Improvement of CNS system in the SAT Region (AMHS,AIDC, ADS-B)

4. Any other CNS business

Agenda Item 4: Communications, navigation and surveillance / Air traffic management (CNS/ATM) Systems (Plenary session)

1. Harmonization of ADS/CPDLC programmes

- *Review of the conclusions/decisions of the tenth of SAT FANS I/A Interoperability Team (SAT/FIT/10).*
- *Interconnection of ADS-C systems*

2. Performance Based Navigation (PBN) in the South Atlantic RNP4 in the EURSAM corridor

3. Review of the conclusions/decisions of CNMC/5 meeting

Agenda Item 5: Adoption of the conclusions/decisions of the SAT/20 meeting (Plenary session)

Agenda Item 6: Future work programme (Plenary session)

Agenda Item 7: Any other business (Plenary session)

6. Conclusions and Decisions of the meeting

The meeting adopted the following conclusions and decisions:

Agenda Item 1: Air traffic management (ATM) (by the ATM Working Group)

Decision 20/01: Traffic Statistic of the EUR-SAM Area

That,

Air traffic statistics that are needed for analysis to assess the performance of services provided in the EUR-SAM corridor is considered adequate; and

Conclusion 20/02: Improvement in quality and reliability of data

That,

EUR/SAM States/ANSPs are urged to improve the quality and reliability of the data they submit to SATMA by providing additional data on fleet capabilities including ADS-C/CPDLC connection and registration number.

Decision 20/03: Provision of Correct Addresses

That,

SAT Member States and SATMA provide correct addresses and update the contact information regularly to ensure timely submission of data and statistical analysis.

Decision 20/04: EUR/SAM CORRIDOR DATA FOR RISK ASSESSMENT

That,

Taking into account the need for accurate traffic data for airspace planning, safety assessment and statistics in the EUR/SAM Corridor, Brazil, Cape Verde, Spain and Senegal are urged to collect and submit the 2015 Air Traffic Movement data for a period of six months (July-Dec), in accordance with the format provided at SATMA website www.satmasat.com before February 2016;

Conclusion 20/05: Provision of LHD information and causes

That,

To ensure that the outcome of Safety Assessment that are based on the Collision Risk Model conducted for the EUR/SAM region is more representative of the prevalent risks, EUR/ SAM States/ANSPs are urged to provide all available information related to Large Height Deviations including their duration and causes to SATMA.

EUR-SAM Corridor Aircraft Equipage Survey

Conclusion 20/06: EUR-SAM Corridor Aircraft Equipage Survey

That,

- a) *States of operators that have not done so yet are urged to develop and publish the RNP 4 (PBN) Regulatory Approval process.*
- b) *IATA is urged to encourage airlines that have not done yet to initiate RNP 4 approval process for their eligible fleets.*

Conclusion 20/07: ATFM operations to better monitor peak traffic hours

That

In order to improve safety and increase capacity, the Cayenne FIR and adjacent SAT FIRs in consultation with airspace users (IATA) are urged conduct studies towards the establishment of Night Routes in the Cayenne FIR and provide feedback to SAT/21;

Decision 20/08: Establishment of a EUR SAM regional ATFM study group

That,

The SAT ATM Group considers establishing a regional group to study the need for implementation of ATFM and CDM in the South Atlantic region.

Decision 20/09: ATM Contingency planning

That,

In order to coordinate the harmonization of national contingency plans with that of the SAT area,

- a) *ASECNA liaises with South Africa to collate comments from SAT States on the Draft ATM contingency plan that was developed by South Africa and adopted by the SAT group; and coordinate the harmonization of contingency plans in the SAT area;*
- b) *States that have not already done so are urged to nominate focal point and provide his/her contact details to task leader.*

Conclusion 20/10: ATM Contingency Plan for the SAT region

That,

States that have not already done so are urged to submit comments on the Draft ATM Contingency Plan for the SAT region to the task leaders South Africa/ASECN.

Decision 20/11: EUR/SAM CORRIDOR AIRSPACE CONCEPT Action Plan

That,

- a) *The EUR/SAM corridor airspace concept presented by Portugal is endorsed in principle;*
- b) *Portugal is urged to review the airspace concept plan and roadmap including the proposed phases and milestones and provide more details on the required airborne and ground technical specifications;*
- c) *Portugal is urged to organize a teleconference to endorse improvements to the plan; and*

- d) *Portugal coordinates consultation with all stakeholders in the conduct of Safety Assessment, Regulatory Approvals, Training and Cost Benefit analysis as part of the implementation of the roadmap.*

Agenda Item 2: Communications, navigation and surveillance (CNS) (by the CNS Working Group)

1 Follow up of SAT/19 Conclusions pertaining to the CNS field

Conclusion 20/12: Mitigation of missing Flight Plans

That;

Administrations/Organizations who have not done so establish the multidisciplinary local missing Flight Plans investigation groups including airlines and collect the data on missing Flight Plans to be sent to ASECNA for compilation with copy to their neighboring concerned centres.

Conclusion 20/13: Sensitization of airlines on missing Flight Plans

That;

SAT ACCs duly:

- a) *Identify airlines involved in missing Flight Plans and inform their representatives and IATA;*
- b) *Publish and share their statistics on missing flight plans.*

2 Review of the performance of SAT CNS Infrastructure and systems

Conclusion 20/14: Performance of CNS infrastructure

That;

SAT ANSPs ensure optimal performance of CNS infrastructure in order to maintain an agreed minimum level of quality of Air Navigation Service

Conclusion 20/15: Quality of service of air/ground datalink

That;

ANSPs take opportunity of the existing VSAT Networks to ensure the availability of the air/ground data link to support ADS-C/CPDLC in particular:

- a) *Direct connection between the ACC and the Communication Service Provider hub via the VSAT Network;*
- b) *Conduct of statistics of performance and reporting*

3 Improvement of CNS system in the SAT Region (AMHS, AIDC, ADS-B)

Conclusion 20/16: Implementation of AMHS

That;

SAT ANSPs align their plan and projects of implementation of AMHS in accordance with the Table attached in Appendix F.

Conclusion 20/17: Implementation of AIDC

That;

SAT ANSPs;

- a) Consider ICAO SARPs and guidance to ensure AIDC capability for new ATM systems or*
- b) Conduct with their manufacturer an assessment for possible update of their current ATM systems to be compliant with AIDC in accordance with the Table attached in Appendix G and accordingly implement AIDC as ATN ground/ground component*

Conclusion 20/18: Interconnection of VCCS

That;

ANSPs are encouraged to implement VoIP capability on their VCCs in accordance with the time frame of ICAO ASBU Block 0 to ensure the transition to a future IP based voice communication as planned in the ICAO Global Air Navigation Plan (GANP Doc. 9705)

Decision 20/19: Terms of References and work programmes of the SAT Group

That;

The Terms of Reference and Work Programme of the SAT ATM/WG, IAS/SG & CNS/WG are adopted as attached at Appendix L

PART II: REPORT ON THE AGENDA ITEMS

Agenda Item 1: Election of the chairperson and adoption of the agenda

1.1 Mr. **Amani Jean ALLA** Director Flight Safety from the ANAC, Côte d'Ivoire was unanimously elected as Chairperson of the SAT meeting. He therefore chaired and moderated its plenary sessions.

Agenda Item 2: Air traffic management (ATM) (by the ATM Working Group)

Agenda item 2.1: *Follow up of SAT/19 Conclusions pertaining to the ATM field*

The meeting reviewed the Conclusions and Decisions pertaining to the ATM field which were adopted by the SAT 19 meeting held in Buenos Aires, Argentina, from 4 to 5 August 2014. The meeting noted that the implementation of these conclusions and decisions were ongoing, or needed continuous actions to be taken by concerned parties and updated the status as attached in **Appendix B1** to this report.

Agenda Item 2.2. *SATMA report on Traffic Statistics, Safety procedures and operational procedures in the EUR/SAM corridor*

2.2.1. Traffic Statistic of the EUR-SAM Area

The collection and analysis of statistical data on air traffic movements along the EUR-SAM Corridor by SATMA have been acknowledged in previous SAT meetings as providing the relevant data and information leading to effective planning and implementation of ATS improvements. Nevertheless, several issues on statistical data were detected during last SAT (SAT19) to the effect that:

- figures provided did not represent the whole EUR/SAM Corridor since data is based exclusively on traffic that fly only over Canarias FIR; and
- There is no data related to fleet with FANS 1A/RNP4 Capabilities.

In accordance with the SAT19/01 conclusion, SATMA was assigned the task of gathering the necessary traffic data for airspace planning, safety assessments and statistics in the EUR/SAM Corridor. Consequently, Brazil, Cape Verde, Spain and Senegal were urged to collect Air Traffic Movement data from their ATM Systems within a period of six months (Jan-Jun 2014) in accordance with the pre-established format agreed with each member.

During SAT19 it was mentioned that all SAT members had already provided required information to perform the previous analysis. It was noted however, that there were filed flight plans that were not registered with all the ANSPs involved. Besides, there were disparities in some key operational information such as differences in time, flight levels and waypoints; and in some cases, flight plans that were issued by the same ANSP in the same day had the same times but different trajectories.

In order to increase the integrity of the operational data, the information supplied by ANSPs were reviewed globally to ensure that erroneous information provided were corrected and synchronized with other available information for the flights concerned, consequently, time, flight level and coordination points were revised accordingly.

A total of 130,000 position reports were provided whilst additional information were extrapolated from the original data. Whereas the original flight plan information had only an initial and final point, the information that were extrapolated from the actual route flown provided more details. As an example, if the initial flight plan was TENPA SAMAR, the information extrapolated from the actual flight plan flown would be TENPA USOTI APASO VIDRI GDV SAMAR.

During the review of this study, it was detected that information on fleet equipment and capabilities were lacking in the data provided. Although this information is available in the initial flight plan (items 10 and 18 of IFPL) SATMA does not have access to this data.

Finally, in order to capture the relevant areas in the analysis, traffic flown on the routes listed below were considered and included in the statistic:

- EUR/SAM traffic which had flown at least one leg of airways UN741, UN866, UN873 and UN857 in SBAO/GOOO/GVSC FIRs; and
- EUR/SAM area where traffic information were reported to SATMA.

In Canarias FIR the main traffic flow is via the position IPERA, after this position, traffic were planned to route along other ATS routes depending on their departure/arrival aerodromes. The figures for traffic along the routes UN741 and UN866 were less than those reported previously, the reason being due to their unidirectional characteristics. Furthermore, it is significant to note that the figures for the route UN857 are now higher than those of UN741, and is very close to figures on UN866, even though it is a bidirectional route. Finally, it is remarkable that Canarias FIR registered several random routes which were based on published direct (DCT) routings.

This statistical assessment of the EUR-SAM Corridor is available and can be accessed via SATMA web page link www.satmasat.com.

Based on the review of the report on statistical analysis conducted by SATMA which is attached as **Appendix C** to this report, the meeting formulated the following Decisions and Conclusion.

Decision 20/01: Traffic Statistic of the EUR-SAM Area

That,

Air traffic statistics that are needed for analysis to assess the performance of services provided in the EUR-SAM corridor is considered adequate; and

Conclusion 20/02: Improvement in quality and reliability of data

That,

EUR/SAM States/ANSPs are urged to improve the quality and reliability of the data they submit to SATMA by providing additional data on fleet capabilities including ADS-C/CPDLC connection and registration number.

Decision SAT20/03: Provision of Correct Addresses

That,

SAT Member States and SATMA provide correct addresses and update the contact information regularly to ensure timely submission of data and statistical analysis.

2.2.2. EUR/SAM CORRIDOR DATA FOR RISK ASSESSMENT

It was recalled that SATMA has been performing the required periodic Risk Assessment for the region since RVSM/RNP10 was implemented in the EUR/SAM corridor in January 2002, and that the CRM model approved by ICAO to perform Safety Assessment in RVSM areas is strongly based on Traffic Data and on Large Height Deviations (LHD). In order to ensure that critical parameters remain within the prescribed safe limits and below the required Target Level of Safety, it is important that the basic Data

Set, regarding Deviations and Traffic, is reported properly and on time as a requirement to perform the Risk Assessment.

SATMA reported that although some of the data for 2014 had been received late, it finally has the required traffic data (Jan--Jun 2014) to conduct the Jan/June 2014 Safety Assessment based on the Collision Risk Model (CRM), and will distribute the report to States simultaneously with the 2015 Safety Assessment. The data requirement for 2015 Safety Assessment will include six months of the second half of 2015 (from July to December 2015) and the results will be delivered before February 2016.

SATMA has been reporting the Large Height Deviation (LHD) for each State on monthly basis and submitted the report of the 2014 analysis and classification that was conducted by the LHD monitoring team as attached in **Appendix D**. The meeting acknowledged that the LHD Monitoring Team is achieving good results in analyzing and classifying the incidents, it however noted that some of the parameters that impact directly on the model seem to be underestimated. It was emphasized that all available information related to LHD including duration and causes of incidents are necessary for conducting a thorough Safety Assessment and urged States to register all occurrences and causes as clearly as possible to SATMA.

EUR/SAM and SAT member States/ANSPs were reminded of the need to use the appropriate format for submission of DATA to SATMA, the template which is titled; "DATA NEEDED FOR EUR/SAM MONITORING AND ASSESSMENTS" has been available on SATMA website www.satmasat.com since SAT14.

Key activities required in the implementation roadmap for the development of a new EUR/SAM airspace concept based on RNP4 include several tasks related to Safety Assessment. SATMA reported its willingness to conduct studies on a case-by-case basis for States and notify them of their new requirements. In the interest of safety, SATMA had accepted an additional task given to it by the Regional Monitoring Agencies (RMAs) group to initiate surveys in order to pursue any aircraft that might operate in RVSM airspace without the appropriate certification and approval.

The meeting formulated the following conclusions.

Decision 20/04: EUR/SAM CORRIDOR DATA FOR RISK ASSESSMENT

That,

Taking into account the need for accurate traffic data for airspace planning, safety assessment and statistics in the EUR/SAM Corridor, Brazil, Cape Verde, Spain and Senegal are urged to collect and submit the 2015 Air Traffic Movement data for a period of six months (July-Dec), in accordance with the format provided at SATMA website www.satmasat.com before February 2016;

Conclusion 20/05: Provision of LHD information and causes

That,

To ensure that the outcome of Safety Assessment that are based on the Collision Risk Model conducted for the EUR/SAM region is more representative of the prevalent risks, EUR/ SAM States/ANSPs are urged to provide all available information related to Large Height Deviations including their duration and causes to SATMA.

EUR-SAM Corridor Aircraft Equipage Survey

2.2.3 To progress the work of a coherent and harmonized RNP 4, ADS-C and CPDLC implementation, Spain presented to the SAT/19 a consolidated study on the implementation of RNP4 in the EUR/SAM corridor and proposed the establishment of an implementation work plan. After an analysis of the study presented by Spain, the SAT/19 meeting was of the opinion that the first step of the Action Plan to implement RNP 4, ADS-C and CPDLC must be the development of a comprehensive Airspace Concept in order to show a positive cost-benefit analysis to aircraft operators and Air Navigation Service Providers. In this regards, the meeting agreed on the establishment of a EUR/SAM corridor Airspace Concept Task Force, in order to develop the planned Airspace Concept, taking into consideration the study carried out by Spain.

The SAT Group adopted Conclusion SAT19/17 in respect of a New Airspace Concept in the EUR/SAM Corridor. However, one of the basic prerequisites for the development of a consistent EUR/SAM Corridor Airspace Concept is an EUR-SAM Corridor Aircraft Equipage Survey, including FANS 1/A and RNP 4 capabilities.

The recent EUR-SAM Corridor Aircraft Equipage Survey conducted by IATA confirmed that 47% of the aircraft in the corridor are capable of RNP4. It should be noted, however, that some airline responses indicated a lack of State regulatory approval to use all of the aircraft equipage capability to the optimum level. In this regards, it is therefore important for the concerned States to establish the corresponding regulatory approvals whilst airlines are encouraged to initiate the approval process for fleets eligible for RNP 4 operations.

ASECNA reported the outcome of a survey on RNP 4 equipage of aircraft that flew across the Dakar FIR between March and April 2015. The ASECNA survey recorded that 70% of aircraft that operated in the Dakar FIR within the period were RNP 4 equipped. The meeting also noted that the result of the RNP 4 equipage survey independently conducted by ASECNA was comparable to the statistics from SATMA.

The meeting therefore formulated the following Conclusions:

Conclusion 20/06: EUR-SAM Corridor Aircraft Equipage Survey

That,

- a) **States of operators that have not done so yet are urged to develop and publish the RNP 4 (PBN) Regulatory Approval process.**
- b) **IATA is urged to encourage airlines that have not done so to initiate RNP 4 approval process for their eligible fleets.**

2.2.4 ATFM operations to better monitor peak traffic hours by Cayenne airspace

In anticipation of projected increases in traffic along the EUR/SAM corridor, the DSNA commenced the modernization of Cayenne Control Centre in 2010, with key items being:

- Renovation of HF antennas
- New control Tower operational on June 17th
- Modernization of our ATM system CACAO (ADS C CPDLC) New version will be implemented summer 2016

- Progressive implementation of AIDC functions and PBN concept RNP10 in order to reduce separations
- A new radar display supplied by military radar.
- The experimentation of an ADS B image in 2016 (installation of 2 antennas this year)
- Resource plan to maintain controllers staff

Night traffic in Cayenne airspace

The main oceanic traffic flow over the EUR/SAM corridor crosses Cayenne airspace at night between 3 and 4 O'clock and 7 and 8 O'clock in the morning respectively during summer and winter seasons. The number of flights across Cayenne airspace varies between 25 and 40 and involves operations along fixed and well as flexible routings. The traffic flow is managed by a single sector air traffic control position manned by two controllers. The Cayenne control center (ACC) had experienced complex traffic patterns in 2014 which had necessitated the need for consultation and collaboration with adjacent FIRs and airspace users in order to better manage the traffic flow. Cayenne ACC currently has no tool for traffic prediction; therefore the DSN has proposed the establishment of a study group towards the development of strategic ATFM and predictability of traffic flow along the EUR/SAM corridor.

The objectives of the proposed study group are to:

- Decrease the points of conflicts
- Facilitate the climb of traffic cruising through the FIR
- Facilitate the management of conflicts by crossing traffic flows
- Minimize the workload of coordination

In anticipation of the potential impact of modifications to trajectories or procedures in the region by an introduction of ATFM, the DSN has submitted the following draft proposals to the neighboring control centers before the SAT20:

- SAL FIR: to organize coordination meeting with SAL to examine the constraints of orientating traffic flows; and to discuss the use of triple point (MOVGA);
- RECIFE Atlantico: to discuss proposed exit/entry point (SOOO/SBAO) with coordinates 43 W and 40W in order to accept converging traffic over SLI.
- Piarco TRINIDAD: to discuss the use of triple point with coordinates (13 30N 37 30 W).

The meeting endorsed the Collaborative Decision Making approach which Cayenne had adopted in reaching out to relevant stakeholders including adjacent ATC centres and airspace users (IATA) towards the establishment of Night Routes, and urged Cayenne to take advantage of the presence of representatives from the other FIRs at the SAT/20 meeting to start the consultation process.

The meeting in acknowledging the importance of ongoing efforts by DSN to collaborate with all relevant therefore stakeholder formulated the following conclusions:

Conclusion 20/07: ATFM operations to better monitor peak traffic hours

That

In order to improve safety and increase capacity, the Cayenne FIR and adjacent SAT FIRs in consultation with airspace users (IATA) are urged conduct studies towards the establishment of Night Routes in the Cayenne FIR and provide feedback to SAT/21;

Decision SAT20/08: Establishment of a EUR SAM regional ATFM study group

That,

The SAT ATM Group considers establishing a regional group to study the need for implementation of ATFM and CDM in the South Atlantic region.

2.2.5 ATM Contingency planning

The need for establishing an ATM Contingency Plan is a requirement in Annex 11 to the Chicago Convention.

The SAT group decided to establish an ATM Contingency Plan pursuant to the requirements of Annex 11 Attachment C. South Africa volunteered and took up the initiative to develop a Draft ATM Contingency Plan which was subsequently presented to SAT member States/FIRs for adoption or harmonization with individual national contingency plans.

The meeting noted that many States have already published individual ATM Contingency Plans and acknowledged the huge benefits to be gained by a well harmonized contingency plan, such as the one that ASECNA has developed for its FIRs and ATS units it manages. ASECNA accepted to assist by coordinating with the all relevant stakeholders in order to make progress on the task of harmonizing ATM Contingency Plans for the SAT area.

The meeting noted the need for progress on the task and renewed its commitment to the development and/or harmonization of ATM contingency plans for the SAT area and formulated the following Decisions and Conclusion:

Decision 20/09: ATM Contingency planning

That,

In order to coordinate the harmonization of national contingency plans with that of the SAT area,

- a) ASECNA liaises with South Africa to collate comments from SAT States on the Draft ATM contingency plan that was developed by South Africa and adopted by the SAT group; and coordinate the harmonization of contingency plans in the SAT area;**
- b) States that have not already done so are urged to nominate focal point and provide his/her contact details to task leader.**

Conclusion SAT20/10:

That,

States that have not already done so are urged to submit comments on the Draft ATM Contingency Plan for the SAT region to the task leaders South Africa/ASECNA.

2.2.6 EUR/SAM CORRIDOR AIRSPACE CONCEPT ACTION PLAN

The 38th ICAO General Assembly approved the edition of Global Air Navigation Plan (GANP) with Capacity & Efficiency as one of the Strategic Objectives for the period 2013 - 2018. The implementation of the GANP through the Aviation System Block Upgrades (ASBU) will enable modernization of aviation systems towards achieving global harmonization, capacity increase and the improvement in

environmental efficiency that modern air traffic growth is currently demanding in every region around the world. In this regard, PBN implementation was selected as one of the main activities to be complied with, in order to obtain improvement in safety and efficiency.

Advancements in aircraft avionics and air traffic management flight data processing systems have recently given credence to the analysis of whether the lateral and longitudinal separation minima applicable in the current EUR/SAM Corridor could be reduced to increase the capacity and efficiency of operations in the airspace.

In accordance with the ICAO PANS ATM Doc 4444, the distance-based separation minima values are 50 NM longitudinal or 30 NM longitudinal, 50 NM lateral or 30 NM lateral, provided that a set of requirements are met or exceeded. These requirements include the need that aircraft authorized for RNP-10 or RNP-4 airspace have direct pilot-controller voice communication or CPDLC, and provide ADS-C position reports.

The SAT Group decided in principle during the SAT 19 meeting held in Argentina in August 2015, the implementation of a new EUR/SAM Airspace Concept. The SAT Group also decided that the gradual implementation of the EUR/SAM Airspace Concept would allow States, Air Navigation Providers and users to work towards achieving the ICAO Safety and Capacity & Efficiency strategic objectives by applying ADS-C, CPDLC and PBN requirements.

As a follow-up on the SAT 19 Conclusion 19/17, Spain submitted a draft Action Plan with implementation roadmap for the establishment of New Airspace concept in the EUR/SAM Corridor. The Action Plan proposed a phased approach for the gradual implementation of the EUR/SAM Airspace Concept, which through the use of optimized ATS Routes and ADS-C, CPDLC and PBN capabilities, would allow for the reduction in lateral and longitudinal separation minima whilst enhancing optimum flight level allocation, and facilitate the gradual introduction of Free Route concept (based on DCT segments of routes).

3. The Action Plan is divided in a three-step phased approach:

- Phase 1: 50 NM Longitudinal Separation based on RNP10
- Phase 2: Data Link Mandate to apply 50 NM Longitudinal Separation based on RNP10
- Phase 3: 30 NM Lateral / Longitudinal Separation based on RNP4

Details of the Implementation Plan for the application of 50NM longitudinal Separation and 30NM Lateral/Longitudinal separation in EUR/SAM Corridor are in the proposed EUR SAM Corridor Airspace Concept attached as **Appendix E** to this report.

Brazil informed the meeting that Dakar Oceanic neither had surveillance radar nor VHF radio coverage and thus unable to implement 50 nm Longitudinal Separation in the EUR/SAM corridor. Senegal agreed with the observation made by Brazil and confirmed that the Dakar Oceanic is unable to apply 50 nm Longitudinal Separation now. Senegal indicated that Dakar Oceanic can only apply 10 minutes Longitudinal Separation now and emphasized that they are unable to implement 50 nm Longitudinal Separation before the end of 2016.

The SAT Group noted the need to learn from the experiences of other ANSPs that have implemented 50 nm Longitudinal/Lateral Separation and established similar airspace concept and thus requested the Secretariat to consider arranging for education of the subject.

The SAT Group endorsed the New EUR/SAM Airspace Concept in principle and reviewed the phases and milestones which had been proposed in the roadmap.

The SAT Group further noted the need for Regulatory Approvals for the New EUR/SAM Airspace concept and expressed concerns about the current lack of capacity of some State Regulatory authorities to effectively accomplish this task.

The SAT Group also identified the need to conduct a Safety Risk Assessment in accordance with the requirements in Annexes 11 and 19 and PANS ATM Doc 4444 and noted the need for further discussions in order to agree on how and who does the Safety Assessment for the implementation of the New EUR/SAM Airspace Concept.

Finally, the SAT Group agreed on the need for a Cost Benefit Analysis to be done for the new airspace concept.

The SAT Group identified the need for more knowledge on the required Technical Specifications in the implementation of the EUR/SAM airspace concept with 50 nm Longitudinal Separation and recommended, that Portugal in collaboration with the Secretariat, arrange for training to be provided on the various aspects leading to the implementation of the new airspace concept.

In considering all the issues abovementioned, the SAT Group noted that the milestone proposed in the roadmap are likely to change and acknowledged that new milestones would have to be agreed upon following further discussions on the implementation of the New EUR/SAM Airspace Concept and formulated the following Decisions and Conclusions:

Decision 20/11: EUR/SAM CORRIDOR AIRSPACE CONCEPT Action Plan

That,

- a) **The EUR/SAM corridor airspace concept presented by Portugal is endorsed in principle;**
- b) **Portugal is urged to review the airspace concept plan and roadmap including the proposed phases and milestones and provide more details on the required airborne and ground technical specifications;**
- c) **Portugal is urged to organize a teleconference to endorse improvements to the plan; and**
- d) **Portugal coordinates consultation with all stakeholders in the conduct of Safety Assessment, Regulatory Approvals, Training and Cost Benefit analysis as part of the implementation of the roadmap.**

Agenda Item 3: Communications, navigation and surveillance (CNS)

3.1 Follow up of SAT/19 Conclusions pertaining to the CNS field

3.1.1 Under this agenda item the meeting reviewed the conclusions and decisions of the SAT/19 meeting pertaining to CNS field as attached in **Appendix B2**. The meeting was updated by Angola Air Navigation Service Provider, ENANA on its ongoing projects to implement ADS-C/CPDLC system in the Luanda Oceanic Airspace in order to provide surveillance service and availability of data link communication, as well as the Luanda CAFSAT Station at the International Airport "4 de Fevereiro" with the view to provide availability of communication service through ATS/DS voice and AFTN/AMHS data circuits between Atlântico and Luanda ACCs.

ENANA also reported trials conducted on the recovered six VHF-ER remote stations together with a new VCCS, since February 2015 and planned to end on July 2015;

3.1.2 The meeting noted the delay experienced in **ENANA** projects and reaffirmed the urgent need for the ATS/DS circuit between Luanda and Atlántico and the necessity to expedite the implementation of ADS-C/CPDLC in the Luanda oceanic airspace in order to increase air navigation service safety capacity and efficiency in the SAT airspace.

The meeting encouraged ENANA to complete the implementation of Conclusion SAT19/11 which called upon Angola (ENANA) to expedite the completion of the installation of the CAFSAT VSAT project and establish the ATS/DS voice coordination circuit between Luanda and Atlántico ACCs no later than 31 December 2014.

3.1.3 The meeting examined the issues related to the missing Flight Plans and assessed the status of implementation of SAT Conclusions/decisions of previous meetings related to the matter such as SAT/18 Decision 18/ 03 calling upon for the establishment of local Missing Flight Plan Investigation Working Groups involving all stakeholders: ATCs, AIM, COM, Maintenance personnel. It was recalled the need for nomination of Focal Points responsible of the coordination of the Group activities and conclusion SAT19/13 urging SAT members to establish the investigation local group, implement the mitigation procedure and report quaternary to ASECNA, Team leader of Task 3 of the Work Programme of the SAT CNS/WG on the results of the mitigation action taken to minimize the loss of Flight Plans.

The following Decision was formulated:

Conclusion 20/12: Mitigation of missing Flight Plans

That;

Administrations/Organizations who have not done so establish the multidisciplinary local missing Flight Plans investigation groups including airlines and collect the data on missing Flight Plans to be sent to ASECNA for compilation with copy to their neighboring concerned centres.

3.1.4 Examining main causes of missing flight plan the meeting noted that many contributory sources of occurrence may have impact on loss of flight plans (technical, operational, procedural...). The meeting agreed that all stakeholders should play their role to tackle this issue of missing flight plans and proposed that airlines contributing to missing flight plans be identified by ACCs and information on their missing flight plans be notified to their representatives and to IATA.

The following conclusion was formulated:

Conclusion 20/13: Sensitization of airlines on missing Flight Plans

That;

SAT ACCs duly:

- a) **Identify airlines involved in missing Flight Plans and inform their representatives and IATA;**
- b) **Publish and share their statistics on missing flight plans.**

3.2 *Review of the performance of SAT CNS Infrastructure and systems*

3.2.1 The meeting reviewed the performance of SAT CNS infrastructure and systems and noted the progress made by members to maintain an acceptable level of service provision.

However, a large number of aircraft flying in lower airspace, mainly some light and medium aircraft from South America to West Africa and vice versa, were reported by Senegal as failing to maintain communication with ATC centres, thus leading to the activation of emergency phases.

The following conclusion was formulated:

Conclusion 20/14: Performance of CNS infrastructure

That;

SAT ANSPs ensure optimal performance of CNS infrastructure in order to maintain an agreed minimum level of quality of Air Navigation Service

3.2.2 The meeting assessed the quality of service of the air/ground data link through CPDLC operation and noted deficiencies occurring in the connection between ACCs and the Communication Service Provider when using the public commercial telecommunication medium to carry this service. It was agreed that the existing VSAT networks provide opportunities to ensure an acceptable availability of the air/ground data link to support ADS-C/CPDLC. The following conclusion was formulated:

Conclusion 20/15: Quality of service of air/ground data link

That;

ANSPs take opportunity of the existing VSAT Networks to ensure the availability of the air/ground data link to support ADS-C/CPDLC in particular:

- c) **Direct connection between the ACC and the Communication Service Provider hub via the VSAT Network;**
- d) **Conduct of statistics of performance and reporting**

3.3 Improvement of CNS system in the SAT Region (AMHS, AIDC, ADS-B)

3.3.1 The meeting discussed the status of implementation of AMHS by SAT members and noted the progress made in this area in the SAM and AFI regions. Based on the data available the Secretariat updated the AMHS implementation table as attached at **Appendix F**.

It was recalled that the objective of AMHS interconnection is to replace the current AFTN circuits by new AMHS links that permit the transmission of a greater number of information (ATS data) at a higher speed, through the satellite based networks (AFISNET, CAFSAT and REDDIG II).

The meeting encouraged SAT members to pursue their effort for the interconnection of AMHS systems taking into consideration the implementation date provided in the table.

The following conclusion was formulated:

Conclusion 20/16: Implementation of AMHS

That;

SAT ANSPs align their plan and projects of implementation of AMHS in accordance with the Table attached in Appendix F.

3.3.2 The meeting examined the status of implementation of AIDC by SAT members and updated the AIDC implementation table as attached in **Appendix G**. Trials were reported to have been conducted in the AFI region

It was recalled for the attention of the meeting, that the operational objectives of interconnection of AIDC systems between adjacent ACCs, are reduction in risks generated by errors in voice coordination between ACC centres and improvement in the planning and management of flights between FIRs.

The following conclusion was formulated:

Conclusion 20/17: Implementation of AIDC

That;

SAT ANSPs;

- c) **Consider ICAO SARPs and guidance to ensure AIDC capability for new ATM systems or**
- d) **Conduct with their manufacturer an assessment for possible update of their current ATM systems to be compliant with AIDC in accordance with the Table attached in Appendix G and accordingly implement AIDC as ATN ground/ground component**

3.3.3 Considering the CNS technologies roadmap which identified Voice over Internet Protocol (VoIP) as candidate to support the future voice coordination service in the framework of the ICAO Aviation System Blocks Upgrades (ASBU) concept developed in the Global Air Navigation Plan (GANP Doc. 9705 4th Ed.), the meeting reviewed the capability of ACCs' VCCSs to support VoIP.

The meeting updated the table of capability of VCCs to support VoIP and ANSPs to implement VoIP capability on their VCCs in accordance with the time frame of ICAO ASBU Block 0 to ensure the transition to a future IP based voice communication as planned in the ICAO Global Air Navigation Plan (GANP Doc. 9705). The updated table is presented at **Appendix H**.

The following conclusion was formulated:

Conclusion 20/18: Interconnection of VCCS

That;

ANSPs are encouraged to implement VoIP capability on their VCCs in accordance with the time frame of ICAO ASBU Block 0 to ensure the transition to a future IP based voice communication as planned in the ICAO Global Air Navigation Plan (GANP Doc. 9705)

Agenda Item 4: Communications, navigation and surveillance / Air traffic management (CNS/ATM) Systems (Plenary session)

4.1 Harmonization of ADS/CPDLC programmes

4.1.1 Review of the conclusions/decisions of the tenth SAT FANS 1/A Interoperability Team (SAT/FIT/10).

The meeting reviewed the conclusions/decisions of SAT FANS 1/A Interoperability Team (SAT/FIT/10) meeting held from 1st to 2nd June 2015.

SAT/FIT/10 developed three (3) draft Conclusions and five (05) draft Decisions that were endorsed by the meeting. The Conclusion and decisions of SAT/FIT/10 are attached at **Appendix I**

4.1.2 Interconnection of ADS-C systems

The meeting reviewed the status of implementation of ADS-C/CPDLC in the SAT area and acknowledged the efforts being made by Angola in addressing the safety concerns that were raised in previous meetings of the SAT Group, noting in particular, the implementation of ADS-C/CPDLC in the Luanda FIR.

The meeting further recalled previous discussions by the SAT group to work towards ensuring interoperability and harmonization of operations of the ADS-C/CPDLC systems in the SAT area.

In this regards, the meeting identified the need for awareness training on the functionality of the ADS-C/CPDLC system and opportunities inherent in the system which can be explored in order to enhance safety, capacity and efficiency of services.

The meeting was informed of the ongoing collaboration between ICAO WACAF Office and US FAA ATO to provide a training workshop to SAT States/ANSPs on the effective use of the GOLD. The meeting accepted the need for the workshop and urged States/ANSPs to participate and respond to a survey to be conducted by the FAA to determine the target audience for the workshop and identify the actual needs of the region by 15 September 2015.

In order to ensure the continuous system performance monitoring and maintenance and enhance efficiency in the provision of ADS-C/CPDLC services, the meeting urged EUR SAM States and ANSPs to investigate operational and technical issues identified in the SATMA/CFRA analysis report of 2014 on FANS services in the EUR/SAM corridor, take necessary actions to resolve the deficiencies and report investigation outcomes to the ATM and CNS Working Groups by next SAT FIT meeting.

4.2 Performance Based Navigation (PBN) in the South Atlantic

RNP4 in the EURSAM corridor

Sixty-Four percent (64%) of aircraft flying along the EURO SAM corridor had FANS 1A capability of which Fifty-Seven percent (57%) of them also had RNP4 capability. Both percentages were reduced to 51.3% FANS 1A and 38.5% RNP4 respectively when all the traffic movement in the EUR-SAM airspace (including those random routing and crossing the EUR SAM corridor), were considered in the analysis.

In addition, the analysis of flights just along the EUR/SAM corridor showed that the fleet of only 18 airlines constitutes 70.1% of aircraft with FANS 1A or RNP4 capabilities. Furthermore, the fleets for ten (10) of these airlines did not have both FAN 1A and RNP4 capabilities. In comparison, only 12 airlines constitute 73% of the total traffic in the EUR/SAM airspace. The fleet of seven (7) of these airlines did not have RNP4 capabilities.

Finally, Sixty-Three percent (63%) of the total flights in the Canarias FIR had FANS 1A capability whilst Fifty-Five decimal two percent (55.2%) had RNP 4 capability.

4.3 Review of the conclusions/decisions of CNMC/5 meeting

4.3.1 The meeting reviewed the conclusions/decisions of CNMC/5 meeting held from 1st to 2nd June 2015. CNM/5 developed eleven (11) draft Conclusions and three (03) draft Decisions that were endorsed by the meeting.

The Conclusion and decisions of CNMC/5 are attached at **Appendix J**

Agenda Item 5: Adoption of the conclusions/decisions of the SAT/20 meeting (Plenary session)

5.1 Under this agenda item, which was considered lastly, the meeting reviewed and adopted its conclusions and decisions. However, it was agreed that Secretariat will finalize and upload the report on

the ICAO SAM & WACAF Regional Offices Webpages.

Agenda Item 6: Future work programme

6.1 The meeting reviewed and amended the Terms of Reference and Work Programme of the SAT Group (ATM/WG, IAS/SG, and CNS/WG) as presented in **Appendix K** to this report;

The following decision was formulated:

Decision 20/19: Terms of References and work programmes of the SAT Group

That;

The Terms of Reference and Work Programme of the SAT ATM/WG, IAS/SG & CNS/WG are adopted as attached at Appendix K

Agenda Item 7: Any other business

7.1 The meeting examine the issue related to the future date and venue of SATFIT/11, CNMC/6 and SAT/21 meetings. Portugal kindly offered to host these events. The meeting expressed its gratitude to Portugal and tasked the Secretariat (ICAO Regional WACAF Office) to finalize with Portugal the date and venue and inform the SAT Group as soon as possible.

7.2 The meeting expressed its gratitude to Cote d'Ivoire government and Cote d'Ivoire CAA (ANAC-CI) for the hospitality, friendly welcome and assistance provided to all the participants during their stay in Abidjan.

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