



---

---

**SUMMARY OF DISCUSSIONS OF THE SOUTH ATLANTIC  
IMPLEMENTATION MANAGEMENT GROUP**

**SECOND MEETING**

*(Paris, France, 24 to 27 July 2023)*

**0. Introduction**

0.1 The Second Meeting of the South Atlantic Implementation Management Group (SAT IMG/02) was held at the ICAO EUR/NAT Office in Paris, France from **24 to 27 July 2023**.

0.2 The meeting was opened by Mr. Elkhan Nahmadov (Deputy Regional Director ICAO EUR/NAT Office) and Mr. Luis Tojais (SAT IMG Chairperson) who welcomed the SAT IMG participants to the EUR/NAT Office and highlighted the importance to harmonize operations, infrastructure and programmes over the entire Atlantic Ocean, including the South Atlantic.

0.3 The lists of participants and meeting documentation are provided in [Appendices A](#) and [B](#) respectively.

0.4 Mr. Luis Tojais (Portugal) chaired the meeting with support from Mr. Sven Halle, SAT IMG Secretary, from the ICAO EUR/NAT Office. Administrative assistance was provided by Ms. Leyla Suleymanova from the ICAO EUR/NAT Office. Remote attendance was provided to the ICAO colleagues from the WACAF, ESAF, SAM and NACC Regional Offices.

0.5 At its opening session the Group adopted the following agenda and agreed on the proposed work schedule:

**Agenda Item 1: Opening and review of latest developments**

- 1.a) Adoption of the Agenda
- 1.b) Latest significant international aviation developments
- 1.c) Review of action item list
- 1.d) Review the outcome of ESCIT meeting (Madrid, Spain, April 2023)
- 1.e) Review outcome of last meetings which are of relevance to the SAT IMG

**Agenda Item 2: Planning and implementation programmes**

- 2.a) States/ANSP updates including traffic figures
- 2.b) Airspace user update
- 2.c) AIDC implementation activity plan and associated implementation status/updates
- 2.d) Other issues

**Agenda Item 3: Airspace and ATS Route improvements**

- 3.a) EUR/SAM corridor improvements
- 3.b) AORRA (Atlantic Ocean Random Routing Area) developments
- 3.c) Other airspace or ATS Route improvement activities

**Agenda Item 4: SAT documentation**

- 4.a) Update SAT Doc 002 (SAT Contingency Plan) developments

**Agenda Item 5: Any other business**

- 5.a) Future work programme and follow-up actions
- 5.b) Next meetings
- 5.c) Report to the next SAT SG meeting

**1. Opening and review of latest developments**

1.1 The Group noted that 28 working papers, 8 information papers and 1 presentation had been prepared and submitted for discussion at the SAT IMG.

1.2 The Group supported the proposed amendment of agenda item 5 to address the SAT IMG and SAT SOG related coordination aspects. The Group also agreed that the SAT IMG - SAT SOG coordination should be a permanent agenda item for future SAT IMG meetings.

1.3 The SAT IMG action item list and decisions table were reviewed and completed action items were deleted.

*1b-e) significant international aviation developments and outcome of meetings with relevance to the SAT IMG SAT SOG/01 meeting*

1.4 The Group noted the outcomes from the 1<sup>st</sup> Meeting of the South Atlantic Safety Oversight Group (SAT SOG/01) which was held from 13 to 17 March 2023 in Miami, Florida, United States. The SAT SOG/01 addressed the implementation of the SOG work plan, the RMA database and common repository, the SAT air traffic statistics, the collision risk assessment and large height deviations (LHDs), safety training and workshops. The SAT SOG highlighted the need for synchronisation of the IMG and SOG work programmes and several Project Teams (SAT OESB PT, SAT Annual Safety Report PT, SAT RMAs harmonisation/standardisation PT were established). The SAT SOG discussed the PBCS implementation aspects and raised a question on the (Action SOG 01-05) on the definition of the SAT airspace. The next SAT SOG meetings have been tentatively scheduled for 6 to 8 November 2023 (virtual) and from 15 to 19 April 2024 (in Sao Paulo, Brazil).

*NAT IMG/62 meeting*

1.5 The Group noted the presentation on the main results from the 62<sup>nd</sup> meeting of the North Atlantic Implementation Management Group (NAT IMG/62) which was convened at the ICAO EUR/NAT Office in Paris, France from 9 to 12 May 2023 and especially the endorsement of the operational 15 NM TtT trial in Reykjavik CTA, the NAT 2030 vision aspects, the work on the Oceanic Clearance removal (OCR) PT activities, the NER PT discussion on Commercial Space Operations, the timeliness of PBCS monitoring and reporting, the establishment of several Project Teams, the outcome of the flight level usage above FL410, the publication of NAT documentation (NAT Docs and OPS Bulletins), the update of the work programmes and the schedule of the next meetings.

*Outcome of the EUR/SAM Air Space Concept Implementation Team ESCIT/03 meeting*

1.6 The SAT IMG was informed about the outcome of the 3<sup>rd</sup> EUR/SAM Air Space Concept Implementation Team (ESCIT/03) meeting which was organised in Madrid, Spain from 24 to 26 April 2023.

The main topics were related to assessing and improving the air navigation system capacity and efficiency within the EUR/SAM corridor. The meeting discussed the EUR/SAM air traffic evolution overview and it was highlighted that due to the lack of usable flight levels in the EUR/SAM corridor over a 30% of traffic do not get their requested flight level. The planning and implementation status for ADS-B and PBCS implementation was presented by Spain, Brazil, ASECNA and Cabo Verde and a 2 phase implementation plan (50 NM / 5 min separation based on RNP10/RNP4 in accordance with ICAO Doc 4444) for 2025 was proposed. The meeting also discussed the application of the Mach Number Technique in the EUR/SAM corridor and it was agreed to apply the Mach Number Technique in a similar way as it is used in the NAT airspace, which would offer the introduction of reduced longitudinal separation in the short term. The revision of the Letters of Agreement had not been progressed by the involved States and therefore the following SAT IMG Decision was agreed

<b>Why</b>	To harmonise the application of the Mach Number Technique in the EUR/SAM corridor
<b>What</b>	That all ANSPs in the EUR/SAM corridor amend and update their individual Letter of Agreements so that the application of the Mach Number Technique in the EUR/SAM corridor can be amended accordingly.
<b>Who</b>	Spain, Brazil, ASECNA and Cabo Verde
<b>When</b>	Update of all LoAs before 30 September 2023

### **SAT IMG Decision 02/03 – Update all Letters of Agreement for a harmonised application of the Mach Number Technique in the EUR/SAM corridor**

That, all ANSPs in the EUR/SAM corridor amend and update their individual Letter of Agreements so that the application of the Mach Number Technique in the EUR/SAM corridor can be amended accordingly.

#### *ICAO UPDATE*

1.7 The Group was provided with an information paper about the recent significant international aviation developments, including the latest amendments and proposals for amendment to ICAO Annexes and Procedures for Air Navigation Services (PANS), the distributed State letters and Electronic Bulletins, as well as other publications (e.g. ICAO Documents, Manuals and iPacks). The Group also took note of the upcoming ICAO meetings at global and regional levels (hybrid meetings), as well as the planned regional and Global Aviation Training (GAT) courses. During the discussions on the regional activities, the Group agreed to contact the AIM/SWIM Team of the EUR Region for sharing best practices and guidance on the AMHS implementation at the next IMG meeting. (Action Item 02-02)

## **2. Planning and Implementation Programmes**

### 2a-b) State/ANSP reports and airspace user updates

2.1 The Group noted the report from **South Africa** which indicated that the traffic figures for the Johannesburg Oceanic airspace remain low at 46% of the 2019 traffic figures. The total air traffic movements comparison between November 2022 up to and including June 2023, indicating a steady growth trend in line with global recovery and the resultant growth in air travel demand following COVID-19 pandemic. It was also noted that while the global and regional pre-COVID 19 forecasts reported that global traffic is projected to double by 2030 and that the SAT region likely to experience significant increases, the reviewed South African forecast for air traffic figures (ATNS) and aircraft movements (airports company SA) showed steady recovery post COVID, however significantly below the pre-COVID 19 anticipated growth. The IMG noted that ADS/C and CPDLC operating fleet within Johannesburg Oceanic equipage levels are at 100%, the fleet equipage levels for ADS-B and Mode S, the delay in the PBCS implementation planning (start in April 2024), the migration to RNP4 which will start in April 2024, the implementation of the AIDC connection between the Johannesburg Oceanic and Mauritius FIR which became operational in April 2023, the problems with VHF coverage in oceanic airspace, the establishment of a REDDIG II note in Johannesburg in May 2023 which will enable

AIDC connection to/from the South American FIRs, the problems with coordination failures between Johannesburg and Luanda ACCs, the plans for space based ADS-B implementation and the ATM contingency plan review activities.

2.2 The Group was informed by **Spain** on the South Atlantic Regional Monitoring Agency (SATMA) statistical data collection (in accordance with the SAT IMG/01 Decisions 01 and 02) which presented traffic data for 2022, the traffic numbers per aircraft operator, flight level distribution, not planned RFL, traffic load, traffic distribution per ATS Route, main traffic flows, aircraft types, equipment percentages for the EUR/SAM corridor, as well as for each of the FIRs (Canarias FIR, SAL FIR, Dakar Oceanic FIR, Atlantico FIR). In addition, an expansion of the horizon for traffic figures monitoring (by using the EUROCONTROL Demand Data Repository) has been carried out in the EUR/SAM corridor/west/east areas and forecast traffic figures were presented for 2025. During the discussions several aspects, such as the harmonisation of data sources, the problems with the use of flight level data from the flightplan, the access to real data (data derived from ATM systems) from the ANSPs, the source of RSP/RCP data which is normally not included in the flightplan were discussed. The Group also highlighted the need for a clear definition of the SAT airspace with an associated map (Action Item 02-01) and that the data has to come directly from the State's publication (AIP-AICs-NOTAMs). The Group also agreed that the not planned RFL tables in the SATMA report should not be maintained as they are derived from flightplans and do accurately reflect the optimal FL that the flight crews would like to get/fly/operate. (Action Item 02-03). In addition, SATMA presented a supplementary paper on various use case scenarios (e.g. traffic in the EUR/SAM corridor which is not CPDLC equipped, traffic without PBCS, traffic with both PBCS RSP240/RCP180, traffic load scenarios) which had been developed from the collected data for the EUR/SAM corridor. The SAT IMG members were invited to consider this possibility and to contact SATMA for the creation of specific use cases/scenarios which would support implementation activities in the EUR/SAM corridor (Action Item 02-04).

2.3 The Group noted the information from **Ghana** for the Accra Oceanic Airspace which has become a preferred airspace for East African and Middle East aircraft operators. The quarterly traffic figures had been growing steadily and were approaching pre-COVID levels within the Accra FIR (25.3% oceanic flights and 74.3% flights between Accra and Atlantico). The report also included details on data link (CPDLC and ADS-C providing 100% coverage over the Accra FIR and 67% of aircraft which are operating over oceanic airspace are data link equipped), the three installed ADS-B ground stations (each with 250 NM range for coverage, except for the southwestern part of the airspace. Aircraft equipage rate with ADS-B is 74%) and the limited VHF coverage in the oceanic airspace (installation of additional VHF station in Sao Tome). The regulatory framework for the PBCS approval process has still to be established and the data gathering for the transition from RNP10 to RNP4/RNP2 is still ongoing. The IMG noted the status of AIDC and AMHS implementation with the adjacent ATSU (connections with Ouagadougou and Niamey have been established, but LoAs have not been updated/signed yet). The IMG discussed the encountered challenges (e.g. lack of training for operational and technical personnel, missing flight plans, message format errors) and noted the migration to the new Air Navigation Complex in which the current ATM system will be upgraded to a new version of the Indra (MANAGE AIR) system. The Group was informed about the status of FRA implementation, the AFI SSR Code Allotment and Assignment Review (ASCAAR) concept implementation and the civil/military cooperation activities (establishment of a Civil-Military Collaboration, Coordination, and Cooperation Committee). Based on the current trends of traffic flow into the SAT region, a proposal to amend the AFI contingency routes for Accra FIR has been made. Discussions on the continuity of the routes in Abidjan FIR are ongoing and will be included into the work of the SAT CPR PT.

2.4 **Portugal** informed the Group about the latest updates and developments in Santa Maria OACC, including traffic numbers and information on implementation activities. The traffic figure have shown a consistent trend with 13.6% above the 2022 levels and 6.2% above the pre COVID 2019 levels. Space Based ADS-B has been implemented in the entire FIR on 14 June 2023 and showed already notable impact on operations, particularly in situations of weather deviations. ATC is applying 17NM longitudinal, and 19NM lateral separation minima between PBCS aircraft, with ADS-B and CPDLC. Santa Maria will apply the 15NM Track to Track Separation (which will be introduced by ICAO Doc 4444 from November 2024) and is considering to join the trial conducted by Iceland. This will allow controllers to have more consistent application of separations throughout the entire airspace, instead of having different separation methods in different parts of the airspace. The Group noted the equipage figures for PBCS, ADS-B, RNP4, CPDLC and

ADS-C in which the PBCS numbers are affected by the traffic between the Azores and the mainland, that are mostly non PBCS certified. The percentage not considering those flights is considerably higher, and most of the traffic is in fact benefiting from reduced separation minima. The Group also noted the AIDC activities, the transition from OLDI to AIDC between Santa Maria and SAL FIRs, the transition from AFTN to AIDC between Santa Maria and PIARCO FIRs which aim to increase the harmonisation in the NAT and SAT areas.

2.5 **ASECNA** gave a presentation to the Group which provided not only statistical data on traffic movements and performance projections for the Dakar Oceanic FIR, but also updates on planned changes to the ATM/CNS infrastructure, including percentages for aircraft equipage. The Group noted the upward trend in traffic figures for Dakar Oceanic FIR and the traffic distribution (on the unidirectional RNAV routes (UN741 and UN866) and bidirectional routes (UN873 and UN857) and the Atlantic Ocean Random Routing Area (AORRA) airspace with 10 min longitudinal separation and Mach Number Technique) in the EUR /SAM corridor from January 2023 to June 2023. The trends on fleet capability (PBCS, ADS-B, RNP4, CPDLC) assessment were presented as well as CPDLC actual communications performance data and ADS-C downlink latency data. The Group noted the analysis on flight level occupancy (the most requested FL in Dakar Oceanic FIR is FL370 and 25% of flights were cleared to or below FL340) which indicated that, based on the extraction of CPDLC data the acceptance rate for climb requests in the Dakar Oceanic FIR is 98.90%. These study results supported the previous discussion for the need to have a different source for the flight level efficiency than the data from the filed flight plan. The Group noted also the actual implementation status of CNS/ATM concepts in the Dakar Oceanic airspace. IATA requested additional details on the ASEPS implementation and it was stated that SB ADS-B data is currently used as additional surveillance data but that a project has been launched for the full ASEPS implementation. Spain commented on the difficulties in the transition to/from radar to procedural separation standards and the Group discussed how the RNP4 equipage figures could be increased from the current 83% value.

2.6 The Group took note of an update from the **United States** in which New York Center saw a significant increase in traffic from 2021 to 2022 and for the first time since the pandemic, the traffic figures for August and November 2022 were higher than the pre-pandemic numbers for 2019. The overall figures for 2022 are at 93.5% of the 2019 values. The Advanced Technologies and Oceanic Procedures (ATOP) system at New York Air Route Traffic Control Center is now operational and stable on the latest software release, referred to locally as T-28. The next major software release, T-29, is scheduled for installation in New York in September 2023. Some features contained in the T-29 release are an increase from 600 to 800 active flight plans, 23NM Lateral Separation, and application of reduced separation prior to the AFN connection being established. This will allow New York Center to accept coordination on flights using reduced separation from neighbouring ANSPs (oceanic & domestic). Significant progress has been made toward the implementation of AIDC between New York and PIARCO ACC. Multiple real-time tests have been performed between the two facilities utilizing the FAA's test facility in Atlantic City and resources onsite in PIARCO. AIDC messages between the facilities have been send and most of the message formatting issues have been addressed. The facilities are discussing what AIDC functionality to implement along with procedures and LOA changes to facilitate implementation The United States Datacomm program has completed implementation at Miami Center. In January 2024 New York Center plans to step up to the T-30 ATOP release. Some features contained in the T-30 release are logic to address the rejection of quick uplink messages and logic to identify incorrect time entered into the coordination window. New York will also implement the latency monitor once operational on the ATOP T-30 software release.

2.7 The Group noted the report from **Brazil** which included statistical data of traffic movements, performance and projections for the Atlantico FIR (SBAO FIR). The average daily movement in SBAO FIR before the COVID-19 was around 160 flights per day, resulting in a total of 59476 flights over the area at the end of 2019. In 2022, the last full year of the series, even with some restriction measures applied, the average remained rising, reaching 121 traffic per day and totaling 44140 traffics at the end of the year, an increase of 166% compared to the previous year and more than 74% compared to the pre-pandemic period. A study from 2021 Brazil ATM Performance Report brought the data of the graph below with the forecast for the recovery demand for the next 05 years after pandemic. The more realistic forecast for the Atlantic FIR (SBAO) indicated that the recovery from the 2019 movement should only be seen after 2026. However, the current outcomes for 2022 proved to be beyond the optimistic version, with a much higher volume. The prediction was around

41899 flights, but in reality, there were 44140 flights. ADS-C is currently supported by FANS 1 (Boeing) and FANS A (Airbus) airborne systems, using communications via geostationary satellites. Recently, a ground-to-air datalink infrastructure was deployed, based on VDL Mode 0 (POA) and VDL Mode 2, which allows the provision of several ground-to-air applications (DCL, D-ATIS, DVOLMET) to users, in addition to the availability of CPDLC and ADS-C in the ocean area via satellite. This infrastructure will also support the operationalization of CPDLC in continental airspace. In the future, the deployment of ADS-C by using HFDL, low orbit satellite systems envisaged for AMS(R)S, as well as ATN-based systems should be analyzed by DECEA. Based on the ACARS protocol and VDL Mode 2, Data Link Communication services continue to be carried out in SBAO FIR and may migrate to IP in the future. The Brazilian PBCS project has been delayed due to the Covid-19 pandemic, detailed deliverables were presented and the implementation is planned for December 2025. The implementation of AMHS and the interconnection with neighboring countries already have the capacity to connect with all the States of the SAM Region through the Aeronautical Message Handling Center of Brasilia (CTMA-BR) and it has connections with Europe, North America and Africa. ACC Atlantico coordinates via AIDC with all neighboring adjacent Brazilian FIRs (Recife ACC, Amazonico ACC and Curitiba ACC). With the Adjacent International FIRs, the first arrangement for implementation started at the end of 2021, with Dakar Center. Technical trials started in January 2022 and implementation was expected to end of 2022. However, due to technical inconsistencies, it was re-planned for the third quarter of 2023. The transition of the systems and subsystems that will integrate the Aeronautical Telecommunications Network (ATN) through ATN routers has already started, including AMS(R)S, VDL and HFDL, among others. Brazil established robust and functional civil/military coordination platforms with an emphasis on collaborative decision-making. These include collaborative ATM/CNS implementation planning and national airspace planning and coordination ensuring fair access to user, as for example enabled by the implemented flexible use of airspace managed by the ATS Central Airspace Management Unit (CGNA). The Brazilian ATM Contingency Plans were reviewed. Level 2 and 3 contingency routes were updated and coordinated with all SAM adjacent FIRs (harmonisation will continue in the South Atlantic Contingency Plan Review Project Team with adjacent FIRs from AFI Region and others from the SAT area).

2.8 The IMG was informed by **Cabo Verde** that due to delays in the ATM system modernisation, the AIDC-related implementation activities are planned to restart at the end of 2022. The new ATM system (MANAGE AIR from Indra) is fully functioning since the end of June 2023 after a successful transition period. The Group noted the current and future developments for Communication (use of CPDLC as a primary mean of communication in the portion of the SAL FIR airspace between TUTLO and the route UN741, use of VHF as a primary mean of communication in the remaining portion of SAL FIR airspace, use of HF as an alternative mean of communication, implementation of SATCOM as an alternative mean of communication in 2023) and Surveillance (use of Secondary Surveillance Radar as primary means of surveillance, use of ADS-C, implementation of ADS-B with Site Acceptance Test planned for September 2023). The Group noted the different (verbal-OLDI-AIDC) coordination mechanisms with the neighboring FIRs and the planned AIDC transition with Santa Maria and Dakar ACCs. AMHS had been implemented at national level and a contract has been signed with an international company to provide AMHS at international level to replace AFTN. Trials conducted in the EUR/SAM Corridor a few years ago confirmed SAL FIR capability to comply with RCP240 and RSP180. The new ATM system is now able to analyse, monitor and report PBCS data and RNP4 will be implemented once the PBCS requirements are met. Although not officially published, tactical Free Routing is applied within SAL FIR. The Group was informed about a proposal that ATS routes UN741 (Southbound only) and UN866 (Northbound only) could be changed from unidirectional to bidirectional, since the amount of traffic handled in those routes is not considerable and the discussion on this topic was referred to agenda item 3.

2.9 At the end of the presentation of the State/ANSP reports the Group proposed that any interoperability or ATM coordinated related issues should be included into future reports for appropriate discussion at the IMG meeting. (Action 02-05)

2.10 SAT IMG members were invited to submit their State/ANSP reports, even if they could not attend the meeting, in order to allow the distribution of important information and coordination of ANS related developments within the SAT FIRs. (Recurrent Action R1-01)

### 2c) AIDC and/or AMHS implementation updates

2.11 The Group was presented with status updates on the AMHS implementation within ASECNA and especially the interconnections with Senegal and Cote d'Ivoire which became operational in 2023. The AMHS migration plans for Senegal - Cabo Verde, Senegal –Spain, and Senegal-Morocco are ongoing. The migration for Cote d'Ivoire- Ghana is expected to be completed by the end of 2023. Spain reported that a technical project Memorandum of Cooperation (MoC) was signed and that the expected migration date could be in Q2 2024.

2.12 ASECNA also informed the Group about the status of the interconnection between CAFSAT with other VSAT networks. The interconnection operation of these various networks allows AFI Region to be provided with the suitable support for CNS and particularly ATN components implementation. The operational requirements on Voice over IP (VoIP), ATS Message Handling Systems (AMHS), ATS Interfacilities Data Communication (AIDC), extended VHF coverage and Surveillance Data sharing (SSR, ADS-C), indicate that the interconnection of AFISNET with its neighboring network has become a great challenge for SNMC and CNMC in terms of insurance of interoperability. The ongoing project on the AFISNET re-engineering process, including all the network components (Satellite access architecture, topology, protocols, equipment, management) under SNMC coordination, will allow to support all future news services without any constraint.

2.13 Brazil shared information regarding the AIDC implementation status between Atlantico and Dakar ACCs. As both Centres already have experience in the field and the technical-operational knowledge of AIDC implementation with other Regions, 5 main deliverables for both ATC facilities were defined for the project. The project started in December 2021 and first technical tests began in January 2022. After the resolution of technical inconsistencies within the 2 ATM systems in June 2023, the revised LoA has now been circulated and the implementation is now planned in Q3 2023. Senegal remarked that it could be beneficial to engage the ATM system manufacturers into the discussions when technical inconsistencies need to be resolved. The Secretariat was invited to collect all the information from the planned implementation activities and to update the implementation status table for the next SAT IMG meeting (Action 02-06).

2.14 An introduction to the Satellite Based VHF Concept was presented by Spain to the IMG. The Space-based VHF communication is a concept in which aircraft operating in remote regions and oceanic areas continue to communicate seamlessly with air traffic control (ATC) via satellite-based VHF relay and using the same equipment and the same operational procedures. This concept, when implemented in oceanic areas, is expected to support air traffic management by extending traditional ATC methods over the ocean in place of existing procedural methods. A detailed introduction into the operational benefits, the PBCS (RCP and RSP) enhancements, the operational procedures based on new datalink services, the safety benefits and the new operational ATCO procedures were discussed. However, when considering the growing requirements for more and more datalink communications for an increased ATC and AOC automation, the protection of aeronautical frequency bands (AMS(R)S in the whole aeronautical band 117.975-137 MHz, including full 136-137 MHz sub band where datalink services are provided) must be secured at the ITU WRC23 at the end of this year. Therefore the Group agreed to the following action item (Action 02-07):

***SAT members to contact their national authorities on the proposed frequency allocation aspects and to support the AMS(R)S B1 method (including data link functionality) for agenda item 1.7 at the next ITU WRC 23***

2.15 The ICAO SAM Office presented a working paper on the implementation of a REDDIG II (MPLS) node in Johannesburg, improving the communication between the Johannesburg Oceanic ACC with the ACCs of SAM Region. REDDIG II is a complete meshed IP network and any communication can be established between the participating nodes, needing only coordination between the interested participants and the REDDIG II Administration (by the SAM Office). Considering that there are already REDDIG II nodes in Trinidad & Tobago (PIARCO), French Guiana (Cayenne), Brazil (Recife), Uruguay (Montevideo), Argentina (Ezeiza), Spain (Madrid) and South Africa (Johannesburg), it could be interesting for ASECNA to implement a REDDIG node (MPLS) in Dakar/Diass, to maintain communications with CAR/SAM States (and other States/Organizations) with less costs involved. South Africa shared additional experience on the recent implementation and re-establishment of voice and data communication services between Ezeiza ACC and Johannesburg ACC since April 2023, via the SAM Regional Digital Network (REDDIG II MPLS).

2.16 ASECNA stated their position that they are not supporting the proposal to install a REDDIG II node in Dakar, as the existing AFI networks (AFISNET, CAFSAT and NAFISAT/SADC2) provide the required interconnectability and interoperability via VSAT between the various Regions including EUR/SAM. In addition, ASECNA pointed out that REDDIG II network is built on MPLS technology (making it dependent on an outside operator with all possible consequences and cyber-security challenges) whereas the VSAT technology is built on secure point-to-point (SCPC) and point-to-multipoint (MCPC) links.

2d) other issues including PBCS

2.17 Spain presented a status update of PBCS implementation within Canarias FIR and provided details regarding results of PBCS implementation status survey in Canarias from March 2020. All the different implementation tasks were marked with a 2025 date and further detail was expected for the next ESCIT/04 meeting.

2.18 The Group noted the presentation from ASECNA on the current status of ADS/B and PBCS implementation within the Dakar Oceanic FIR, together with detailed information on the results of the PBCS implementation status survey conducted in Senegal. The space-based ADS-B surveillance system has been operational within the Dakar Oceanic FIR since May 2022 and provides comprehensive coverage of the Dakar Oceanic FIR, extending up to 50 nautical miles beyond its boundaries. In accordance with the APIRG 22 Conclusion 22/13 (Adoption of RCP240 and RSP180 for PBCS operations in the AFI Region) some implementation activities have been started and PBCS monitoring was performed in Q1 2020 and Q1 2023. A planning team is envisaged for the development of the required material and for the support of the implementation.

2.19 The Group took note of the study results from Brazil, which performed a detailed study of the datalink performance in Atlantico ACC in order to verify whether the data link communication performance meets the RCP240 and RSP180 requirements for communication and surveillance. The study of the performance of the datalink communication in FIR-SBAO was carried out based on the log files of the SAGITARIO Data Processing and Visualization System (STVD) used in Atlantico ACC. These files are recordings of the information sent and received between the air traffic control equipment and the datalink provider, which is responsible for closing the data link with the aircraft. In the case of FIR-SBAO, the link between the data link provider (CSP) is via satellite. This is important, since satellite communications have a longer latency time than communications by ground stations with direct view. For the first period, from August to September 2022, the RSP protocol surveillance data (Latency analysis of surveillance data) was analyzed. For the second period, from March to May 2023, the focus was on RCP reporting data (Communication response time analysis). Based on the analysis carried out with a view to the use of the datalink in FIR-SBAO, to reduce separation between aircraft, it is found that the surveillance and navigation parameters are met, based on the RSP180. For the communication parameters, they are very close to RCP240, however, there is a need for further operational study on the Pilot/ATCO response time, while it is not in compliance with GOLD and DOC 10063. The Pilot/ATCO response time should be analyzed based on the flight scenarios.

2.20 During the discussion, the need for a harmonised implementation approach was highlighted and that detailed implementation plans with the involvement of all stakeholders (CAA/Regulators, ANSPs, Aircraft operators, ATS manufacturers, etc.) must be prepared before an implementation date can be defined. IATA remarked that it would be very beneficial to consider the PBCS implementation experience from the NAT Region, which had developed a Regional implementation plan with associated task list for all involved entities to support a harmonised implementation. Therefore the Group decided that a project team should be established which would collect all the data from the NAT PBCS implementation and which would work between the SAT IMG meetings:

<b>Project Title</b>	SOUTH ATLANTIC PBCS IMPLEMENTATION SUPPORT PROJECT TEAM SAT PBCSIS PT
<b>Parent Group</b>	SAT IMG



<b>Project Supervisory body</b>	SAT SG ?
<b>Project Period</b>	September 2023 – up to IMG/03 meeting
<b>Project Objective</b>	- To use best practices from the NAT PBCS implementation in 2017 for the development of a combined implementation plan, task list and timelines/action items, to support the harmonized implementation of PBCS and use of the related PANS-ATM separation minima in the South Atlantic.
<b>Project High Level Tasks</b>	<ol style="list-style-type: none"> <li>1. To collect all necessary material from the NAT PBCS implementation</li> <li>2. To develop a comprehensive PBCS implementation plan, task list and timelines/action items</li> <li>3. To determine to whom the individual tasks (including delivery timelines) will be assigned to</li> <li>4. To include the ANSP plans for the transition to the related PANS-ATM separation minima</li> <li>5. To present the plan for endorsement at the SAT IMG meeting</li> </ol>
<b>Membership</b>	SAT IMG members and observers. Note: Other subject matter experts may also participate, as deemed appropriate by the Project Team.
<b>Coordination Requirements</b>	Series of virtual meetings Coordination with SAT SOG
<b>Project Outcomes</b>	Integrated SAT PBCS implementation plan with task list and timelines/action items for all involved stakeholders (e.g. airspace user, CAA/regulators, ANSPs, international organisations)
<b>Project Lead</b>	SAT IMG chair together with a nominated chairperson from South Africa (ATNS)
<b>Project Secretariat Support</b>	SAT IMG Secretariat

<b>Why</b>	To support the harmonized implementation of PBCS and use of the related PANS-ATM separation minima in the South Atlantic
<b>What</b>	Establishment of a SAT PBCS Implementation Support Project Team.
<b>Who</b>	ICAO Secretariat
<b>When</b>	September 2023

### SAT IMG Decision 02/01 – SAT PBCS IMPLEMENTATION SUPPORT Project Team

That, a Project Team be established in order to develop a combined implementation plan, task list and timelines/action items, which will support the harmonized implementation of PBCS and the use of the related PANS-ATM separation minima in the South Atlantic.

2.21 In follow up to the SAT IMG/01-03 decision and as not all States had responded on the PBCS survey, the Group agreed to invite the remaining States to complete the survey and present the obtained results at the next SAT IMG/03 meeting.

2.22 The Group also agreed that any AMHS and/or AIDC implementation activities should be reported at every SAT IMG meeting either as part of the State/ANSP report or as an individual working paper. (Recurrent Action R1-02).

### 3. Airspace and ATS Route improvements

#### 3a) *EUR/SAM corridor improvements*

3.1 As a follow up to the presentation from Cabo Verde, the SAT IMG chairperson presented a proposal for increasing the efficiency of the EUR/SAM corridor, which had been discussed at the last ESCIT/03 meeting. The proposal was to make all 4 ATS Routes in the corridor bidirectional, instead of the current structure, with 2 one directional routes, UN741 and UN866, and 2 bidirectional routes, UN873 and UN857. With the current traffic distribution very uneven (one of the routes UN873 accounting for more than half of the traffic figures) having all 4 routes bidirectional, would provide more options for operators, with potential fuel consumption and emission reductions, while at the same time relieving the busiest route and allowing for a more even distribution of traffic. In the discussions, the Group recalled that all ATS Routes were bidirectional routes 15 years ago. ASECNA explained that with the changes of traffic flows in the last years ATCOs want manage crossing traffic and allow the integration of random traffic into the EUR/SAM corridor routes. IATA stressed the need for modernisation of the airspace structure (flexibility of routings must increase, more routes in the EUR/SAM corridor, better flight levels, integration of new flows from northern Europe and UK). Brazil stated that they would need to study first the effects of any ATS Route changes in the EUR/SAM corridor. During the discussion, it became clear that the proposed changes could be feasible for one ATS Route. and therefore the following SAT IMG Decision was agreed:

<b>Why</b>	To increase flight efficiency in the EUR/SAM corridor by changing ATS Route UN866 into a bi-directional route
<b>What</b>	That all ANSPs in the EUR/SAM corridor study the proposal from Cabo Verde to change ATS Route UN866 into a bi-directional Route and consider also the effects for traffic flows crossing the EUR/SAM corridor.
<b>Who</b>	Spain, Brazil, ASECNA and Cabo Verde
<b>When</b>	Either as part of ESCIT/04 or as a series of individual meetings Study report to be presented at SAT IMG/03

#### **SAT IMG Decision 02/02 – Change of ATS Route UN866 into a bi-directional Route**

That all ANSPs in the EUR/SAM corridor study the proposal from Cabo Verde to change ATS Route UN866 into a bi-directional Route, consider the effects for traffic flows crossing the EUR/SAM corridor and report back to SAT IMG/03.

3.2 Brazil presented results from a comprehensive study on the Flight Level utilization in the Atlantico FIR (EUR/SAM corridor) which was performed in the first quarter of 2023. The analysis also included the traffic behavior in SBAO FIR regarding the flight levels utilization on regular flights and during adverse weather conditions. A total of 7095 movements on the airways within the EUR/SAM corridor (UN741, UN866, UN873 and UN857) were analysed and over 61% of the traffic performed their flight at the optimum level as required for the route. FL380 was the most requested level in FPL for the airways within the EUR/SAM corridor. About 64% of aircraft flew in accordance with its FPL, leaving almost 36% flying at different levels. Meanwhile, among the aircraft flying divergence - outside the optimum level, about 22% flew above FL380 and about only 14% flew below the FL380. In total, 82% of traffic have flown at its optimal levels. The flight levels within a difference of 1000 feet, above or below, FL390 and F370 respectively, amounted to an utilization percentage of 26.5%. The levels with a 2000 feet difference received the highest volume of the sample, with level FL360 which was more frequently used, with a 36.5% utilization percentage. The FL400

was used by 28% in total. In addition, CPDLC flight level clearances/requests have also been analysed in the study. The first collection was for level change requests and authorizations under normal conditions, and the second, under adverse weather conditions reported by the pilot. 707 flight level change requests (700 climb and 7 descend) were submitted and 97% of the requests were approved by ATC. In adverse weather conditions, 178 level change requests were submitted, 128 were approved and 28 had to be declined due to conflicting traffic. Almost half of the aircraft, 93 (52.2%), were occupying the flight level proposed in the FPL. The other half corresponded to 85 (47.8%). Among those that were not maintaining the optimum level, 48 (27%) were maintaining higher levels, while 37 (20.8%) were at lower flight levels. The Group thanked Brazil for this excellent analysis which showed similar figures (97-98%) for FL change approvals as Dakar Oceanic. The Group reemphasized the position that the data for the optimum Flight Level usage cannot be derived from the flightplan. The Group confirmed that the only correct comparison should be based on the actual requested FL vs the actual (assigned/cleared) Flight Level. The Group also requested additional details from IATA on why the aircrews are requesting different FLs from the ones in the flightplan. For additional analysis and confirmation of the trends in the reports from ASECNA, Brazil - Spain and Cabo Verde were invited to collect Flight Level utilization data (e.g. a monthly traffic data sample for 2nd half in 2023) at the entry into the EUR/SAM corridor (requested FL vs assigned FL, not FL from FPL) and present this data to the next SAT IMG/03. (Action 02-08)

3.3 The Group was presented with a working paper from IATA on the need to expedite improved flight level efficiency and sustainability in the EUR/SAM corridor. Taking the results from the ESCIT/03 meeting into consideration IATA was not satisfied with the presented solutions in order to increase the provision of optimal flight levels in the EUR/SAM corridor. Further, the flight level / traffic statistics data provided by SATMA to the SAT24 meeting as compared to the flight level data provided by States during the ESCIT/033 meeting seemingly does not align, increasing the difficulty of making an accurate assessment regarding the provision of optimal flight levels in the EUR/SAM corridor. IATA requested that harmonized data metrics must be utilized to provide quantitative measurement to support decision making on optimal flight level performance, in addition to analysis of any ATM coordination issues, intra-boundary procedures, and cross-boundary agreements. The IMG was invited to take proactive and appropriate measures to implement solutions to improve flight level performance in the EUR/SAM corridor. ASECNA raised a question on the evaluation of optimum aircraft operations in the NAT airspace and it was explained that Gander and Shanwick OAC are measuring the % of aircraft which have the assigned FL and speed (Mach Number Technique) at the respective entry points. With consideration to the SAT IMG Decision 01/04 (Implement solutions for the improvement of flight efficiency and flight level occupancy in the EUR-SAM corridor) the Secretariat was tasked to issue the State Letter before the end of September 2023 so that a follow-up could be presented at SAT IMG/03.

### 3c) Other airspace and ATS Route improvements

3.4 The NAT SOG presented a request to the Group that there is a need to define the geographical delimitation of the SAT region for effective air traffic monitoring and safety oversight. In response to the need for geographical delimitation of the SAT area, the South Atlantic Regional Monitoring Agencies Project Team (SAT RMA PT) was established during the last SAT SOG meeting, with one of its tasks being the analysis of the territorial delimitation (as some of the SAT FIRs also include continental airspace) of the South Atlantic Region. During the study, it was concluded that there is a need to discuss the potential division of FIRs and its implications for the States and RMAs involved in monitoring. Discussions also highlighted concerns regarding the availability of traffic sample data (TSD) and the need for more standardization in the formats provided by the States. The lack of standardization results from each country's varying capabilities in providing TSD to the RMAs. Additionally, some States currently only provide TSD in the form of flight plans, which is the only available method. Furthermore, there are issues with regularly providing necessary data for analysis. The Group was informed by the Secretariat that as part of the work of the contingency plan review PT, a definition of the SAT area has been derived from all States AIPs and that this data should be used for the geographical delineation. The Group discussed also the best month for the traffic sample data and it was agreed that the data from July should be used. Therefore the following SAT IMG Decision was agreed:

<b>Why</b>	To define the geographical area of the SAT region for effective air traffic monitoring and safety oversight and to support the work of the RMAs with harmonized traffic sample data
<b>What</b>	That, in response to the SAT SOG Regional Monitoring Agency Harmonization and Standardization Project Team report, the Secretariat will share the SAT area geographical definition (as published in the States AIPs) with the PT and discuss the delimitation aspects. The SAT IMG has also decided that July should be the month for the collection of optimal traffic sample data.
<b>Who</b>	Secretariat, SAT IMG chair
<b>When</b>	Share the data from SAT Doc 002 with SAT SOG RMA H/S PT Participate at the next PT meeting

#### **SAT IMG Decision 02/04 – SAT are geographical definition and agreement for July in TSD**

That the ICAO Secretariat together with the SAT IMG chair will send the data from the Draft SAT Doc 002 to SAT SOG RMA H/S PT and explain the IMG decisions on traffic sample data at their next PT meeting.

#### **4. SAT Documentation**

##### 4a) Development and update of SAT documents

4.1 The Secretariat presented an interim report concerning the work of the SAT CPR PT on the development of an ATM Operational Contingency Plan for the South Atlantic. Following the initial call for nomination of experts the members of the PT continuously grew and the PT is currently composed of subject matter experts from Angola, Brazil, Cape Verde, Côte d'Ivoire, French Guiana, Ghana, Namibia, Portugal, Senegal, Spain, South Africa, ASECNA, IATA. The Project Team based its development of the SAT Doc 002 on the SAT/24 meeting WP 20, which was an initial draft of the ATM contingency plan in the SAT area following the outcomes from the Atlantic Coordination Meetings in 2018 and 2020, and the AFI Regional ATM contingency plan. The baseline document was further enhanced with actual information from national AIPs and the structure of the document includes now detailed information on contingency arrangements for flights inside the EUR-SAM corridor, for flights in the SAT area outside of the EUR-SAM corridor and for flights in specific FIR-to-FIR interface areas. It can be expected that the development of the document can be finalised in autumn 2023, so that the final draft can be presented at the SAT IMG/03 meeting for endorsement. However the PT still lacks participation from Argentina and Uruguay so that these interface areas are still not addressed in the Doc 002 (Action 02-08). Trinidad and Tobago confirmed that they would send their material to the next PT meeting.

4.2 IATA expressed their support to the work of the PT and appreciates the contributions of States. Once finalized, operators will need a defined method to retrieve desired SAT region information. Additionally, the SAT Region may consider publishing regional bulletins that could further assist flight crews with respect to SAT airspace procedures and operational awareness. IATA recommends that the SAT Doc 002 be finalized as soon as practicable to facilitate awareness of changes to the contingency procedures and harmonization with the NAT region. IATA offered to assist in the revision, review, and completion of SAT Doc 002.

4.3 The Group was presented with a proposal from IATA to consider the merits of developing a document management office (DMO) in order to facilitate appropriate harmonization and publishing of regional material. IATA invited the IMG to take the necessary measures to assure identification of appropriate processes, resource availability, and decide on the terms of reference for the establishment of an SAT DMO, similar to the NAT DMO. In the discussion, it was explained that this decision would be outside of the scope of the SAT IMG (as defined in the SAT Doc 001 SAT Handbook) and that this should be presented to the SAT Steering Group (SAT SG). The Secretariat also pointed out that the DMO must be resourced from a SAT

Member/State/ANSP and that a nominated volunteer would be helpful when presenting this proposal to the SAT SG for endorsement. Therefore the following SAT IMG Decision was agreed:

<b>Why</b>	Establish a SAT document management office (DMO) in order to facilitate appropriate harmonization and publishing of regional material
<b>What</b>	Extract the SAT DMO ToRs from the NAT Doc 001 Amend the ToRs with coordination aspects between NAT and SAT DMOs
<b>Who</b>	Secretariat, SAT IMG chair
<b>When</b>	Q3/2023 Follow up at SAT IMG/03

### SAT IMG Decision 02/05 – Establishment of a SAT DMO

That, following the request from IATA, the SAT IMG proposes an amendment for the establishment of a SAT Document Management Office (DMO) to SAT Doc 001 for consideration/approval by the SAT SG.

4.4 In addition, IATA advocated the introduction and use of South Atlantic Operations Bulletin (SAT OPS Bulletin), which would be useful to provide background information and guidance material to South Atlantic operators. OPS Bulletins could also be included in pilot and dispatcher training programs and operations manuals. IATA supports the development and regional-centric publication of defining new procedures, airspace changes, changes to service delivery and to raise the awareness of significant operational issues. The SAT IMG supported the development and use of OPS Bulletins to support implementation activities and raise awareness to aircraft operators, flight crews, and dispatchers in the SAT Region. The Group also recognised that OPS Bulletins should be developed and regularly reviewed in coordination with States, IATA, IFALPA and other involved stakeholders.

## 5. Any other business

5.1 The SAT SOG presented a working paper which proposed the inclusion of an Aeronautical English language field in the South Atlantic (SAT) Oceanic Errors Safety Bulletin (OESB) reports to improve aviation safety by addressing language-related factors. The IMG supported this proposal and invited the SAT SOG to present an update at the next IMG/03 meeting.

5.2 The SAT IMG discussed the requirement to amend the IMG agenda in order to allow a better coordination between SAT IMG and SAT SOG and so that SAT SOG WPs/IPs/PPTs would not have to be presented/discussed as any other business in the future. Therefore the following SAT IMG Decision was agreed:

<b>Why</b>	Support the regular coordination between SAT IMG and SAT SOG
<b>What</b>	Amend the SAT IMG Agenda with a specific SAT IMG/SOG coordination item
<b>Who</b>	Secretariat
<b>When</b>	For the next SAT IMG/03

**SAT IMG Decision 02/06 – Amend the SAT IMG Agenda with a specific SAT IMG/SOG coordination item**

That the SAT IMG agenda has to be expanded with a dedicated agenda item that will address aspects and/or working papers which need to be coordinated between the SAT IMG and SAT SOG.

*5.a) Future work programme and follow-up actions*

5.3 The list of all SAT IMG Decisions, as attached in Appendix E and the Action Item list as attached in Appendix D were endorsed by the SAT IMG/02.

5.4 All SAT IMG meeting documentation will be made available on the ICAO Secure Portal <https://portallogin.icao.int/>, Group name **SATIMG** (all caps, no space). IATA pointed out that it is essential to respect the deadlines for submission of the SAT IMG working paper/information papers as they might require internal coordination with other stakeholders in preparation for discussion at the IMG meeting.

5.5 The Chairman thanked all SAT IMG participants for the timely submission of the working papers, the very active discussions and the continuous support to the harmonisation and implementation activities.

*5.b) Next meetings*

5.6 The Group agreed that the next meeting (SAT IMG/03) would be organised from 5 to February 2024 in Santa Maria, Portugal. The location will be confirmed shortly. ASECNA offered to host the SAT IMG/04 meeting.

5.7 In the closing remarks, all SAT IMG participants expressed their strong support in conducting the SAT IMG meetings as face-to-face meetings. The agenda driven discussions and the possibility to have side meetings are more productive and strongly supported the achievement of the meeting objectives as well as the successful outcome of the SAT IMG.

5.8 IATA proposed to include the Computer Flight Plan Service Providers into the SAT IMG participants list which was supported by the Group.

5.9 It was again proposed to have the SAT IMG meeting details for the next 2 meetings, so that planning stability can be improved and timely reservation of travel can be arranged.

*5.c) Report to the SAT SG/01*

5.10 The report to SAT SG/01, with proposed actions, has not been prepared this time as there is no indication when the SAT SG will be convened.



~~~~~

**APPENDIX A — LIST OF PARTICIPANTS***(paragraph 0.3 refers)***ANGOLA**

Joaquim DIAS DOS SANTOS NETO  
 Francisco José DOMBALA  
 Wilson IMPERIAL  
 Celso LUDGERO AMARO GASPAR

**BRAZIL**

Marcus VINICIUS OLIVEIRA

**CABO VERDE**

Micael DELGADO LIMA MORENO

**CÔTE D'IVOIRE**

Ayebi Henri Jacques ASSI  
 Adama SANOGO

**GHANA**

Daniel DOE  
 Daniel LARBI  
 Daniel NARTEY  
 Theophilus Joe QUAYE

**NAMIBIA**

~~Jeremia I. KAMATI~~  
~~Victor SITAPATA~~

**PORTUGAL**

Luis Miguel Castanhas TOJAIS (SAT IMG  
 Chairperson)

**SENEGAL**

Gallo BA  
 Sidy GUEYE  
 Papa Dibocor SENE

**SOUTH AFRICA**

Martin COOPER  
 Lehlogonolo MASHITENG  
 Janine PRINS

**SPAIN**

Alexander DORTA FUMERO  
 Angel J. FORCADA PUERTO  
 Manuel GARCIA MARTIN  
 Eduardo ORTUNO VILLAPALOS  
 Mikel PINEIRO ZABALETA

**TRINIDAD AND TOBAGO**

Alexis BRATHWAITE

**UNITED STATES**

Biruk ABRAHAM  
 Holly KING

**ASECNA**

Mi Fernande Jocelyne ABY épse DJIA  
 Eric Armand DAMIBA  
 Mamour DIOUF  
 Arturo Nieto ESONO MBUY  
 Apollin KOMGUEM MAGNI  
 Yao Paulin KOUASSI  
 Moustapha THIOUNE  
 Cosse WADE

**IATA**

Santiago HUETE CANO  
 Chris MICHALAKIS  
 Jeffrey MILLER  
 Rich STARK

**IFALPA**

Kathleen (Kathi) HURST

**ICAO RO EUR/NAT**

Sven HALLE  
 Leyla SULEYMANOVA (secretarial support)

**ICAO REGIONAL OFFICERS\***

Serge TCHANDA (WACAF)  
 Colin BRYANT (ESAF)  
 Keziah OGUTU (ESAF)  
 Franciso ALMEIDA (SAM)  
 Fernando HERMOZA (SAM)

*\*remote participation to IMG/02*



## APPENDIX B — MEETING DOCUMENTATION

*(paragraph 0.3 refers)*

| <b>WP</b>  | <b>A.I.</b> | <b>Title</b>                                                                                                             | <b>By</b>           |
|------------|-------------|--------------------------------------------------------------------------------------------------------------------------|---------------------|
| WP01       | 1           | Draft Agenda                                                                                                             | Secretariat         |
| WP02       | 1           | SAT IMG action item list and SAT IMG decisions                                                                           | Secretariat         |
| WP03       | 1           | SAT SOG/01 meeting SoD                                                                                                   | Secretariat         |
| WP04rev    | 1           | ESCIT/03 meeting outcome                                                                                                 | Spain               |
| WP05       | 5           | SAT SOG RMA HS Project team update                                                                                       | SATMA               |
| WP06       | 4           | SAT Contingency Plan Review Project Team (SAT CPR PT) report                                                             | Secretariat         |
| WP07rev    | 2           | State Report                                                                                                             | South Africa        |
| WP08rev    | 2           | Traffic picture in EUR-SAM corridor 2022                                                                                 | SATMA               |
| WP09       | 2           | ENAIRES space-based VHF concept                                                                                          | Spain               |
| WP10       | 2           | PBCS survey status in Canarias FIR                                                                                       | Spain               |
| WP11       | 2           | REDDIG II node implementation                                                                                            | Secretariat         |
| WP12rev    | 2           | State Report                                                                                                             | Ghana               |
| WP13       | 3/5         | Proposal for delimitation of the SAT Geographical Area                                                                   | SAT SOG             |
| WP14       | 2           | State Report                                                                                                             | Portugal            |
| WP15       | 3           | EUR-SAM corridor ATS Routes                                                                                              | SAT IMG chair       |
| WP16       | 4           | Proposal for SAT DMO and SAT OPS bulletin process                                                                        | IATA                |
| WP17       | 5           | Introduction of English language field in OESB                                                                           | SAT SOG             |
| WP18rev    | 2           | State report Dakar FIR                                                                                                   | ASECNA              |
| WP19       | 2           | PBCS's Survey status and ADS-B implementation in Dakar Oceanic FIR                                                       | ASECNA              |
| WP20rev    | 2           | AMHS implementation                                                                                                      | ASECNA              |
| WP21       | 4           | IATA position on SAT Doc 002                                                                                             | IATA                |
| WP22       | 2           | State Report                                                                                                             | United States       |
| WP23       | 2           | State Report                                                                                                             | Brazil              |
| WP24       | 2           | Status of FANS PRSP RCP In Atlantico FIR                                                                                 | Brazil              |
| WP25rev    | 3           | FL occupancy and airspace optimization in Atlantico FIR                                                                  | Brazil              |
| WP26       | 2           | ATNS REDDIG II MPLS                                                                                                      | South Africa        |
| WP27       | 3           | SAT Implementation Management Group Actions - Europe / South America Implementation Team (ESCIT) 3 <sup>rd</sup> meeting | IATA                |
| WP28       | 2           | State Report                                                                                                             | Cabo Verde          |
| <b>IP</b>  | <b>AI</b>   | <b>Title</b>                                                                                                             | <b>Presented by</b> |
| IP01       | 1           | Meeting schedule                                                                                                         | Secretariat         |
| IP02rev    | 1           | List of meeting documents                                                                                                | Secretariat         |
| IP03       | 1           | ICAO update                                                                                                              | Secretariat         |
| IP04       | 1           | NAT IMG/62 outcome                                                                                                       | Secretariat         |
| IP05       | 2           | Use case – Traffic in EUR-SAM corridor 2022                                                                              | SATMA               |
| IP06       | 2           | ASECNA Network status updates                                                                                            | ASECNA              |
| IP07       | 2           | AIDC implementation update                                                                                               | Brazil              |
| IP08       | 2           | ATNS traffic statistics                                                                                                  | South Africa        |
| <b>PPT</b> | <b>AI</b>   | <b>Title</b>                                                                                                             | <b>Presented by</b> |
| PPT01      | 2           | Appendix to WP09 - ENAIRES space-based VHF concept                                                                       | Spain               |

**APPENDIX C — LIST OF APPENDICES**

| <i>Attached:</i> |                                 |          |  |
|------------------|---------------------------------|----------|--|
| Appendix A       | SAT IMG/02 List of Participants | Para 0.3 |  |
| Appendix B       | List of Documents               | Para 0.3 |  |
| Appendix C       | List of Appendices              | Para 6.3 |  |
| Appendix D       | Action Items List               | Para 6.2 |  |
| Appendix E       | SAT IMG 02 Decisions            | Para 6.2 |  |
|                  |                                 |          |  |

---



---

## APPENDIX D — ACTION ITEM LIST

(paragraph 6.2 refers)

| ID #             | ACTION                                                                                                                                                                                                                  | REMARKS                              | WHO                          | WHEN                   |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------|------------------------|
| R-01             | Provide State/ANSP Reports including traffic figures and information on implementation activities.                                                                                                                      | SAT IMG/1 SoD,                       | All SAT IMG members          | Every meeting          |
| R-02             | In accordance with the detailed AIDC implementation activity plan for the SAT Region (Appendix X) present updates on AIDC implementation to the SAT IMG                                                                 | SAT IMG/1 SoD, para. 2.3             | Secretariat SAT IMG members  | Every meeting          |
| <del>01-01</del> | <del>Share the AFI Region Free Route Airspace FRA implementation roadmap with SAT IMG members</del>                                                                                                                     | <del>SAT IMG/1 SoD, para. 2.3</del>  | <del>Secretariat</del>       | <del>SAT IMG/02</del>  |
| 01-02            | Review the SAT Contingency Plan (inclusion of 20 min LONG separation minima and use of FL 400) in the framework of the SAT CPR Project Team report back to the next meeting                                             | SAT IMG/1 SoD, Para. 2.12            | SAT CPR PT                   | SAT IMG/03             |
| <del>01-03</del> | <del>Share the deliverables/guidelines in support of AIDC implementation between 2 ACCs/OACs in the SAT Region with SAT IMG members</del>                                                                               | <del>SAT IMG/1 SoD, Para. 4.2</del>  | <del>Secretariat</del>       | <del>31-DEC-2022</del> |
| 01-04            | Report back on the technical solutions which support the implementation of AMHS <u>and present updates on completed implementation</u>                                                                                  | SAT IMG/1 SoD, Para. 2.12            | Secretariat SAT IMG members  | SAT IMG/03             |
| <del>01-05</del> | <del>Update on implementation timelines and coverage of ground and space based ADS-B within the EUR-SAM corridor</del>                                                                                                  | <del>SAT IMG/1 SoD, Para. 2.12</del> | <del>ESCIT members</del>     | <del>ESCIT/03</del>    |
| <del>01-06</del> | <del>Submit the ESCIT/03 meeting report for discussion and review to the next SAT IMG meeting</del>                                                                                                                     | <del>SAT IMG/1 SoD, Para. 2.12</del> | <del>ESCIT chairperson</del> | <del>SAT IMG/02</del>  |
| 01-07            | Following the assessment of the current implementation activities, prepare a SAT Service Development Roadmap for the coordinated harmonised implementation of operational improvements from 2024 onwards                | SAT IMG/1 SoD, Para. 2.12            | Secretariat SAT IMG members  | SAT IMG/03             |
| <del>01-08</del> | <del>Submit all material from the individual AIPs on the airspace dimensions, waypoints and procedures of the AORRA phase 4 area to the Secretariat. If available, send also any information on the AORRA phase 5</del> | <del>SAT IMG/1 SoD, Para. 2.12</del> | <del>SAT IMG members</del>   | <del>31-DEC-2022</del> |

| ID #  | ACTION                                                                                                                                                                                                                                                            | REMARKS       | WHO                           | WHEN        |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------|-------------|
| 02-01 | Based on the SAT Area description in the Draft SAT Doc002, develop a map of the SAT Area (including EUR/SAM corridor and AORRA)                                                                                                                                   | SAT IMG/2 SoD | Secretariat<br>IATA           | 30 SEP 2023 |
| 02-02 | Request the AIM/SWIM Team of the EUR Region to share best practices and guidance on the AMHS implementation                                                                                                                                                       | SAT IMG/2 SoD | Secretariat                   | SAT IMG/03  |
| 02-03 | SATMA to maintain the data collection and traffic figure analysis for the EUR/SAM corridor, but to exclude the not planned RFL tables in future reports                                                                                                           | SAT IMG/2 SoD | SATMA                         | SAT IMG/03  |
| 02-04 | SATMA, upon request from SAT members, to create specific use case scenarios which would support implementation initiatives in the SAT area                                                                                                                        | SAT IMG/2 SoD | SAT IMG members               | SAT IMG/03  |
| 02-05 | Invite States/ANSPs to include any ATM coordination or interoperability issues into the State reports for discussion at the SAT IMG                                                                                                                               | SAT IMG/2 SoD | SAT IMG members               | SAT IMG/03  |
| 02-06 | Collect all the information from State Reports & WPs and develop consolidated AMHS and AIDC implementation status tables                                                                                                                                          | SAT IMG/2 SoD | Secretariat                   | SAT IMG/03  |
| 02-07 | SAT members to contact their national authorities on the proposed frequency allocation aspects and to support the AMS(R)S B1 method (including data link functionality) for agenda item 1.7 at the next ITU WRC 23                                                | SAT IMG/2 SoD | SAT IMG members               | 3Q 2023     |
| 02-08 | Cabo Verde, Spain and Brazil to collect Flight Level utilization data (e.g. a monthly traffic data sample for 2 <sup>nd</sup> half in 2023) at the entry into the EUR/SAM corridor (requested FL vs assigned FL, not FL from FPL) and present this to the SAT IMG | SAT IMG/2 SoD | Brazil<br>Cabo Verde<br>Spain | SAT IMG/03  |
| 02-09 | Contact Argentina and Uruguay for inclusion of their contingency arrangements into SAT Doc 002                                                                                                                                                                    | SAT IMG/2 SoD | Secretariat                   | SAT IMG/03  |

## APPENDIX E — SAT IMG/02 DECISIONS

| Reference/Title                                                                                                                 | Description                                                                                                                                                                                                                                                                             | Comments                                                                                                                                                                                                                                                               | Status                            |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <del>SAT IMG/01-1<br/>Inclusion of RCP240 and RSP 180 values into the aircraft equipment monitoring tables</del>                | <del>That, Spain amends the aircraft equipment monitoring tables for the EUR/SAM corridor so that they include the values for RCP240 and RSP 180.</del>                                                                                                                                 | <del>To be included into the next report for the SAT IMG/02 meeting</del>                                                                                                                                                                                              | <del>On-going<br/>Completed</del> |
| SAT IMG/01-2<br>Expand the time horizon for traffic number monitoring in the EUR/SAM corridor                                   | That, Spain expands the time horizon for traffic figures within the EUR/SAM corridor so that the range includes traffic figure from the past year (Y-1), the actual/current year (Y) and the next year (Y+1)                                                                            | To be included into the next report for the SAT IMG/03 meeting                                                                                                                                                                                                         | On-going                          |
| SAT IMG/01-3<br>Submit survey on PBCS implementation, analyze the results obtained, and present them to the next meeting        | That:<br>a) the SAT IMG members are invited to complete a survey (similar to the one from ARMA) in order to determine the readiness for PBCS Implementation;<br>b) the ICAO Secretariat analyse the results of the survey; and<br>c) report the results to the next SAT IMG/02 meeting. | Survey launch before end 2022<br>3 months comments period<br>Share the results with the 3 SAT RMAs<br><del>As not all States had responded so far,</del><br><del>Preparation of invite remaining States to complete the survey and prepare a</del> WP for SAT IMG/0203 | On-going                          |
| SAT IMG/01-4<br>Implement solutions for the improvement of flight efficiency and flight level occupancy in the EUR-SAM corridor | That, SAT ANSPs are invited to provide the solutions to mitigate flight level limitations and improve flight level occupancy for existing and future flights within the EUR/SAM corridor                                                                                                | State Letter to be sent <u>in Q3 2023</u><br>Follow up at SAT IMG/0203                                                                                                                                                                                                 | On-going                          |
| <del>SAT IMG/01-5<br/>Organisation of ESCIT/03 meeting in Q1/2023</del>                                                         | <del>That, in accordance with the SAT IMG ToRs, the ESCIT/03 meeting will be organized as early as possible in 2023 with the main priority to assess and improve the air navigation system capacity and efficiency within the EUR/SAM corridor.</del>                                   | <del>State Letter invitation to be sent<br/>ESCIT report to be presented at SAT IMG/02</del>                                                                                                                                                                           | <del>On-going<br/>Completed</del> |
| SAT IMG/01-6<br>Establishment of a SAT Contingency Plan Review Project Team                                                     | That, a Project Team be established in order to review and propose amendments to the ATM Operational Contingency Plan for the South Atlantic, to verify the accuracy of the information particular to each SAT FIR, and to publish the SAT Contingency Plan as a new SAT DOC 002.       | <del>State Letter for nominations to be sent</del><br>Series of virtual meetings<br>Participation in the AFI workshop<br><del>PT report to be presented at SAT IMG/02</del><br><u>Final version to be submitted to SAT IMG/03</u>                                      | On-going                          |

| Reference/Title | Description                                                                                                                                                                                                                                                                                                                                                                          | Comments                                                                                                                                                 | Status |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| SAT IMG/02-1    | That, a Project Team be established in order to develop a combined implementation plan, task list and timelines/action items, which will support the harmonized implementation of PBCS and the use of the related PANS-ATM separation minima in the South Atlantic.                                                                                                                  | State Letter for nominations to be sent<br>Series of virtual meetings<br>PT report to be presented at SAT IMG/03                                         | New    |
| SAT IMG/02-2    | That all ANSPs in the EUR/SAM corridor study the proposal from Cape Verde to change ATS Route UN866 into a bi-directional Route and consider also the effects for traffic flows crossing the EUR/SAM corridor.                                                                                                                                                                       | Either as part of ESCIT/04 or as a series of individual meetings<br>Study report to be presented at SAT IMG/03                                           | New    |
| SAT IMG/02-3    | That all ANSPs in the EUR/SAM corridor amend and update their individual Letter of Agreements so that the application of the Mach Number Technique in the EUR/SAM corridor can be amended accordingly.                                                                                                                                                                               | Update of all LoAs before 30 September 2023<br><a href="#">Information on signed LoAs should be sent to the Secretariat</a><br>Report back to SAT IMG/03 | New    |
| SAT IMG/02-4    | That, in response to the SAT SOG Regional Monitoring Agency Harmonization and Standardization Project Team report, the Secretariat will share the SAT area geographical definition (as published in the States AIPs) with the PT and discuss the delimitation aspects. The SAT IMG has also decided that July should be the month for the collection of optimal traffic sample data. | Share the data from SAT Doc 002 with SAT SOG RMA H/S PT<br>Participate at the next PT meeting                                                            | New    |
| SAT IMG/02-5    | That, following the request from IATA, the SAT IMG proposes an amendment for the establishment of a SAT Document Management Office (DMO) to SAT Doc 001 for consideration/approval by the SAT SG                                                                                                                                                                                     | Extract the SAT DMO ToRs from the NAT Doc 001<br>Amend the ToRs with coordination aspects between NAT and SAT DMOs<br>Follow up at SAT IMG/03            | New    |

| Reference/Title | Description                                                                                                                                                                          | Comments                                              | Status |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------|
| SAT IMG/02-6    | That the SAT IMG agenda has to be expanded with a dedicated agenda item that will address aspects and/or working papers which need to be coordinated between the SAT IMG and SAT SOG | <a href="#">Prepare revised agenda for SAT IMG/03</a> | New    |

**-END-**