INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE

REPORT OF THE TWELFTH MEETING ON THE IMPROVEMENT OF AIR TRAFFIC SERVICES OVER THE SOUTH ATLANTIC FANS 1/A INTEROPERABILITY TEAM (SAT/FIT/11)

(Lisbon, Portugal 6-7 June 2016)

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TABLE DES MATIERES

I - HISTORY OF THE MEETING

1. Introduction

1.1. The Twelfth Meeting of the SAT FANS 1/A Interoperability Team (FIT) was held at the TRIVOLI Hotel in Lisbon, Portugal, from 6 to 7 June 2016, at the kind invitation of NAV Portugal, the air navigation service provider of Portugal.

2. Officers and Secretariat

Election of Rapporteur and adoption of agenda and work schedule

2.1. Mr. Simon Zwane of South Africa, was elected unanimously as Rapporteur of the SAT FIT/11 meeting.

2.2. Mr. Albert Aidoo Taylor, ATM/SAR Regional Officer from the ICAO WACAF Regional Office was the Secretary of the meeting.

3. Attendance

3.1. The meeting was attended by thirty-three 33 participants from twelve (12) ICAO contracting States from AFI, CAR, EUR and SAM Regions, and seven (7) International Organizations.

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

4. Working languages

4.1. The meeting was conducted in English language and all the documentation was presented in this Language.

5. Agenda of the meeting

5.1 The following was adopted as agenda items for the SAT FIT/11:

- Agenda Item 1: Adoption of the Agenda
- Agenda Item 2: Review of SAT/FIT/10 Report
- Agenda Item 3: Review of ADS/CPLC programmes and implementation activities in SAT FIRs
- Agenda Item 4: System performance monitoring and maintenance

  a. Interoperability requirements

  b. Safety monitoring aspects

c. Problem identification, reporting and resolution procedures

- Agenda Item 5: Monitor and Coordinate the harmonization of operations of AIDC and OLDI systems in the SAT area.

- Agenda Item 6: Review of the terms of reference of the FANS 1/A Interoperability Team and Future work programme

- Agenda Item 7: Any other business

6. List of Conclusions and Decisions

6.1. The meeting adopted seven (07) Conclusions and five (05) Decisions:

Number	SAT/FIT/11 Conclusion & Decision	
Conclusion 11/01:	***Application of Performance Based Communication and Surveillance (PBCS) Manual and the Global Operational Datalink (GOLD) Manual*** **That,** **a) States, Air Navigation Service Providers (ANSPs) and users take necessary action to apply the technical and operational guidance provided in the Second Edition of Doc 9869 (Performance Based Communication and Surveillance (PBCS) Manual and the Global Operational Datalink (GOLD) Manual (Doc 10037) once published;** **b) States and ANSPs which have implemented CPLDC/ADS-C should make efforts to develop their systems performance using PBCS Manual and establish policies for operators regarding the use of PBCS in their airspace; and** **c) ICAO and States/ANSPs that have experience in the application of datalink should provide assistance under the No Country Left Behind (NCLB) initiative to States facing implementation challenges to ensure that communication and surveillance requirements are met by all SAT States.**	
Conclusion 11/02:	**Correct application and usage of CPDLC Procedures** **That,** **States, ANSPs and Operators are urged to take appropriate actions to improve personnel knowledge of the system and ensure that ATS Units and operators apply the correct procedures to meet GOLD standards, with**	

	emphasis on reduction in usage of free-text, correct and proper usage of pre-formatted messages and correct application of AFN and LOGON procedures.	
Conclusion 11/03	***Operational improvements and discipline in the use of datalink as the ICAO GOLD and PBCS Manual*** **That,** **a)** **States/ANSPs and Airline Operators are urged to provide training to operational air traffic controllers and flight crew and ensure effective supervision to attain high standards and discipline in the application of datalink procedures and phraseology; and** **b)** **Develop and publish a FANS1/A EUR-SAM chart, with all relevant procedures (AFN, CPDLC transfers, ADS-C) details to inform operators of what parameters are being extracted from their FMS systems.**	
Conclusion 11/04	***Operations in Voice and CPDLC Mixed-Mode Communication Environment*** **That,** **States/ANSPs that have not yet done so are to publish in their AIP, the applicable communication procedures to avoid confusion in airspaces where both voice and CPDLC systems are used simultaneously by the same ACC where mixed-mode communication operations apply.**	
Decision 11/05	***Adoption of a set of operational messages for the SAT region*** **That,** **a) A Go-Team comprising of ATNS, ASECNA, GCAA, SAL, ANAC Argentina, Santa Maria, and IATA, with ASECNA as the Team Leader is established to coordinate the adoption of a set of pre-formatted datalink operational messages for application in the SAT region. Contact details of team members are to be sent to Madam DJIOLEU Micheline (djioleumic@asecna.org) by 31st July 2016.**	
Conclusion 11/06	***Report of FANS safety occurrences in the EUR SAM corridor***	

	That, **EUR SAM States/ANSPs and IATA are requested to report FANS safety occurrences in the EUR SAM corridor using the format provided in Appendix D to SATMA (CFRA)**	
Decision 11/07:	***Reactivation of the Central FANS Reporting Agency (CFRA) for the SAT region*** **That,** **the Central FANS Reporting Agency (CFRA) for the SAT region is reactivated and:** **a) EUR SAM States/ANSPs and IATA nominate Focal Points by 31st July 2016 to coordinate actions and send reports to SATMA / CFRA for periodic FANS analysis;** **b) Focal Points are urged to share Datalink Service Providers' monthly reports, and provide information regarding the status of the availability of the whole FANS end-to-end service from air to ground;** **c) SATMA to define reporting templates as PBCS by 31st July 2016; and** **d) Focal Points are urged to follow-up and study conclusions of CFRA annual reports available at www.satmasat.com and submit feedback to SATMA.**	
Conclusion 11/08:	***Datalink Performance Analysis and establishment of a datalink Monitoring Agency*** **That,** **a) States/ANSPs that implement datalink should conduct periodical performance analysis in the use of datalink and ensure that the target levels of safety and efficiency is maintained and improved upon when necessary;** **b) ICAO in collaboration with IATA is to discuss with States/ANSPs regarding the possibility of establishing a Datalink Monitoring Agency for the SAT region and consider the resources required for the establishment and operations of the monitoring agency; and** **c) SAT States/ANSPs review their respective FANS service statistics report provided by SITA on monthly basis, and as appropriate, share the report with CFRA to facilitate analysis and to consolidate service performance overview on FANS operations for SAT region.**	

Conclusion 11/09:	***Datalink Services Provider Support*** **That,** **States/ANSPs adhere to the support documentation provided by SITA in order to correctly report issues and access SITA support channels, providing the specific details that will allow SITA to perform proper investigations.**	
Decision 11/10:	***Problem Report Investigation Service and Data Link Monitoring Agency*** **That,** **SAT FIT investigates the possibility of Boeing providing Problem Report Investigation Service required by the PBCS framework, considering that Boeing provides the same service for the North Atlantic and other Oceanic regions.**	
Decision 11/11	***Harmonization of operations of AIDC and OLDI systems in the SAT area*** **That,** **In order to coordinate the harmonization and operations of ATM systems,** **a) A Go-Team comprising of ASECNA, ATNS, Santa Maria, SAL and GCAA, with ASECNA as the Team Leader and South Africa as Vice is established;** **b) SAT States/ANSPs should nominate focal points and provide details to the secretariat and Madam DJIOLEU Micheline (djioleumic@asecna.org) from ASECNA as the AIDC implementation Team Leader;** **c) The AIDC implementation Go-Team for the SAT region should in collaboration with their CNS WG, develop a checklist of implementation actions and submit a draft implementation plan and roadmap for the SAT region to the SAT FIT /12 meeting; and** **d) The Go-Team coordinates the development and adoption of a set of pre-formatted operational AIDC protocol messages for application between adjacent ACC in the SAT region.**	
Decision 11/12:	***Terms of Reference and Work Programme of the SAT/FIT*** **The TOR and work programme of the SAT/FIT team are amended as per Appendix X to this report.**	

II - REPORT ON DISCUSSIONS

1. Agenda Item 1: Adoption of the Agenda

1.1. Mr. Simon Zwane, from ATNS, South Africa, an ATCO and Airspace Manager was elected as the SAT FIT/11 chairperson and moderated the working sessions. The provisional Agenda as shown in paragraph 5 above that was appended to the invitation letter was reviewed and adopted by the SAT FIT/11 meeting.

2. Agenda Item 2: Review of SAT/FIT/9 Report

2.1. The meeting reviewed the Conclusions and Decisions adopted by the SAT/FIT/10 Meeting which was held in Abidjan, Cote d'Ivoire, from 1 to 6 June 2015 and noted that the implementation of most of these conclusions was ongoing, or needed continuous actions to be taken by concerned parties.

2.2 In reviewing follow-up actions and status of implementation of SAT FIT/10 Decisions and Conclusions, the Group also noted the low implementation of previous SAT FIT Decisions and Conclusions, and agreed for the chairperson to make quarterly follow-ups with States/ANSPs.

2.3 The Group reviewed the draft programme that has been developed jointly by the FAA and ICAO for the Gold Manual and PBCS workshop and urged the secretariat to publish the invitation letter and relevant documentation without delay.

2.4 The meeting noted that datalink has huge benefits that will impart the provision of air navigation services in the emerging ATM systems. The meeting further noted the need for organizations and personnel who will be involved in the planning, implementation, operations and approval of datalink systems to acquire the requisite knowledge in datalink concepts and applications. Consequently, the SAT FIT Group reiterated the importance of the GOLD Manual and Performance Based Communications and Surveillance (PBCS) workshop scheduled for Accra, Ghana from 8 to 12 August 2016, and urged SAT States/ANSPs and international organizations to attend and also ensure the participation of key operational, technical and regulatory personnel who would be involved in datalink application.

2.6 The FAA reported that it has considered the request made by SAT FIT/10 for it to provide ADS-C/CPDLC train-the-trainer course for the SAT and AFI States/ANSPs. The FAA reported that it is currently unable to provide the train-the-trainer course. The meeting thus urged individual States/ANSPs to consider other alternatives available to them; and further urged Aviation Training Organisations (ATOs) with the capability in providing ADS-C/CPDLC train-the-trainer course to inform SAT States/ANSPs as appropriate.

2.7 The Dakar ACC and Sal ACC held a side-meeting regarding the need for interoperability of ATM systems (AIDC and OLDI) and agreed to achieve interoperability as soon as possible but not later than 31st December 2016.

2.8 The general status of the implementation of SATFIT/10 Conclusions and Decisions is shown at **Appendix B** to this report.

3. Agenda Item 3: Review of ADS/CPLC programmes and implementation activities in SAT FIRs

3.1. The SAT FIT Group discussed presentations from the Secretariat (ICAO WACAF, NAM, CAR and SAM regions) and Boeing regarding ADS-C/CPDLC activities in the AFI and CAR/SAM regions. The meeting reviewed the table pertaining to the status of implementation of ADS-C/CPDLC in the SAT area. The status as reported by States/ANSPs is shown in the following table:

Status of ADS/CPDLC implementation

State	ANSP	Status	Service Provider	Ground System Provider
Argentina	ANAC	Pre-Operational	SITA	INDRA
Brazil	DECEA	Operational	SITA	ATECH
Carbo Verde	ASA CV	Operational	SITA	INDRA
Cote d'Ivoire	ASECNA	Operational	SITA	Thales
Portugal-Azores	NAV Portugal	Operational	SITA	SITA
Spain-Canarias	AENA	Operational	SITA	SITA
Ghana	GCAA	Operational	SITA	SITA
Senegal	ASECNA	Operational	SITA	Thales
Angola	ENANA	Operational	SITA	SITA
South Africa	ATNS	Operational	SITA	THALES
Trinidad & Tobago	TTCA	Pre-Operational	ARINC	SELEX
Uruguay	DINACIA	Implementation	SITA	INDRA

3.2 Status of Datalink implementation in AFI/NAM/ CAR/ SAM regions

3.2.1 The meeting recalled that at its Thirteenth Meeting in June 2001 in Sal, Cape Verde, the Group adopted Conclusion 13/78: En-route (FIR) Aeronautical Surveillance Plan for the AFI Region, which identified a number of FIRs that should implement various surveillance systems including ADS-C, as well as ATS Automation Systems including CPDLC. The meeting also recalled that previous regional planning group's conclusions had called on States to implement CPDLC procedures for en-route operations in their managed oceanic and remote continental airspace and noted the conclusion that called on the AFI Region to adopt RCP guidelines for planning towards the safe reduction in separation standards based on RNAV10 (RNP10) and RNP4 PBN navigation specifications.

3.3 The Group recalled that ICAO CPDLC / ADS-C "operational" can be supported by either FANS 1/A and ATN B1 but they are not interoperable. However, the GOLD Manual provides guidance to prepare for and establish the policies and procedures to use either technology within a global standardization operational framework. Operators always stress the importance of

global harmonization of CPDLC / ADS−C procedures and the GOLD Manual is the best resource to facilitate the achievement of such global harmonization. The meeting was apprised of previous conclusions relating to implementation of RCP Concept, calling on States to take advantage of the RCP concept stated in ICAO Doc 9869 to improve the provision of aeronautical mobile service (AMS), and ICAO to support the implementation of the RCP concept through Regional Seminars and Workshops, and adoption of the Global Operational Data Link Document (GOLD) in replacement of the previous FANS 1/A Operations Manual, for operational use related to CPDLC.

3.4 The meeting was briefed on the developments regarding GOLD whose transformation to an ICAO GOLD Manual (Doc 10037) has since reached final editing stages, as well the concept known as PBCS. Doc 9869 has since taken the name Performance-based Communication and Surveillance (PBCS) and expanded to include required surveillance performance (RSP) and a PBCS framework for applying RCP/RSP specifications in relation to aircraft equipage, air traffic services, etc. Some provisions of the pre-Doc 10037 are transferred to the PBCS Manual. In addition, consequential amendments will be made in applicable Annexes the Chicago Convention and supporting documents.

3.5 The Group was reminded that ICAO State Letter Ref.: SP 52/4-15/44 dated 12 June 2015 has since been circulated requesting comments on proposals for amendments of Annexes 4, 6, Parts I, II and III, 10, Volumes II and III, 11, 15, PANS-ABC (Doc 8400) and PANS-ATM (Doc 4444) relating to Data Link Initiation Capability (DLIC), CPDLC, ADS-C, PBCS and Satellite Voice (SATVOICE). The deadline for comments was 14 September 2015, and the new provisions are expected to be applicable in November 2016.

3.6 The meeting was briefed of shared common experiences on the lack of formal, structured training at most training institutions in the AFI Region, which presented Datalink implementation challenges including delays and uncertainties in systems performance. Many systems reached the operational status without undergoing evaluation based on specific operational parameters. Lack of effective application of ICAO Doc 9869, national and regional monitoring also resulted in continuing uncertainties in systems performance, with safety implications. The following were identified as being key ADS-C/CPDLC implementation issues for SAT States/ANSPs:

- Training for controllers, technicians, managers, and supervisors, as appropriate;
- The need to implement PBCS monitoring, to collect operational data, assess CPDLC/ADS-C services and improve service performance as problems are identified. It was acknowledged that PBCS monitoring will most likely require ANSPs to modify their automation to collect and retain operational data in accordance with the PBCS Manual (Doc 9869) Establishing a regional central reporting agency (CRA) for the AFI Region to address system performance on a regional basis, ensuring harmonization and interoperability; and
- Taking advantage of CPDLC implementation to facilitate automatic/silent handovers of air traffic between air traffic services units, in order to reduce traffic coordination failures and accordingly improve safety.

3.7 Other Datalink implementation challenges which were identified and that needed to be addressed to achieve effective CPDLC/ADS-C operations are the need: for correct and accurate filing of Flight Plan information, to reduce delays in the transmission of FPL, RCL, AFN messages, and establishment of appropriate CPDLC/ADS-C performance monitoring by active identification of problems and implementation of timely recommend solutions. The Group therefore recognized the need for States/ANSPs to carefully plan any datalink implementation programme, and only implement those services for which there are identified operational needs, and where the service will meet safety objectives.

3.8 The SAT FIT Group was briefed on the Operational Data Link Working Group (OPDLWG) activities, including, regional events which were aimed at providing knowledge, guidance and tools necessary for planning and implementation of ATS data link. The events also introduced specific technical and operational documents including ICAO Annex provisions and relevant guidance material to facilitate effective application.

3.9 The meeting also noted the requirement for PBCS monitoring, particularly the need to collect operational data and assess CPDLC/ADS-C services in order to improve service performance and conduct investigations to reported problems. It was acknowledged that PBCS monitoring will most likely require ANSPs to modify their automation systems to collect and retain operational data in accordance with the PBCS Manual (Doc 9869). Furthermore, the need for establishing a regional data link reporting agency for the SAT Region to address system performance on a regional basis and ensuring harmonization and interoperability was reiterated. It was noted, that adjacent FIRs which apply a particular separation minimum based on PBCS need to agree among themselves on a common implementation date, including when to begin usage of the RCP/RSP Flight Plan designators.

3.10 It was also reiterated, that organizations involved in the provision of air traffic management such as the CAA and ANSP, should develop an evolutionary strategy which is aimed at providing benefits to the ATM community through an orderly, safe, and cost-efficient implementation of PBCS. Furthermore, it was noted that the evolutionary implementation of the PBCS concept is related to the installed capacity on board aircraft. The SAT FIT Group reiterated the need for PBCS training for air traffic controllers, technicians, supervisors, managers and regulators, as appropriate.

3.11 The Group recalled that Annex 6, requires operators to establish policies and procedures to support PBCS monitoring programme for CPDLC and ADS-C operations. As PBCS is an essential part of the ATS system; it is therefore important to ensure that all the systems, including those of ATC, Operator, Communication Service Provider and aircraft, are harmonized to provide reliable CPDLC and ADS-C service suitable for advanced ATM operations. States will therefore need to establish PBCS policies for its operators even if they are not implementing CPDLC, ADS-C or PBCS in their airspace.

To ensure global standardization, it is important that development is done using recommendations in the ICAO Doc 10037 (GOLD) (guidelines for service provision, aircraft preparation, controller procedures, flight crew procedures and State aircraft procedures) to ensure any particular needs are considered, documented and shared with all stakeholders and to

make sure implementations comply with the applicable standards and guidance materials (avoid misinterpretations).

3.12 The Group was also briefed about the outcome of the NAM/CAR/SAM ATS Data Link Implementation Seminar which reaffirmed that ATS data link operation is a fundamental enabler for realizing the concept of future operations (FF-ICE, TBO and SWIM) as well as bringing significant safety and efficiency benefits. The NAM/CAR/SAM ATS Data Link Implementation Seminar agreed that the establishment of an ATM operational concept in a State is the starting point for data link implementation. It was further noted that States are not isolated and in the seamless airspace concept, thus regional and global initiatives must be considered in the planning and implementation of data link systems.

3.13 Training
The necessity to invest time and effort into training before implementation of ADS-C/CPDLC was reechoed. States/ANSPs were reminded to anticipate interoperability tests campaigns with aircraft systems and were accordingly urged to setup large scale trials with multiple partner Airlines for pre-operational validation of the datalink services when possible, and participate to in-service monitoring agencies.

In view of the aforementioned, the Group formulated the following Conclusions and Decision:

Conclusion 11/01: ***Application of Performance Based Communication and Surveillance (PBCS) Manual and the Global Operational Datalink (GOLD) Manual***

That,

a) States, Air Navigation Service Providers (ANSPs) and users take necessary action to apply the technical and operational guidance provided in the Second Edition of Doc 9869 (Performance Based Communication and Surveillance (PBCS) Manual and the Global Operational Datalink (GOLD) Manual (Doc 10037) once published;

b) States and ANSPs which have implemented CPLDC/ADS-C should make efforts to develop their systems performance using PBCS Manual and establish policies for operators regarding the use of PBCS in their airspace; and

c) ICAO and States/ANSPs that have experience in the application of datalink should provide assistance under the No Country Left Behind (NCLB) initiative to States facing implementation challenges to ensure that communication and surveillance requirements are met by all SAT States.

4. Agenda Item 4: **System performance monitoring and maintenance**

a. Interoperability requirements
b. Safety monitoring aspects
c. Problem identification, reporting and resolution procedures

4.1 IATA presented a comprehensive feedback from operators regarding the use of ADS-C/CPDLC in the EUR SAM corridor. The SAT FIT Group was informed of concerns about differences and variances within the EUR-SAM Corridor, regarding ADS/CPDLC procedures used both by Flight Crews and Air Traffic Controllers which results in increased workload and a

decreased confidence in the system. The concerns were categorized as being ATC and/or Crew induced.

4.1.1 ATC issues

4.1.2 The Group expressed concern about the massive use of FREE TEXT messages, especially so even when pre-formatted messages exists, thereby introducing an error factor for possible grammatical-orthographical errors. Unlike preformatted messages which auto-generates when the conditions are met, free text messages do not trigger interaction with the FMC.

4.1.2 The following examples of Free Text message usage by ATC were reported to the meeting:

- FL 390 CORRECT AND AVAILABLE, NO TRAFFIC TO REPORT;
- CPDLC SUCCESSFUL SELCAL NOT REQUIRED WITH SOOO;
- RADAR SERVICES TERMINATED;
- CONFIRM EST ERNEK; and
- CONFIRM ETA AT MAVKO.
- Sending of ACARS free text messages by controllers

4.1.3 Delay in responding CPDLC messages.
The meeting was informed of observations made by operators regarding delays in receiving ATC Clearances/responses, when WEATHER DEVIATION was requested by flight crew. It reported that flight crew at times delayed the decision whether to deviate RIGHT or LEFT of weather, due to delayed responses from ATC, thus resulting in flight crew having less time for reaction, and consequently leading to flight crew commencing the WEATHER DEVIATION procedure without clearance.

4.14 Non-standard application of AFN logon procedures at times leads to manual activation of the system because, the Next Data Authority (NDA) is not shown in the Communication manager, and thereby increases crew and controller workload, and reduces integrity of the system as the aircraft operates for some period without Datalink surveillance (ADS-C) and Communication (CPDLC).

4.15. Flight Crew issues
The GOLD Manual recommendation is to avoid the use of FREE TEXT messages to the extent possible, especially when there is a "pre-formatted" message that serves the same purpose. The records indicate that some cockpit crew interacts with ATC using confusing FREE TEXT messages. Negotiations such as CLIMB are done with the use of free text, thus leading to confusion and/or non-compliance with instructions and delays. The follow Free Text messages by cockpit crew were reported:

- REQUEST DIRECT TO [waypoint] THANK YOU
- REQUEST FL380 DUE TO AIRCRAFT PERFORMANCE
- REQUEST CRUISE CLIMB TO [altitude]-(not applicable in the EUR SAM Corridor Airspace)
- REQUEST CRUISE CLIMB TO FL380 DUE TO AIRCRAFT PERFORMANCE;
- LOG-ON WITH INCORRECT IDENTIFICATION;
- AIRCRAFT NOT DECLARING ADS CAPACITY;

- Some aircraft remain ADS connected after exiting Canarias airspace and some of them even after landing (outside of Canarias FIR), still send reports when on ground. Flights without CPDLC capability in the flight plan have established a CPDLC connection up link;
- CPDLC connect requests replied by aircraft with a CPDLC disconnect request message notifying the aircraft is CPDLC connected to another ATS authority;

4.1.6 Errors in reporting BACK ON ROUTE.
Whenever a BACK ON ROUTE message is sent, the crew must have sequenced the correct track in order to inform ATC that they are back on route. A DIRECT TO [waypoint] clearance can be requested, but BACK ON ROUTE should be sent just after passing the waypoint, not before.

4.1.7 The meeting formulated the following conclusions:

Conclusion 11/02: ***Correct application and usage of CPDLC Procedures***

That,

States, ANSPs and Operators are urged to take appropriate actions to improve personnel knowledge of the system and ensure that ATS Units and operators apply the correct procedures to meet GOLD standards, with emphasis on reduction in usage of free-text, correct and proper usage of pre-formatted messages and correct application of AFN and LOGON procedures.

Conclusion 11/03: ***Operational improvements and discipline in the use of datalink as the ICAO GOLD and PBCS Manual***

That,

a)States/ANSPs and Airline Operators are urged to provide training to operational air traffic controllers and flight crew and ensure effective supervision to attain high standards and discipline in the application of datalink procedures and phraseology; and

b) Develop and publish a FANS1/A EUR-SAM chart, with all relevant procedures (AFN, CPDLC transfers, ADS-C) details to inform operators of what parameters are being extracted from their FMS systems.

4.2. Use of CPDLC simultaneously with voice communications.

4.2.1 The meeting was informed of incidents that have occurred due to simultaneous use of voice and CPDLC communications. The meeting recommended that voice communications and CPDLC should not be used simultaneously unless risk assessment has been completed, mitigation measured implemented and procedures are published to avoid the potential for conflicting clearances that may arise.

4.2.2 The meeting noted that mixed-mode operations can increase both ATC and cockpit workload, be prone to errors and confusion. The meeting acknowledged the need for clear procedures to be published to ensure that safety in the provision of Air Traffic Services is not compromised where mixed-communication facilities are used. The meeting urged States/ ANSPs to ensure that procedures are developed and published in AIP to provide clear guidelines to flight crew which operate in such environment. Consequently, the meeting adopted the following conclusion.

Conclusion 11/04: ***Operations in Voice and CPDLC Mixed-Mode Communication Environment***

That,

States/ANSPs that have not yet done so are to publish in their AIP, the applicable communication procedures to avoid confusion in airspaces where both voice and CPDLC systems are used simultaneously by the same ACC where mixed-mode communication operations apply.

4.3 Use of non-standardized pre-formatted datalink operational messages

4.3.1 The meeting discussed the use of non-standardized pre-formatted datalink operational messages by different ANSPs. CHAPTER 14 of PANS ATM Doc 4444 has requirements for the establishment and exchange of operational CPDLC messages, and Appendix A5-1 of Doc 4444 provides for Controller-pilot data link communications (CPDLC) message set. The meeting was informed of situations where some ATS providers apply message sets which are not currently covered in the Doc 4444. In order to facilitate the standard use of CPDLC messages, the meeting decided that a team be established to review the challenges and propose a set of pre-formatted message set for consideration in cases where such provision does not already exist in the Doc. 4444. The meeting therefore formulated the following decision.

Decision 11/05: Adoption of a set of operational messages for the SAT region

That,

a) A Go-Team comprising of ATNS, ASECNA, GCAA, SAL, ANAC Argentina, Santa Maria, and IATA, with ASECNA as the Team Leader is established to coordinate the adoption of a set of pre-formatted datalink operational messages for application in the SAT region. Contact details of team members are to be sent to Madam DJIOLEU Micheline (djioleumic@asecna.org) by 31st July 2016.

4.4 CFRA/SATMA analysis of FANS services in the EUR/SAM Corridor

4.4.1 CFRA is the Central FANS Regional Agency (dependent on SATMA) responsible for monitoring and coordinating FANS implementation in the EUR/SAM corridor. SATMA presented a summary of CFRA analysis of FANS services in the EUR/SAM Corridor for the Year 2015 which is annexed to this report as **Appendix C**. The Group decided to reactivate the

Central FANS Reporting Agency (CFRA) which has been dormant for some time, in order to support data link monitoring in the SAT region.

4.4.2 The meeting reemphasized the need for timely and accurate reports/data from States/ANSPs and operators to be submitted to SATMA/CFRA to conduct FANS analysis. The SAT FIT Group also identified the need for focal points to facilitate coordination with STAMA/CFRA in order to ensure safety in the usage of CPDLC for operations and formulated the following conclusion and decisions:

Conclusion 11/06: ***Report of FANS safety occurrences in the EUR SAM corridor***

That,

EUR SAM States/ANSPs and IATA are requested to report FANS safety occurrences in the EUR SAM corridor using the format provided in Appendix D to SATMA (CFRA)

Decision 11/07: ***Reactivation of the Central FANS Reporting Agency (CFRA) for the SAT region.***

That,

The Central FANS Reporting Agency (CFRA) for the SAT region is reactivated and:
a) EUR SAM States/ANSPs and IATA nominate Focal Points by 31st July 2016 to coordinate actions and send reports to SATMA / CFRA for periodic FANS analysis;

b) Focal Points are urged to share Datalink Service Providers' monthly reports, and provide information regarding the status of the availability of the whole FANS end-to-end service from air to ground;

c) SATMA to define reporting templates as PBCS by 31st July 2016; and
d) Focal Points are urged to follow-up and study conclusions of CFRA annual reports available at www.satmasat.com and submit feedback to SATMA.

4.5 North Atlantic Monitoring Agency (NATMA)

4.5.1 The North Atlantic Monitoring Agency (NATMA) presented a comprehensive report about its structure, working methodologies and programmes. It was observed that, in North Atlantic airspace – which is RVSM airspace where both random and organized routes exist, varying day by day – **risk** is monitored in both **vertical** and **horizontal** dimensions by analysis of safety occurrence reports received from ANSPs, and occasionally directly from operators. Such occurrences are investigated by the reporting agencies, and it is their responsibility to notify aircraft operators and request investigation and response.

4.5.2 The REGIONAL SAFETY DATABASE which combines occurrence reports from across the NAT Region is operated by the Central Monitoring Agency, on behalf of the ICAO EUR/NAT office. Individual ANSPs submit copies of safety occurrence reports to the CMA.

These are reviewed, classified and entered into the NAT Deviations and Error Monitoring Application (DEMA - created by NavCanada for the CMA in 2006). Summary details of these events are uploaded to the NAT CMA secure website (www.natcma.com).

4.5.3 NATMA has also established a Scrutiny Group (SG) which of comprises operational ANSP representatives, Regulators, IFALPA, IBAC, and other Specialists with flying, ATC, dispatch, engineering, human factors and risk analysis qualifications and current experience. The SG meets twice a year to review recent GNE's, Height Errors and losses of separation. It is a non-political working group providing expert analysis and impartial data to higher level regional safety groups.

4.5.4 There is the Mathematicians Working Group which reviews the output of the Scrutiny Group using a Collision Risk Modelling that provides a risk estimate in each dimension to determine the health of the NAT system in relation to the established Target Level (s) of Safety.

4.5.5 The Scrutiny Group and the Mathematicians Working Group report to the Safety Oversight Group. Safety Oversight Group (SOG) was established in 2009 to provide regulatory oversight of the safety performance in the NAT region, as informed by the SG/MWG and CMA. Meets bi-annually, after the SG/MWG meetings, and reports to the North Atlantic System Planning Group, which is the highest level regional group. The NAT/SPG reports annually to the Air Navigation Commission at ICAO HQ in Montreal.

4.5.6 Target Level of Safety is an operational threshold. The TLS of 1,592,000 flight hours (2015) in the NAT Region and 5 x 10-9 Fatal Accidents per Flight Hour is the lateral and vertical TLS in the region. Lateral performance is currently within TLS although risk remains in excess of the TLS in the vertical dimension. A trial of reduced (30NM/ half-degree) lateral separation in the NAT is currently in progress within the core of the Organized Track System (OTS). More accurate navigation performance is demanded for RLatSM operations, with ADS/CPDLC connectivity established.

4.5.7 In comparing the scope of NATMA functions to those performed by SATMA, the Group discussed the need to expand the current scopes of SATMA functions to enable it to be more effective and meet the needs of the SAT region. The meeting agreed with SATMA that additional resources would be required in order to improve upon the vital services which SATMA currently provides and also meet the emerging needs which the implementation of a new EUR SAM airspace concept, reduced Lateral Separation and PBCS is expected to pose in the SAT region.

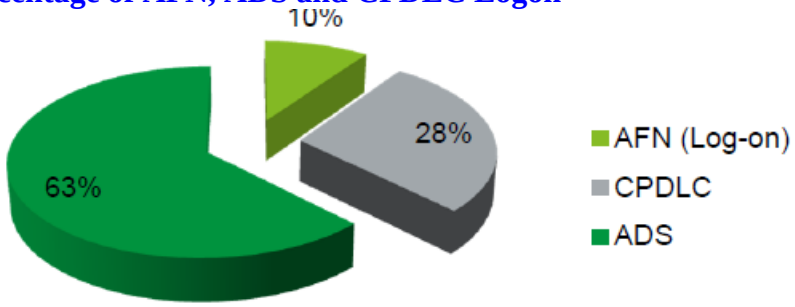
4.6 SITA

4.6.1 SITA reported the status of FANS 1/A implementation in the South Atlantic for Air Navigation Service Providers using SITA AIRCOM services. SITA provided details of FANS traffic data and performance as shown pictorially in the under-listed tables, charts and graphs.

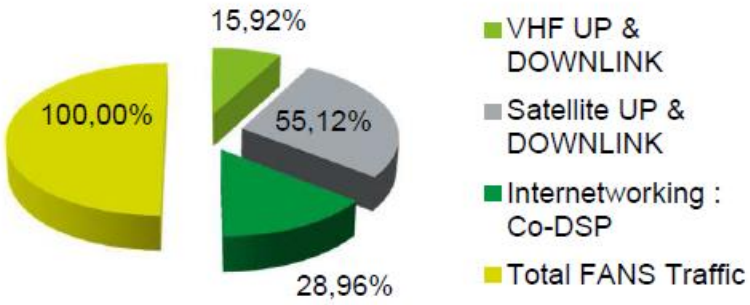
4.6.2 FANS traffic in SAT/FIT region

Customer	Ground Traffic (Uplink +	Percentage Total
ATS Provider	1,253,455	100%
FANS Services		
AFN (Log-on)	122,403	9.77%
CPDLC	346,716	27.66%
ADS	784,336	62.57%

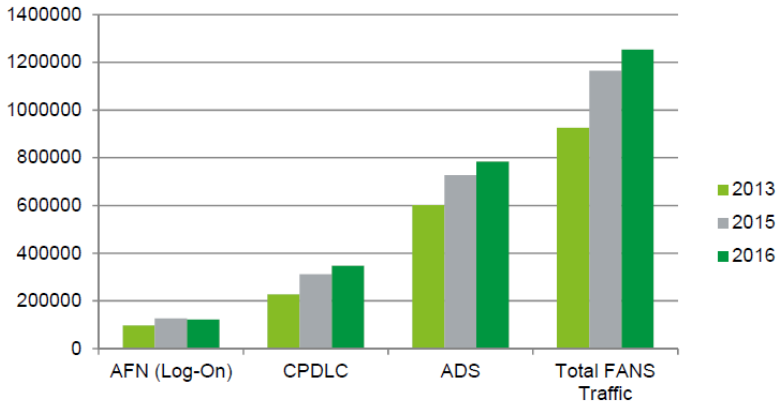
4.6.3 Percentage of AFN, ADS and CPDLC Logon



4.6.4 Percentage of VHF and Satellite Up & Downlink, Internet Co-DSP



FANS traffic in SAT/FIT region



Major airlines :

UAE	SAA	AFR	TAP	DLH
DAL	ETH	CRL	BAW	KLM
IBE	QFA	RFR	ARG	TAM

Following the detailed discussions on the NATMA and SITA presentations, the group formulated the following Conclusions and Decisions.

Con 11/08: ***Datalink Performance Analysis and establishment of a datalink Monitoring Agency***

That,

a) States/ANSPs that implement datalink should conduct periodical performance analysis in the use of datalink and ensure that the target levels of safety and efficiency is maintained and improved upon when necessary;

b) ICAO in collaboration with IATA is to discuss with States/ANSPs regarding the possibility of establishing a Datalink Monitoring Agency for the SAT region and consider the resources required for the establishment and operations of the monitoring agency; and

c) SAT States/ANSPs review their respective FANS service statistics report provided by SITA on monthly basis, and as appropriate, share the report with CFRA to facilitate analysis and to consolidate service performance overview on FANS operations for SAT region.

Con11/09: ***Datalink Services Provider Support***

That,
States/ANSPs adhere to the support documentation provided by SITA in order to correctly report issues and access SITA support channels, providing the specific details that will allow SITA to perform proper investigations.

4.7 Boeing PBCS post-implementation monitoring

4.7.1 The Group was briefed of Boeing PBCS post-implementation monitoring responsibilities in collaboration with the SAT Central FANS Reporting Agency (CFRA) to assess performance and investigate problem reports.

4.7.2 The Group was informed of the collaboration with Boeing which enables Boeing to provide NAT DLMA, IPACG CRA (for US airspace), ISPACG CRA, and FIT Asia CRA with problem report investigation services. Boeing currently supports SAT CFRA problem report investigations that involve Boeing airplanes, and also support the CRA/DLMA functions for other regions.

4.7.3 Boeing therefore offered its assistance to the SAT FIT and SAT CFRA. The SAT Group accepted the offer and thanked Boeing for the gesture, and requested secretariat and the SAT FIT Rapporteur to liaise with Airbus regarding Boeing's offer for the establishment of Data Link Monitoring Agency (DLMA) for the SAT region. The secretariat noted the possibility for a Memorandum of Understanding (MoU) to be signed with Boeing to operationalize monitoring services.

Decision11/10: Problem Report Investigation Service and Data Link Monitoring Agency

That,

SAT FIT investigates the possibility of Boeing providing Problem Report Investigation Service required by the PBCS framework, considering that Boeing provides the same service for the North Atlantic and other Oceanic regions.

Agenda Item 5: Operational requirements for implementation & operation of AIDC in the SAT Region

5.1 The meeting was apprised of AIDC implementation in the SAT region. It was noted that some ANSPs in the SAT area have already commenced AIDC implementation in accordance with regional planning and/or modernization of ATM infrastructure without established framework for coordination among adjacent air traffic control units, particularly in the SAT region.

5.2 The meeting was informed of AIDC activities in the CAR and SAM regions. It was noted that, in order to optimize AIDC implementation, States should consider taking action to mitigate/resolve filed flight plan (FPL) issues. It was recommended that regional efforts be consolidated in order to coordinate mitigation actions between the CAR and SAM Regions which aspect includes the total update of FPL converters. In addition, close cooperation is required among States in order to achieve the interconnection of automated systems, for instance, the agreement of the ICD to apply, amendment to operational agreement letter, and definition of common aspects to be implemented.

5.3 AIDC implementation has shown its advantages in terms of safety and efficiency, as it:

- significantly reduces the need for oral coordination between ATS units
- reduces controller workload
- reduces repetition/ readback errors during coordination
- reduces coordination errors and "controller-to-controller" language barrier issues
- mitigates LHDs, thus avoiding mid-air collisions

5.4 AIDC enables greater support to performance-based navigation initiatives and emerging technologies through automation. It was recognized the importance of evaluating each operational scenario involving AIDC implementation and management of desirable messages, and subsequently assessing its impact on controller workload and its end results in order to select the most appropriate AIDC ICD for implementation.

5.5 The preferred ICD for the CAR and NAM Regions is the NAM ICD, and the PAN ICD for the SAM Region. AIDC implementation represents the initial phase towards ground-ground integration and FF/ICE implementation (FPLs exchange, coordination and radar handover). The non-compliance with the AIDC procedures established by ICAO to manage flight plans and associated messages brings increased flow of unnecessary messages in system operation.

5.6 The meeting adopted the table below in order to monitor a coordinated implementation of AIDC in the SAT region.

AIDC implementation operational requirements

Country	ACCs	Neighboring ACCs	Comments
Angola	Luanda		
Aragentina	Eizeza		
Brazil	Atlantico		
Cabo Verde	Sal		
Cote d'Ivoire	Abidjan	Accra, Roberts, Recife	
French Guyana	Cayenne+		
Ghana	Accra	Abidjan	
Mauritania	Niouakchott		
Morocco	Casablanca		
Portugal	Lisbon		
	Santa Maria		

Senegal	Dakar	Sal, Recife	
Spain	Canarias		
South Africa	Johannesburg		
Trinidad& Tobago	Piarco		
Uruguay	Montevideo		

Table-1

5.7 The meeting affirmed that a well-coordinated approach in AIDC implementation will reduce ATC workload; improve ground-ground communications, reduce coordination errors and improved predictability of traffic movement, inuring to improvements in safety, capacity and efficiency in the management of air traffic. The Group formulated the following decisions.

Dec 11/11: ***Harmonization of operations of AIDC and OLDI systems in the SAT area*****.**

That,

In order to coordinate the harmonization and operations of ATM systems,

a) A Go-Team comprising of ASECNA, ATNS, Santa Maria, SAL and GCAA, with ASECNA as the Team Leader and South Africa as Vice is established;

b) SAT States/ANSPs should nominate focal points and provide details to the secretariat and Madam DJIOLEU Micheline (djioleumic@asecna.org) from ASECNA as the AIDC implementation Team Leader;

c) The AIDC implementation Go-Team for the SAT region should in collaboration with their CNS WG, develop a checklist of implementation actions and submit a draft implementation plan and roadmap for the SAT region to the SAT FIT /12 meeting; and

d) The Go-Team coordinates the development and adoption of a set of pre-formatted operational AIDC protocol messages for application between adjacent ACC in the SAT region.

Agenda Item 6: Review of the Terms of Reference of the SAT FIT and Future Work Programme

Taking into account the outcome of the discussions conducted under the other Agenda items and the progress made so far in the implementation of the tasks devoted to the SAT/FIT, the meeting reviewed and updated the Terms of Reference and future work programme of the FANS 1/A Interoperability Team (FIT) and formulated the following decision:

Decision 11/12: ***Terms of Reference and Work Programme of the SAT/FIT***

That,

The TOR and work programme of the SAT/FIT team are amended as per Appendix E to this report.

----End----