

SAT FIT/10



INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICAN OFFICE

***REPORT OF THE TENTH MEETING ON THE IMPROVEMENT OF AIR
TRAFFIC SERVICES OVER THE SOUTH ATLANTIC (SAT FIT/10)***

(Abidjan, Côte d'Ivoire 1-6 June 2015)

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I- HISTORY OF THE MEETING

1. Introduction

1.1. The Tenth Meeting of the SAT FANS 1/A Interoperability Team (FIT) was held at the IVOTEL Hotel in Abidjan, Cote D'Ivoire, from 1 to 6 June 2015, at the kind invitation of L'Autorité Nationale de l'Aviation Civile (ANAC), the Civil Aviation Authority of Cote D'Ivoire.

2. Officers and Secretariat

Election of Rapporteur and adoption of agenda and work schedule.

Mr Mauruzán Ribeiro Batista of Brazil, who was unanimously elected as Rapporteur of the SAT FIT/09 meeting was re-elected.

2.2. Mr. Albert Aidoo Taylor, ATM/SAR Regional Officer from the ICAO WACAF Regional Office was the Secretary of the meeting and was supported by François-Xavier Salambanga, Regional Officer, also from the WACAF Regional Office.

3. Attendance

3.1. The meeting was attended by 57 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 meeting adopted the following agenda:

- Agenda Item 1: Adoption of the Agenda
- Agenda Item 2: Review of SAT/FIT/9 Report
- Agenda Item 3: Review of ADS/CPLC programmes and implementation activities in SAT FIRs
- Agenda Item 4: System performance monitoring and maintenance
- Agenda Item 5: Review of the terms of reference of the FANS 1/A Interoperability Team and Future work programme
- Agenda Item 6: Any other business

6. List of Conclusions and Decisions

6.1. The meeting adopted three (03) Conclusions and five (05), Decisions:

Number	Title
<p>Draft Conclusion SAT FIT 10/01</p>	<p>Conclusion SAT FIT 10/01: GOLD Manual Workshop</p> <p>That,</p> <p>a. The FAA in collaboration with ICAO WACAF Regional Office organise GOLD Manual Workshop for SAT States/ANSPs to attend from 2 to 6 November 2015. The said workshop will support the regional implementation of CPDLC through training of technical and operational personnel, and facilitate the study of implementation feasibility of automatic handovers.</p> <p>b. WACAF Office coordinates with SAT States/ANSPs to select a suitable venue in the WACAF region for the workshop;</p> <p>c. SAT States/ANSPs are urged to participate and respond to a survey to be conducted by the FAA to determine the target audience for the workshop and identify the actual needs of the region by 15 September 2015.</p> <p>d. Additionally, the FAA will organise an awareness seminar to provide initial ADS-C/CPDLC training for States in the ESAF before the workshop in (a) above.</p> <p>e. The FAA is urged to consider providing ADS-C/CPDLC train-the-trainer course for the SAT and AFI States/ANSPs.</p>
<p>Draft Conclusion SAT FIT 10/02:</p>	<p>Resolution of Operational/Technical Issues on FANS services in the EUR/SAM Corridor.</p> <p>That,</p> <p>a) EUR SAM States/ANSPs investigate operational/technical issues identified by SATMA/CFRA analysis 2014 report (Appendix 1 SAT/FIT 10 WP 04) on FANS services in the EUR/SAM corridor and take necessary actions to resolve the deficiencies.</p> <p>b) Concerned States/ANSPs to report investigation outcomes to the ATM and CNS Working Groups by next SAT FIT meeting”</p>
<p>Draft Conclusion SAT FIT 10/03:</p>	<p>Coordinated Implementation and Harmonization of AIDC and OLDI Systems</p> <p>That, SAT States/ ATC units that have not done so, take immediate steps to plan, implement and operate AIDC in order to facilitate coordination and improve</p>

Decision SAT FIT 10/01:	safety and efficient delivery of air traffic management. Interoperability of ATM systems That, CNMC encourage and coordinate efforts to promote the interoperability of ATM systems being used or being installed in the SAT area to ensure harmonization and interoperability of services to deliver AIDC.
Decision SAT FIT 10/02:	Interoperability of their ATM systems between Dakar and Sal ACCs That, Dakar and Sal ACCs coordinate to ensure interoperability of their ATM systems and agree on an implementation date.
Decision SAT FIT 10/03:	Addition of AIDC implementation to SAT FIT work programme AIDC implementation be added to the Work Programme of the SAT FIT agenda for subsequent meeting Submission of Collision Risk Assessment Report
Decision SAT FIT 10/04:	That SATMA submits the report of the Collision Risk Assessment to SAT States, ASECNA and IATA for further consideration and feedback
Decision SAT/FIT/10/05:	TOR and work programme of the SAT/FIT That The TOR and work programme of the SAT/FIT team are amended as per Appendix D to this report.

II- REPORT ON DISCUSSIONS

1. Agenda Item 1: Adoption of the Agenda

1.1. Mr. Mauruzán Ribeiro Batista, ATM Specialist, member of the Brazilian delegation, and Rapporteur of the previous SAT/FIT meeting 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 10 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/9 Meeting which was held in Buenos Aires, Argentina, from 4 to 5 August 2014. The meeting noted that the implementation of most of these conclusions was on going, or needed continuous actions to be taken by concerned parties.

2.2 Cape Verde, Brazil and Senegal provided feedback regarding the requirement to send traffic data of flights which are operating in the EUROSAM corridor to SATMA and noted that

they did not receive any acknowledgement from SATMA. In an email to provide an update to the meeting, SATMA however confirmed having received the data from all the States concerned, including, those from Cape Verde.

2.3 SATMA reiterated the importance of traffic data for analysis and planning purposed and urged the SAT States concerned to continue providing the traffic data in the agreed format to SATMA. In the unlikely event that SAT States do encounter technical challenges in their efforts towards the submission of the data, the SAT States concerned were further urged to endeavour to consult SATMA in order to address such challenges. The meeting also urged SATMA to endeavour to provide timely acknowledgement of receipt data which it received from Sat States.

2.4 The general observation was that most of the Decisions and Conclusions of the SAT 19/FIT 09 meeting were still being implemented. The meeting urged States/ANSPs to endeavour to implement the outcomes of meetings and nominate Focal Points to coordinate with the Secretariat and Rapporteur when necessary, to facilitate expeditious implementation actions on the Conclusions and Decisions of the group.

2.5 The meeting further urged the Rapporteur to monitor and conduct quarterly follow ups on implementation actions of SAT States/ANSPs and coordinate with the ICAO WACAF and SAM Offices to ensure effective implementation.

2.6 The general status of the implementation of SATFIT/9 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 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:

ACC/STATE	Implementation status/ Target date	Remark
Dakar/Senegal	Implemented/August 2009	Full operational
Canarias/Spain	Implemented/August 2009	Full operational
Recife/Brazil	Implemented/August 2009	Full operational
Abidjan/ Cote d'Ivoire	Implemented/August 2010	Full operational
Johannesburg/South Africa	Implemented/February 2005	Full operational
Rochambeau/France	Implemented/March 2011	Full operational
Sal/Cape Verde	Implemented/September 2011	Full operational
Accra/Ghana	Implemented/December 2011	Full operational
Ezeiza / Argentina Comodoro Rivadavia / Argentina	Installed /December 2010	There is no established date for commencement of Operational Trials
Luanda/Angola	Implemented/September 2015	Operational Trials

Piarco/Trinidad & Tobago	ADS-C last quarter 2014 CDPLC second quarter 2014	Pre-operational
Nouakchott/Mauritania	Implemented/ December 2014	Full operational
Montevideo/Uruguay	Operational in December 2014	Pre-operational

3.2 The Angola delegation provided the meeting with an update of ADS-C/CPDLC implementation in the Luanda FIR. The Secretariat and IATA confirmed the positive feedbacks which have been received from users who are operating in the Luanda FIR. The meeting acknowledged the efforts being made by Angola in addressing the safety concerns that were raised in previous meetings of the SAT Group.

3.3 **Training on ADS-C/CPDLC and the Application of GOLD**

3.3.1 The meeting noted the overall progress made by SAT Member States/ANSPs in the provision of ADS-C/CPDLC and discussed the need for additional efforts to ensure full utilization of the capabilities of the system. The meeting further recalled previous discussions by the SAT group to work towards ensuring interoperability of the ADS-C/CPDLC systems and harmonization of operations of same in the SAT area. In this regards, the meeting identified the need for awareness training on the functionality of the ADS-C/CPDLC system and opportunities inherent in the system which can be explored in order to enhance safety, capacity and efficiency of services.

3.3.2 The meeting was informed of the ongoing collaboration between ICAO WACAF Office and US FAA ATO to provide a training workshop to SAT States/ANSPs on the effective use of the GOLD. The meeting was also briefed on ongoing collaboration between the FAA and ICAO AFI Tactical Action Group (TAG) and ICAO ESAF Office to organize ADS-C/CPDLC awareness training for States/ANSPs in the AFI Region who have just implemented the system or are in the process of implementation. Consequently, the meeting formulated the following conclusion:

Draft Conclusion SAT FIT 10/01: GOLD Manual Workshop

That,

- a. **The FAA in collaboration with ICAO WACAF Regional Office organise GOLD Manual Workshop for SAT States/ANSPs to attend from 2 to 6 November 2015. The said workshop will support the regional implementation of CPDLC through training of technical and operational personnel, and facilitate the study of implementation feasibility of automatic handovers.**
- b. **WACAF Office coordinates with SAT States/ANSPs to select a suitable venue in the WACAF region for the workshop;**
- c. **SAT States/ANSPs are urged to participate and respond to a survey to be conducted by the FAA to determine the target audience for the workshop and identify the actual needs of the region by 15 September 2015.**
- d. **Additionally, the FAA will organise an awareness seminar to provide initial ADS-C/CPDLC training for States in the ESAF before the workshop in (a) above.**

- e. **The FAA is urged to consider providing ADS-C/CPDLC train-the-trainer course for the SAT and AFI States/ANSPs.**

4. Agenda Item 4: System performance monitoring and maintenance

4.1. Analysis of the FANS services in the EUR/SAM Corridor.

4.1.1. The meeting reviewed a comprehensive report that was submitted by SATMA/Spain and presented by Secretariat due to the inability of SATMA/Spain to attend the SAT 20/FIT 10/CNMC 5 meetings. The meeting noted the SATMA report on the analysis of FANS services in the EUR/SAM Corridor during 2014 based on records from the ADS/CPDLC System of the Canarias FIR (SACCAN). SATMA used data from January to December 2014 for the study and analysis.

4.1.2. SATMA/CRFA report indicated, that although all the States/ANSPs in the EUR/SAM corridor had provided data as required, some of the requisite information and data had been received late (in some cases after January 2015) and therefore could not be considered for the 2014 analysis.

4.1.3. The report also provided the meeting with the outcome of performance monitoring of systems in the EUR/SAM corridor and highlighted some operational/technical issues which were identified by the SATMA/CFRA through analysis of reports received in 2014. Analysis of FANS Services in the EUR/SAM Corridor (Canarias Airspace) 2014 Report is attached as **Appendix C** to this report. In particular, the meeting was informed on the following aspects:

- Potential challenges identified.
- Operative issues.
- Technical or interoperability issues.

4.1.4 Potential Challenges Identified

Those issues identified during data analysis of aircraft connected to SACCAN (Canarias ACC) during 2014 should be further analyzed by the relevant stakeholders in the context of the CFRA. Though issues have been detected through SACCAN records analysis, they are considered of generic nature. The different issues were presented in a totally anonymous manner in the report of the analysis, therefore, no company, aircraft type, etc. are specifically mentioned. It is to be noticed that almost all the issues identified were a repetition of those detected in previous analysis. However, it must be noted that only a basic analysis on these issues has been conducted, therefore, such a classification should be considered as preliminary.

4.1.4.1 New issues identified

Some new issues were identified and categorized as Operational (operative) and Technical (related to Interoperability). SATMA/CFRA recommended that Coordination between stakeholders should be established in order to investigate them appropriately. Ongoing coordination efforts regarding the declaration of ATN capacity in the Flight Plan was already in progress and is expected to address some of the operational and technical issues which have been identified. Similarly, there

is an ongoing Coordination between SITA and ENAIRE for the periodic monitoring of some technical issues such as repeated messages, high delays, communication problems, etc.)

4.1.4.2. Operational Issues

The following subsections identified aspects which, in principle, only deal with the operation of FANS services, subdivided in two categories: “Air side” (i.e. those which probably deal with flight crew actions) and “Ground side” (i.e. those which probably deal with ATS Providers (ATSPs)).

4.1.4.2. a. “Air side” issues

- Log-On messages with incorrect Flight Identification
- Log-On from aircraft that are not flying towards Canarias airspace or from aircraft flying far away prior to enter an airspace where ADS/CPDLC is operational
- Aircraft ADS connected long after exiting Canarias airspace
- Sending of Character-Oriented applications messages (RCLs, RAIs)
- Aircraft not declaring ADS or CPDLC capability in their Flight Plans
- Emergency reports while no unusual or emergency situation is detected

4.1.4.2. b. “Ground side” issues

- Flight Plans with incorrect aircraft registration
- Sending of ACARS Free Text messages
- “END SERVICE” CPDLC messages sent with additional message elements which response attribute is not Wilco/Unable
- Uplink CPDLC connect requests replied with a CPDLC disconnect request message notifying the aircraft is CPDLC connected to another ATS authority

4.1.4.3. Technical or interoperability Issues

4.1.4.3. This subsection presents those issues that may entail some technical aspects or concern the interaction of aircraft and ground systems. As done in the former subsection, they are subdivided in categories: general (issues related to the global process or which are not specific to an application), ADS (those ones regarding the ADS functionality) and CPDLC (those ones concerning CPDLC). For issues in which avionics may be involved, no pattern (e.g. aircraft model) has been identified for the time being.

4.1.4.3. a. General issues

- Messages with incoherent time stamps
- Uplink and downlink messages probably being sent more than once by the DSP
- Unexpected Service Messages
- Messages with excessively high delays
- Communication/connection problems

4.1.4.3. b. ADS issues

- Different reports with different time stamps sent together in the same ADS message
- Identical reports of Waypoint Change event received within an ADS message
- Reception of ADS contract responses and messages not requested
- ADS reports notifying FOM equal to zero (0)

4.1.4.3. c. CPDLC issues

- Incorrect CPDLC messages
- Aircraft not accepting a connection request (CR) message after receiving an uplink CPDLC disconnection request (DR) message
- Aircraft ignoring uplink disconnection request (DR) messages

4.1.5. The meeting noted that a highly dependable and reliable ADS-C/CPDLC operational environment was a precursor to the development of EUR/SAM airspace concept and application of 50NM Lateral separation based on ADS/CPDLC in the EUR/SAM corridor and acknowledged the need to monitor malfunctions and potential problems inherent in the systems. As a first step, granting a 50NM separation based on ADS/CPDLC in the corridor requires a proactive action to understand and avoid any FANS System atypical or unexpected behavior. Finding out exceptions and malfunctions should therefore be of concern in order to recommend and take proper actions or initiate coordinated surveys.

Consequently, SATMA has extracted a summary of issues which occurred in ADS/CPDLC system (Canarias FIR – SACCAN) that should be highlighted for a common study. That section of the study runs into generic potential problems identified in the system, classifying them into operational (Air side-Ground side), technical and related to interoperability. A deep and comprehensive study should be of interest to all parties involved, and an item to be regularly considered in FIT meetings. Two examples of the concerns which were identified by the CFRA in the 2015 analysis and worthy of note are as follows:

- ACTION 1
- The reception of a “DISCONNECT REQUEST” (DR) does not only result in the aircraft disconnection of the active CPDLC data link, but also of the inactive CPDLC data link (next ATC centre), if it existed (except for B747-400 aircraft that ignore the DR message).
- As a solution, the Canarias ACC has issued a notice to ATCOs requiring that an “END OF SERVICE” message should be sent prior to a message to terminate a CPDLC connection, an “END OF SERVICE” to “DISCONNECT”.
 1. CPDLC: “NEXT DATA AUTHORITY”
 2. CPDLC: “FN_CAD”
 3. CPDLC: “END SERVICE” (5 minutes prior to border)
- ACTION 2

- It was observed that some operators were not properly filling the FPLs regarding onboard equipment. It was noted that some FPLs just included J1 CPDLC ATN without including J6 and/or J7 to indicate availability of CPDLC FANS 1/A equipment on board. The meeting urged aircraft operators to provide the requisite information when filing FPLs and also ensure that all the relevant sections of the FPL are completed.

4.1.6 Reminder for Data for the analysis of FANS services in the EUR/SAM Corridor

4.1.6.1. As a reminder to State/ANSPs in the EUR/SAM corridor and for the benefit of those SAT States which have just implemented ADS-C/CPDLC, SATMA/CFRA recalled the SAT/FIT Conclusion 8/01 which states, *that SAT States should provide SATMA with the required data and notify SATMA of any problem detected along the Corridor/South Atlantic. Data should be sent before the end of the following month in order to ensure its analysis and inclusion in the annual CFRA document.* It must be noted, therefore, that data received after January the following year cannot be considered in the analysis.

4.1.6.2. The Data to be collected by SAT States/ANSPs and provided to CFRA on monthly basis includes:

a) Traffic Data

- Number of connected flights
- Percentage referred to total number of flights in the EUR/SAM Corridor
- Number of flights with CPDLC connection (monthly average)
- Number of different aircraft (aircraft registration) connecting to ADS (monthly average)

b) Downlink (air to ground) messages delays

c) Percentage of connected flights from the most significant airlines

d) Percentage utilization value per data link media used for air-to-ground communications (satellite link and VHF link)

e) Cumulative percentage values per FOM

4.1.6. Additionally, the monthly ATS Performance Reports that are submitted by the Data Service Provider (SITA), when available, can be also provided to CFRA for their analysis and comparison.

4.1.7. In order to ensure the continuous System performance monitoring and maintenance and enhance efficiency in the provision of ADS-C/CPDLC services, the meeting formulated the following Draft Conclusion.

Draft Conclusion SAT FIT 10/ 02: Resolution of Operational/Technical Issues on FANS services in the EUR/SAM Corridor.

That,

- a) **EUR SAM States/ANSPs investigate operational/technical issues identified by SATMA/CFRA analysis 2014 report (Appendix 1 SAT/FIT 10 WP 04) on FANS**

services in the EUR/SAM corridor and take necessary actions to resolve the deficiencies.

b) Concerned States/ANSPs to report investigation outcomes to the ATM and CNS Working Groups by next SAT FIT meeting.

4.2. Status of AIDC implementation

ASECNA presented the status of AIDC implementation between Dakar and Abidjan ATC centres. The meeting reviewed the status of implementation of AIDC in the SAT States and discussed the operational impact on issues of compatibility between AIDC (ATS Interfacility Data Communication) and OLDI (On-Line Data Interchange).

4.2.1. The presentation enumerated some of the benefits of implementing AIDC and ODLI as follows:

a) Benefits:

- automation and standardization of coordination,
- possibility of significant reduction or even elimination of LHDs,
- receiving elements of the FPL with the Advance Boundary Information (ABI), even if the AFTN centre address receiver was omitted when they were sent,
- reducing the risk of errors and misunderstandings that may arise from verbal coordination,
- reducing ATC workload.

b) Disadvantages

- In case of data revisions for coordinating, the use of the voice is more effective than AIDC.

4.2.2. The meeting reemphasized that a well-coordinated implementation of interoperable ATM systems between SAT neighbouring ATC centres will engender total automatic coordination in the SAT area and thus improve safety and efficiency of flights.

4.2.3. The meeting discussed the status of implementation of AIDC between Dakar and Abidjan ATS centres and noted that AIDC implementation had been discussed by the CNS group during SAT 18 and recalled that the following conclusion was adopted:

That: SAT ATCs,

a) Consider the implementation of AIDC as enabler to the interoperability between ATM systems;

b) Conduct trials on AIDC with regard to the requirements of ATM Global Operational Concept (Doc. 9854) aiming to enhancing Air navigation safety and efficiency within the SAT region.

4.2.4 Furthermore, the meeting recalled that SAT 19 CNMC /4 had discussed and developed a

table concerning the status of implementation of AIDC in the SAT area. The meeting reviewed and updated the table as follows:

Table of AIDC capability (SAT 19 Report Appendix L)

ACC	AIDC Capable	Comments
Abidjan	Yes	
Accra	Yes (2016)	
Canarias	EUR OLDI	
Casablanca	EUR OLDI	
Cayenne	?	
Dakar	Yes, (Between Dakar and Abidjan,	
Ezeiza	Yes	
Johannesburg	Yes	
Lisbon	No (EUR OLDI used)	
Luanda	Yes (2016)	
Montevideo	Yes	
Nouakchott	Yes (end of 2015)	
Piarco	Yes	
Atlantico	Yes (2016)	
Sal	No (EUR OLDI used)	
Santa Maria	No (EUR OLDI used)	

4.2.5 Implementation and interoperability of AIDC/OLDI systems

It was noted Sal FIR had implemented and operated the EUR OLDI since 2004 whilst Dakar FIR implemented AIDC with Abidjan in 2013. The meeting was informed of the lack of interoperability between the OLDI and AIDC systems and recalled the APIRG 14 Decision 14/13 and APIRG 19 Decision 19/33 that required States to implement ATN (including AIDC). Cape Verde informed the meeting of ongoing plans to modernize the air navigation infrastructure including implementation of AIDC.

4.2.7 The meeting urged Dakar and Sal ACCs to coordinate to ensure interoperability of AIDC and OLDI systems and agree on an implementation date.

4.2.8 The meeting considered the huge benefits which a coordinated implementation of AIDC is likely to bring to the provision of ATS decided that AIDC implementation be added to the Work Programme of the SAT FIT agenda for subsequent meeting. The meeting formulated the following conclusion and decisions:

Conclusion SAT FIT 10/03: COORDINATED IMPLEMENTATION AND HARMONIZATION OF AIDC AND OLDI SYSTEMS

That,

SAT States/ ATC units that have not done so, take immediate steps to plan, implement and operate AIDC in order to facilitate coordination and improve safety and efficient delivery of air traffic management.

Decision SAT FIT 10/01: Interoperability of ATM systems

**That,
CNMC encourage and coordinate efforts to promote the interoperability of ATM systems being used or being installed in the SAT area to ensure harmonization and interoperability of services to deliver AIDC.**

Decision SAT FIT 10/02: Interoperability of their ATM systems between Dakar and Sal ACCs

**That,
Dakar and Sal ACCs coordinate to ensure interoperability of their ATM systems and agree on an implementation date.**

Decision SAT FIT 10/03: Addition of AIDC implementation to SAT FIT work programme

**That
AIDC implementation be added to the Work Programme of the SAT FIT agenda for subsequent meeting.**

5. Agenda Item 5: Review of the terms of reference of the FANS 1/A Interoperability Team and Future work programme

5.1 In reviewing the SAT FIT Terms of Reference and Future Work Programme, the meeting considered the plan by the SAT Group to adopt an EUR SAM airspace concept and the need to enhance safety and improve operation efficiencies in the SAT region as a whole.

5.2 The meeting expressed its appreciation of the work being done on behalf of the group by SATMA including conducting the Collision Risk Assessment (CRA) and urged that SATMA should send the report of the CRA to SAT States, ASECNA and IATA for further consideration and feedback. The meeting formulated the following decisions:

Decision SAT FIT 10/04: Submission of Collision Risk Assessment Report

**That
SATMA submits the report of the Collision Risk Assessment to SAT States, ASECNA and IATA for further consideration and feedback.**

5.3 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 SAT/FIT/10/05: TOR and work programme of the SAT/FIT

That,

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

6. Any Other Business

6.1 Missing Flight Plan

ASECNA presented detailed statistics and comprehensive report of Missing Flight Plans in the AFI region, including analysis of causes of Missing Flight Plans and their impact of safety and efficiency of air navigation.

6.1.1 The analysis of the survey results indicates that there were 61,41% incidents resulting from omissions in recipient addresses; 26,49% cases whereby group addresses were not used; 8,15% related to operational and technical problems; and 3,95% cases whereby Flight Plans were not issued involving high security military flights.

6.2 Main causes identified were:

- The omission RSFTA addresses of some control centers in charge of the flights;
- The failure to apply the established procedures for routing flights;
- Unstable operation of certain circuits;
- Lack of vigilance of some FPL operators.



**Fifth Meeting of the CAFSAT Network Management Committee (CNMC/5),
Tenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/10),
Twentieth Meeting on the improvement of Air Traffic Services over the South Atlantic (SAT/20)**

(Abidjan, Cote d'Ivoire, 1 – 5 June 2015)

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**Fifth Meeting of the CAFSAT Network Management Committee (CNMC/5),
Tenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/10),
Twentieth Meeting on the Improvement of Air Traffic Services over the South Atlantic (SAT/20)**

(Abidjan, Cote d'Ivoire, 1 – 5 June 2015)

DRAFT LIST OF PARTICIPANTS

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**Fifth Meeting of the CAFSAT Network management committee (CNMC/5),
Tenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/10),
Twentieth Meeting on the improvement of Air Traffic Services over the South Atlantic (SAT/20)**

(Abidjan, Cote d'Ivoire, 1 – 5 June 2015)

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CNMC/5, SAT/FIT/10, SAT/20

**Fifth Meeting of the CAFSAT Network management committee (CNMC/5),
Tenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/10),**



Twentieth Meeting on the improvement of Air Traffic Services over the South Atlantic (SAT/20)

(Abidjan, Cote d'Ivoire, 1 – 5 June 2015)

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Appendix B

Status of implementation and follow-ups of the SAT FIT/09 Conclusions and Decisions

Review of SAT/FIT/9 Report

Number	Title	Status of Implementation	Remarks
Conclusion SAT/FIT/9/01	<p>Data Collection for FANS services performance analysis and CFRA functions</p> <p>That:</p> <p>a) In order to perform the analysis of FANS services in the EUR/SAM Corridor, States provides SATMA the required data (listed in Appendix A to this report), taking into consideration information of the ATC System and/or Data Link Service Provider.</p> <p>b) Data related shall be forwarded to SATMA at the latest, by 15th day of the following month to ejortuño@aena.es, aariasf@aena.es and satma@aena.es.</p> <p>c) SAT States to notify to SATMA (as example in Appendix B to this report) any problem detected along the corridor/South Atlantic</p> <p>d) SAT States make use of the SITA's Support in order to obtain Data Service Provider data to be sent to SATMA/</p> <p>e) SAM and WACAF Offices organize a teleconference among SAT States/ANSP, SATMA SITA and Regional Offices, in order to provide additional information about ADS-C/CPDLC post monitoring tasks.</p>	<p>Still Valid</p> <p>Still Valid</p> <p>Still Valid</p> <p>Still Valid</p> <p>Still Valid</p>	<p>Brazil, Cape Verde, Portugal and Senegal provided the required data; Senegal did not receive feedback from SATMA</p> <p>All States related to the EUR/SAM corridor are urged to provide the data from January to June 2016 to SATMA</p> <p>Continuous</p> <p>Continuous</p> <p>Ongoing; (CFRA deleted from the conclusion because it has not been established)</p>

Conclusion SAT/FIT/9/02	<p>ADS-C/CPDLC Post-implementation monitoring and corrective action</p> <p>That:</p> <ul style="list-style-type: none"> a) SAT states analyze and apply, as far as possible, the appendix D of the Global Operational Data Link Document (GOLD) to develop the data collection mechanisms, monitoring tools and internal reporting requirements. b) SAM and WACAF Offices coordinate the presentation of detailed information regarding the application of the GOLD appendix D to the next SAT/FIT Meeting. c) SAM and WACAF Office analyze the feasibility of holding a specific training on the application of GOLD appendix D and present the results to the next SAT/FIT Meeting. 	<p>Still Valid</p> <p>Still Valid</p> <p>Still Valid</p>	<p>SAT States (Cape Verde, Senegal) are applying the conclusion.</p> <p>Pending training to be organized with the support of the FAA</p> <p>WACAF Office in consultation with FAA to provide training on 2-4 November 2015. Venue to be determined</p>
Decision SAT/FIT/9/01	<p>Terms of Reference of the CFRA</p> <p>That:</p> <p>The SAT/FIT members adopt the Terms of Reference of the CFRA as at Appendix C to this report.</p>		

Decision SAT/FIT/9/02	TOR and work programme of the SATFIT That the TOR and work programme of the SATFIT team are amended as per Appendix D to this report	Still Valid	
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2.2 The general observation was that the group did not implement most of its conclusions. The meeting urged States/ANSPs to endeavour to implement outcomes of meetings and further urged that States/ANSPs to nominate Focal Points to be coordinate actions on conclusions and decisions.

2.3 The meeting further urged the Rapporteur to monitor implementation quarterly, actions of SAT States/ANSPs and coordinate with the WACAF and SAM Offices to ensure effective implementation.



Index

- Summary of ENAIRE monitoring activities related to FANS 1/A service in the EUR/SAM Corridor part lying within Canarias airspace
 - FANS services performance and use during 2014: traffic data, data link usage, CPDLC exchange, etc.
 - Description of potential issues, to be further investigated and for which actions might be agreed
- Data received from CAA Brazil, ASA Cape Verde and ASECNA Dakar. Comparison with data corresponding to ENAIRE

Scope

Results based on the analysis of performance and use of FANS services in the EUR/SAM Corridor within the Canarias airspace (SACCAN system data)

Flights either overflying EDUMO, TENPA, IPERA or GUNET or flying those RANDOM routes with NELSO and/or ROSTA as route waypoints and with exit points at the south of Canarias airspace defined by coordinates

Use of FANS Services (1/3)

Traffic data

- FANS connected flights: 56,10% of total EUR/SAM Corridor flights. Slight increase from 2013 (55,13%)
- Almost every equipped flight connects to SACCAN (95,92%)
- Around 95% of connected flights exchange CPDLC information
- The number of different airframes flying over EUR/SAM Corridor connected to SACCAN is 234-315 per month

Traffic Data Summary	2014 Mean Value	Max Value	Min Value
Number of connected flights (Monthly average)	1284	1439 [Oct]	1115 [Nov]
Percentage referred to total number of flights in the EUR/SAM Corridor	56,10%	61,38% [Sep]	51,99% [Dec]
Percentage referred to flights in the EUR/SAM Corridor indicating data link and ADS capacity in the Flight Plan	95,92%	>100%* [Nov]	93,64% [May]
Number of flights with CPDLC connection (Monthly average)	1219	1363 [Aug]	1051 [Nov]
Number of different aircraft (aircraft registration) connecting to SACCAN (Monthly average)	280	315 [Jul]	234 [Jan]

* This value was probably caused by the presence of aircraft connecting to SACCAN without declaring ADS capacity in their flight plans

Use of FANS Services (2/3)

Airlines data

- Leading airlines: TAP Portugal and Air France, comprising more of 45% out of the total connected flights between the two of them
- Along with TAM Brazil and Iberia they comprise about 70% of the total number of connected flights
- Adding Lufthansa, Air Europa, British Airways and KLM to the previous four ones, percentage increases up to about 88%

Airline (% referred to connected flights)

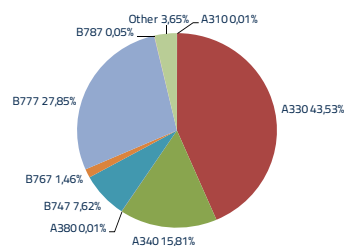
TAP Portugal	Air France	TAM Brazil	Iberia	Lufthansa	Air Europa	KLM	British Airways
27,50%	18,20%	13,47%	11,97%	6,04%	4,53%	3,16%	3,16%

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Use of FANS Services (3/3)

Aircraft data

A330 and B777 are the most common types of long range connected aircraft



Total percentage of different types of connected aircraft

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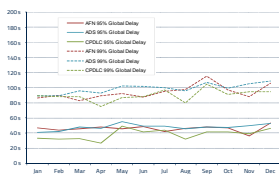
Link Utilisation and Message Delays

Link utilisation

Utilization of satellite link above 60%. VHF link used for around 35%-40% of air/ground transmissions. HF link slightly used (about 0,06%)

Downlink messages delays

Slight worsening over the studied period. Nevertheless, on average 95% of the calculated delays are not greater than 60 s whilst 99% of calculated delays are usually well below 180 s



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ADS-C Application

Contracts

The most commonly requested contracts are the initial ADS contracts currently established in the Canaries FIR (15 minute periodic contract, requesting the transmission of earth reference and predicted route groups with every periodic report, and an event contract including waypoint change and lateral deviation events, the latter with a 5 nautical mile threshold)

Data Accuracy

99,96% of ADS messages reported a FOM value equal to or better than 6 (position error lower than 0,25NM with a probability of 95%)

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CPDLC Application

Most frequent uplink messages

Message elements related to CPDLC communications transfer, contact message and the free text element are the most common uplink messages

Most frequent downlink messages

Responses "WILCO" and "ROGER", followed by the "Position Report" are the most common downlink messages

	Message element	Percentage referred to total		
		2014 Mean Value	Max Value	Min Value
Uplink	NEXT DATA AUTHORITY [icaofacilitydesignation]	20,61%	24,05% [Feb]	16,64% [Dec]
	CONTACT [icaounitname] [frequency]	19,59%	21,41% [Feb]	17,61% [Dec]
	[freetext]	19,25%	24,86% [Dec]	14,39% [Feb]
	END SERVICE	15,64%	18,73% [Feb]	12,53% [Oct]
	SQUAWK [beaconcode]	11,39%	14,07% [Dec]	9,78% [Jul]
Downlink	Wilco	45,80%	49,40% [Jul]	43,20 [Jan]
	Roger	20,83%	23,89% [Aug]	16,34% [Feb]
	POSITION REPORT [positionreport]	9,99%	12,28% [Feb]	7,70% [Aug]
	[freetext]	6,51%	8,03% [Jan]	5,31% [Aug]
	DEVIATING [distanceoffset] [direction] OF ROUTE	4,78%	6,64% [Jan]	4,74% [Dec]

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Potential issues identified (1/3)

- Several issues detected during the analysed period
- Most of them already identified during previous analysis. There are also some new ones
- Issues allocated to two categories:
 - Operational (operative)
 - Technical or related to Interoperability
- Coordination between stakeholders should be established in order to investigate them appropriately
- Effective ongoing coordination examples:
 - Issue regarding the declaration of ATN capacity in the Flight Plan in progress to be solved after being communicated recently to affected airlines
 - Coordination between SITA and ENAIRE for the periodic monitoring of some technical issues (repeated messages, high delays, communication problems, etc.)

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Potential issues identified (2/3)

Operative Issues

- Issues dealing with the operation of FANS services
- Subdivided in two categories:
 - Air side
 - Log-On messages with incorrect Flight Identification
 - Log-On from aircraft that are not flying towards Canarias airspace or from aircraft flying far away prior to enter an airspace where ADS/CPDLC is operational
 - Aircraft ADS connected long after exiting Canarias airspace
 - Sending of Character-Oriented applications messages (RCLs, RAIs)
 - Aircraft not declaring ADS or CPDLC capability in their Flight Plans
 - Emergency reports while no unusual or emergency situation is detected
 - Ground side
 - Flight Plans with incorrect aircraft registration
 - Sending of ACARS Free Text messages
 - "END SERVICE" CPDLC messages sent with additional message elements which response attribute is not Wilco/Unable
 - Uplink CPDLC connect requests replied with a CPDLC disconnect request message notifying the aircraft is CPDLC connected to another ATS authority

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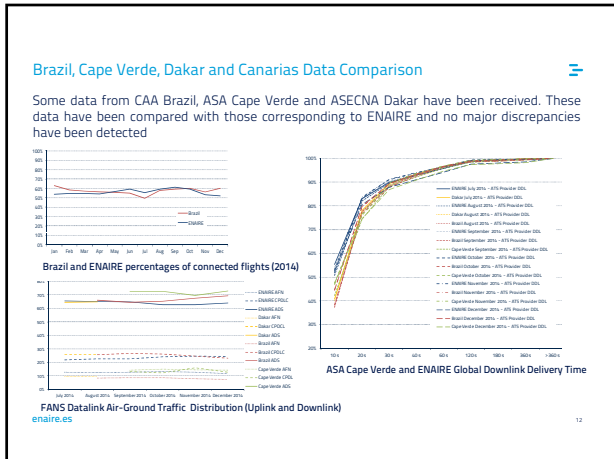
Potential issues identified (3/3)

Technical or interoperability Issues

- Issues entailing some technical aspects or concerning the interaction of aircraft and ground systems
- Subdivided in three categories:
 - General:
 - Messages with incoherent time stamps
 - Uplink and downlink messages probably being sent more than once by the DSP
 - Unexpected Service Messages
 - Messages with excessively high delays
 - Communication/connection problems
 - Concerning ADS:
 - Different reports with different time stamps sent together in the same ADS message
 - Identical reports of Waypoint Change event received within an ADS message
 - Reception of ADS contract responses and messages not requested
 - ADS reports notifying FOM equal to zero (0)
 - Concerning CPDLC:
 - Incorrect CPDLC messages
 - Aircraft not accepting a connection request (CR) message after receiving an uplink CPDLC disconnection request (DR) message
 - Aircraft ignoring uplink disconnection request (DR) messages

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Conclusions

- Almost 96% of flights notifying FANS equipage in its flight plan and more than 56% of the EUR/SAM Corridor flights (Canarias area) connect to SACCAN. It represents a slight increase from 2013
- CPDLC information is interchanged with the vast majority of connected aircraft (about 95%)
- Major users of FANS services are TAP Portugal, Air France, TAM Brazil and Iberia. Same top four than in 2013 but with different order. Air France has gone from third to second position
- The initial ADS contracts established in the Canarias FIR are the most commonly requested contracts
- Position accuracy notified in ADS-C reports is not worse than 0,25 NM (FOM±6) 99,96% of the times
- Message elements related to the process of CPDLC communications transfer are among the most used by controllers. Message elements belonging to the response elements group are the most used by pilots
- Though downlink messages delays have worsened slightly over the year, on average 95% of the calculated delays are not greater than 60 s whilst 99% of calculated delays are usually well below 180 s
- Several issues (operational and technical and related to interoperability) have been detected. Coordination between stakeholders should be established in order to investigate them appropriately
- Data from CAA Brazil, ASA Cape Verde and ASECNA Dakar have been received and compared with those corresponding to ENAIRE. No major discrepancies have been detected

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REMINDER

Data for the analysis of FANS services in the EUR/SAM Corridor (1/3)

- As it was stated in Conclusion SAT/FIT 8/01, involved SAT States should provide SATMA the required data and notify to SATMA any problem detected along the Corridor/South Atlantic
- Data should be sent before the end of the following month in order to assure its analysis and inclusion in the annual CFRA document. Therefore, data received after January next year cannot be considered in the analysis
- During 2014 some states have provided to ENAIRE some limited data that have been analysed and included as an Annex in the 2014 CFRA Report
- ENAIRE analyses all received data and, when possible, compares them with those corresponding to ENAIRE. Nevertheless, to perform the corresponding analysis of FANS services in the EUR/SAM Corridor part within each state, the data to be provided is that stated in SAT/FIT 7 Report (see following slide)

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REMINDER

Data for the analysis of FANS services in the EUR/SAM Corridor (2/3)

- Data to be collected and provided to CFRA – Monthly base (excerpts from SAT/FIT 7 Report)
 - Traffic Data
 - Number of connected flights
 - Percentage referred to total number of flights in the EUR/SAM Corridor
 - Number of flights with CPDLC connection (monthly average)
 - Number of different aircraft (aircraft registration) connecting to ADS (monthly average)
 - Downlink (air to ground) messages delays
 - Percentage of connected flights from the most significant airlines
 - Percentage utilization value per data link media used for air-to-ground communications (satellite link and VHF link)
 - Cumulative percentage values per FOM
- DSP (SITA) ATS Performance Report for each month, when available, can be also provided to CFRA for their analysis and comparison

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REMINDER

Data for the analysis of FANS services in the EUR/SAM Corridor (3/3)



FANS/CFRA Notification Form

1. Reporting Date:	2. Reporting Unit:	5. Aircraft Type:	6. FANS EQUIPE
3. Operator Name:	4. Call Sign:	8. Time UTC:	9. Occurrence Position
7. Date of Occurrence:			
15. Description and Action Followed:			
CLASSIFICATION			
<ol style="list-style-type: none"> 1. Log-On received from aircraft not flying your airspace 2. A/C Log-On with incorrect flight identification 3. Log-On from Aircraft not declaring ADS capacity in FP 4. Unknown ADS messages are received. 5. A/Cs remain ADS connected after exiting airspace 6. A/Cs remain ADS connected after landing 7. Different reports in the same ADS message. 8. Identical reports of Waypoint Change received in an ADS message 9. CPDLC Message: "Not Current Data Authority" 10. Incorrect downlink CPDLC messages have been received: 11. Other (describe): _____ 			
Crew/Controller comments (if any)			

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 When complete please forward the report(s) to: South Atlantic Monitoring Agency (SATMA-CFRA)
 E-Mail: satma@enaire.es

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APPENDIX D

TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF THE SAT FANS 1/A INTEROPERABILITY TEAM (SAT/FIT)

1. The SAT FANS 1/A Interoperability Team (SAT/FIT) has been established to oversee FANS 1/A system performance monitoring to ensure that the system continues to meet safety and interoperability requirements and that operations and procedures are working as specified.
2. The FIT main objectives are to:
 - a) Monitor and harmonize ADS-C/CPDLC operations and trials being carried out by SAT States and adjacent States;
 - b) Review identified problem reports and determines appropriate resolution;
 - c) Develop interim operational procedures to mitigate the effects of problems until such time as they are resolved;
 - d) Monitor the progress of problem resolution;
 - e) Prepare summaries of problems encountered and their operational implications;
 - f) Assess system performance based on information in Central FANS Reporting Agency (CFRA) periodic reports;
 - g) Co-ordinate system testing; and
 - h) Promote and ensure technical interoperability of ADS-C/CPDLC functions of ATM systems in SAT member States and the harmonization of procedures

APPENDIX B

WORK PROGRAMME OF THE SAT FANS 1/A INTEROPERABILITY TEAM

WORK PROGRAMME		
TASK No.	SUBJECT	TARGET DATE
1.	Oversee FANS 1/A system performance monitoring to ensure that the system continues to meet safety and interoperability requirements and that operations and procedures are working as specified.	Continuous
2.	Carry out studies on the establishment of a sustainable central reporting agency (CRA) and related institutional issues	Completed
3.	Harmonize ADS/CPDLC programmes developed by SAT States/FIRs.	Continuous
4.	Assist member States with cost-benefit aspects related to their implementation of ADS/CPDLC programmes.	Continuous
5.	Maintain ADS/CPDLC operational guidance material updated.	Continuous
6.	Conduct studies related to the implementation of the Global ATM Operational Concept and other enabling concepts within the SAT area in the fields of Communication and Surveillance.	Continuous
7.	Monitor and Coordinate the harmonization of operations AIDC and OLDI systems in the SAT area.	New
<i>Note: The SAT FIT should submit its meeting reports and proposals to the SAT Working Group.</i>		
COMPOSITION		
<ul style="list-style-type: none"> • <i>The SAT FANS-1/A Interoperability Team (FIT) of multi-disciplinary nature shall comprise of experts from States responsible of FIRs in AFI and SAM routing areas AR1/AH2 and AR2/AH8 as defined in the Global Air Navigation Plan (ICAO Doc 9750), and experts from adjacent FIRs and international organizations.</i> • Team Leader: Brazil • WORKING ARRANGEMENTS: THE SAT FIT SHOULD COMPLETE ITS WORK AND SUBMIT ITS PROPOSALS TO THE SAT ATM WORKING GROUP. THE SAT FIT SHOULD WORK THROUGH ELECTRONIC CORRESPONDENCE PRIOR TO MEETINGS. 		