

**INTERNATIONAL CIVIL AVIATION ORGANIZATION  
WESTERN AND CENTRAL AFRICAN OFFICE**



**REPORT OF THE THIRTEENTH MEETING ON THE IMPROVEMENT  
OF AIR TRAFFIC SERVICES OVER THE SOUTH ATLANTIC FANS 1/A  
INTEROPERABILITY TEAM (SAT/FIT/13)**

**(Durban, South Africa, 04-05 June 2018)**

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**TABLE OF CONTENTS**

PART I: HISTORY OF THE MEETING ..... 4

- 1. Place and duration of the meeting ..... 4
- 2. Opening ceremony..... 4
- 3. Organization, Secretariat and attendance..... 4
- 4. Working languages ..... 5
- 5. Agenda of the meeting..... 5
- 6. List of SAT FIT 13 Conclusions..... 5

Part II: REPORT ON THE AGENDA ITEMS ..... 8

- Agenda Item 1: Election of the chairperson and adoption of the agenda..... 8
- Agenda Item 2: Review of SAT/FIT/12 Report..... 8
- Agenda Item 3: Review of ADS/CPLC Programmes and Implementation Activities in SAT FIRs..... 10
- Agenda Item 4: System performance monitoring and maintenance ..... 15
- Agenda Item 5: Review of the terms of reference of the FANS 1/A Interoperability Team and Future work programme ..... 20
- Agenda Item 6: Any other business ..... 20

## **PART I: HISTORY OF THE MEETING**

### **1. Place and duration of the meeting**

The Thirteenth Meeting of the FANS I/A Interoperability Team (SAT/FIT/13) was held at the **Southern Sun Maharani** Hotel in Durban, South Africa, from **04 to 05 June 2018**, at the kind invitation of the of Air Traffic and Navigation Services (**ATNS**) of South Africa.

### **2. Opening ceremony**

2.1 The meeting was officially opened on the 04<sup>th</sup> June 2017 by Mrs. Tshitshi Phewa, Acting Deputy Director General responsible for Civil Aviation, representative of the Department of Transport in South Africa. **Mrs. Phewa** firstly welcomed the participants to the three meetings (**CNMC/8, SATFIT/13** and **SAT/23**) being held back to back and expressed the great honor for South Africa to be requested to host these important meetings. Then, she outlined reminded to the attention of the meeting the importance of the agenda items planned to be discussed and expressed her confidence to the capacity of 60 industry delegates comprising of Air Navigation Service Providers (ANSPs), industry regulators and airlines from the global diaspora consisting of Europe, Middle East, South America and Africa to share knowledge and ideas, and work towards ensuring interoperability and harmonization of operations to enhance our aviation industry and bring an Air Traffic Systems synergy to the region. She wished to all participant a pleasant stay in Durban and declared the meeting open.

### **3. Organization, Secretariat and attendance**

3.1 Mr. **Simon Zwane**, Senior Manager: ATM Research and Planning, ATNS was unanimously elected as Chairperson of the SAT/FIT 13 meeting. He therefore chaired and moderated the plenary sessions.

3.2. Mr. Albert Aidoo Taylor, Regional Officer Air Traffic Management /Search and Rescue, ICAO Western and Central Africa Office, was the Secretary of the meeting and was assisted by Mr. Sven Halle, Regional Officer- Air Navigation Systems Implementation (ATM), EUR NAT Region, and Fernando Hermoza Hübner, Regional Officer Air Traffic Management /Search and Rescue, ICAO South American Regional Office.

3.3 In order for States/ANSPs to take ownership of the report of the meeting and facilitate implementation of the outcomes, the meeting nominated representatives from ASECNA, ATNS, GCAA and Trinidad & Tobago to assist ICAO in the development of Conclusions, Decisions and Action Plan.

3.4 The SAT FIT 13 meeting was attended by thirty-one (**31**) participants from ten (**10**) States of the ICAO AFI, EUR, NACC and SAM regions namely, **Angola, Cabo Verde, Côte d'Ivoire, Ghana, Portugal, Senegal, South Africa, Spain, Trinidad de Tobago, United States of America** including their Air Navigation Service providers (**ASECNA, ASA, ENAIRE, ENANA, NAV Control, FAA**) and **four (04)** representatives of the aeronautical industry (**AIREON, IATA, INEO, SITA**).

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

#### 4. Working languages

The meeting was conducted in the English language and 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/13:

- Agenda Item 1: Adoption of the Agenda
- Agenda Item 2: Review of SAT/FIT/12 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 SAT FIT 13 Conclusions

6.1. The meeting adopted four (04) Conclusions and one (01) Decision listed as follows:

*Note. - Conclusions/Decisions presented in the format requested by the Air Navigation Commission (ANC) through Working Paper 8993 (6/11/2015) progress made by the Ad hoc Working Group on PIRG and RASG reports (item No. 20036).*

<b>CONCLUSION</b> <b>SAT/FIT/13/01:                      Develop of SAT Region specific datalink reporting requirements and responsibilities</b>	
<b>What:</b>  <b>That, all stakeholders contribute to the relevant reporting requirements for ICAO provisions.</b>	<b>Expected impact:</b>  <input type="checkbox"/> <b>Political / Global</b> <input checked="" type="checkbox"/> <b>Inter-regional</b> <input type="checkbox"/> <b>Economic</b> <input type="checkbox"/> <b>Environmental</b> <input checked="" type="checkbox"/> <b>Operational/Technical</b>
<b>Why:</b>  <b>In order to facilitate planning of datalink implementation and oversee the actual implementation.</b>	
<b>When: Before SAT/FIT/14</b>	<b>Status: Adopted by SAT/FIT/13</b>

Who:  Coordinators  States  ICAO Secretariat  ICAO HQ  Others: Stakeholders, Go Team.

**CONCLUSION**

**SAT/FIT/13/02: Increase the coordination of datalink monitoring between RMAs**

**What:**

That, based on the SAT FIT discussions, SATMA is requested to initiate the process to update its ToRs for PBCS monitoring in the EUR/SAM corridor; and

SAT States are invited to support the PIRGs activities in updating the RMA ToRs accordingly for PBCS monitoring and enhance the coordination & collaboration between the involved RMAs, especially ARMA, CARSAMMA, DLMA and SATMA.

**Expected impact:**

- Political / Global
- Inter-regional
- Economic
- Environmental
- Operational/Technical

**Why:**

To ensure compliance with monitoring provisions.

**When: Before SAT/FIT/14**

**Status: Adopted by SAT/FIT/13**

Who:  Coordinators  States  ICAO Secretariat  ICAO HQ  Others: RMAs

**CONCLUSION**

**SAT/FIT/13/03: Equipage and Usage of CPDLC in the Oceanic Airspace**

**What:**

That, Operators are urged to take appropriate measures to equip their aircraft with CPDLC and ensure its proper usage in the interest of safety, as CPDLC is expected to remain a reliable mean of communication in oceanic airspace for a long time.

**Expected impact:**

- Political / Global
- Inter-regional
- Economic
- Environmental
- Operational/Technical

**Why:**

CPDLC is expected to remain a reliable mean of communication for air navigation safety in oceanic airspace for a long time.

<b>When: Before SAT/FIT/14</b>	<b>Status: Adopted by SAT/FIT/13</b>
<b>Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: IATA, Airlines, ANSPs, RMAs</b>	

<b>CONCLUSION</b>	
<b>SAT/FIT/13/04: Survey on aircraft datalink capabilities</b>	
<b>What:</b>  <b>That, States and ANSPs, in collaboration with users and airlines, conduct an aircraft equipage survey.</b>	<b>Expected impact:</b>  <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
<b>Why:</b> <b>In order to facilitate planning of datalink implementation.</b>	
<b>When: Before SAT/FIT/14</b>	<b>Status: Adopted by SAT/FIT/13</b>
<b>Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: ANSPs, IATA, airlines.</b>	

**Decision 13/05: 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 F to this report.**

## **Part II: REPORT ON THE AGENDA ITEMS**

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

1.1 Under this agenda item the meeting unanimously elected. Mr. **Simon Zwane**, Senior Manager: ATM Research and Planning, ATNS as Chairperson of the SAT meeting. He therefore chaired and moderated its plenary sessions and was assisted by the Secretariat.

1.2 The meeting reviewed and adopted the draft agenda and work programme proposed by the Secretariat. The agenda items are:

Agenda Item 1: Adoption of the Agenda

Agenda Item 2: Review of SAT/FIT/12 Report

- CPDLC/ADS-C Application
- Reduction in the Use of Free-Text Messages
- AIDC/AMHS Operations
- Performance Based Communication and Surveillance (PBCS)

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

Agenda Item 6: Any other business

### **Agenda Item 2: Review of SAT/FIT/12 Report**

2.1 The meeting reviewed the Conclusions and Decisions adopted by the SAT/FIT/12 Meeting which was held in Paris, France, from 5 to 6 June 2017 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 the status of implementation of SAT FIT/12 Conclusions and Decisions, SAT FIT/13 noted that all the SAT States in the South America region were unable to attend the meeting and could not provide updates. Secretariat was requested to bring the meeting SAT/FIT meeting



reports and the actions required therein to all the concerned States, the PIRGs and Regional Monitoring agencies.

2.3 The problem of non-RVSM approved aircraft operations in RVSM airspace was noted as being a priority safety concern. SAT States were requested to put in place more effective and stringent mechanisms to address the trend. In addition, ANSPs were urged to explore the use of automation tools to better determine and manage the incidents of non-RVSM approved aircraft operating in RVSM airspace.

2.4 The meeting also reviewed the implementation Action Plan for the four programmes which were adopted by SAT FIT /12.

C-1: ADS-C /CPDLC Application:

- IATA was requested to sensitize airspace users regarding ADS-C /CPDLC training for flight crew operating in the Oceanic area
- ANSPs to request State of Registry or State of Operation of scheduled airlines operating in oceanic airspace to sensitize them on the use of CPDLC.

C-2: Reduction in the Use of Free-Text Messages:

- All ANSPs are requested to send name and details of Focal Points to Team Leader by 31st July 2018.
- Secretariat (SAM RO) and SAT FIT Team Leader to ensure that Oceanic FIRs in SAM Region submit the list of free text messages frequently used to ASECNA by 31st July 2018.

C-3: AIDC/AMHS Operations:

- The task has more technical requirements which will be better addressed by the CNS Working Group. The SAT-FIT decided to transfer the task to the CNS WG of SAT.

C-4: Performance Based Communication and Surveillance (PBCS):

- IATA provided the meeting with a summary of some of the challenges related to the PBCS implementation in the NAT region and globally. Manufactures testing was ongoing and affecting provision of statements of compliance and some States in the EUR region had challenges concerning PBCS operator approvals affecting PBCS readiness levels in the NAT Region. Further, to accommodate the current operator readiness level and to mitigate impact on NAT OTS efficiency, the NAT SPG implemented a transition period to accommodate aircraft equipped with PBCS and to maintain as much efficiency as possible for non-equipped aircraft and aircraft not meeting performance requirements.
- In response to the group's inquiry concerning the NAT Region PBCS implementation plan, IATA informed the group of the efforts underway by NAT ANSPs, ICAO EUR/NAT Office and ICAO HQ to examine areas of the implementation which were carried out without any hindrances and the problematic areas of the implementation plan. Finally, IATA indicated that any lessons-learnt would be valuable to the SAT Region in development of their regional PBCS implementation plan, support processes and working arrangements; the lessons-learnt would be promulgated as soon as the information becomes available.

- The PBCS implementation Go-Team was reconstituted to study PBCS implementation in other regions, identify the challenges which were encountered and the solutions derived therefrom, monitor global development of PBCS and submit a draft plan for the SAT area with reasonable timelines for completion of various activities leading to implementation of PBCS in the SAT area, and a proposed target date.

2.5 The updated status of implementation of SAT FIT/12 Conclusions & Decision and Action Plan are attached to this report as in Appendix B and Appendix C respectively. The team leads and Go-Team members were tasked to coordinate the implementation for the programmes which were adopted by SAT FIT 13.

### **Agenda Item 3: Review of ADS/CPLC Programmes and Implementation Activities in SAT FIRs**

3.1 The South Atlantic Monitoring Agency (SATMA) presented the Central FANS Regional Agency (CFRA) FANS analysis for 2017 and reiterated that the agency will be responsible for monitoring and coordinating FANS and Performance Based Communication and Surveillance (PBCS) implementations in the EUR/SAM corridor. However, SATMA is unable to provide monitoring functions for the other non-EU/SAM member States of the SAT region.

3.2 The meeting recalled SAT FIT/12 discussions on PBCS monitoring in the SAT area following which the Secretariat was requested to liaise with Brazil and CARSAMMA regarding the possibility of CARSARRMA to provide datalink monitoring for the CARSAM regions. The meeting noted that the establishment of datalink monitoring for the AFI region was assigned by APIRG to a Task Force and was being coordinated by the APIRG Infrastructure and Information Management Sub-Group (IIM-SG).

3.3 The meeting identified the need for coordination among the various agencies who currently are, or will be providing datalink monitoring services for States/ANSPs in the SAT region. This will enable them to share experiences and give a better picture of datalink monitoring over the entire SAT area PBCS implementation is one of the programmes on the SAT agenda.

3.4 SATMA noted that PBCS implementation will require a continuous monitoring activity, and therefore requires that States to establish national data link monitoring and reporting programmes.

3.5 From the foregoing, the meeting adopted the following Conclusions:

<b>CONCLUSION</b>	
<b>SAT/FIT/13/01:</b>	<b>Development of SAT Region specific datalink reporting requirements and responsibilities</b>
<b>What:</b> That, all stakeholders contribute to the relevant datalink reporting requirements in accordance with ICAO provisions.	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
<b>Why:</b> In order to facilitate planning of datalink implementation and oversee the actual implementation.	
<b>When:</b> Before SAT/FIT/14	<b>Status:</b> Adopted by SAT/FIT/13
<b>Who:</b> <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: Stakeholders, Go Team.	

<b>CONCLUSION</b>	
<b>SAT/FIT/13/02:</b>	<b>Increase the coordination of PBCS monitoring between RMAs</b>
<b>What:</b>  That, based on the SAT FIT discussions, SATMA is requested to initiate the process to update its ToRs for PBCS monitoring in the EUR/SAM corridor; and  SAT States are invited to support the PIRGs activities in updating the RMA ToRs accordingly for PBCS monitoring and enhance the coordination & collaboration between the involved RMAs, especially ARMA, CARSAMMA, DLMA and SATMA.	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
<b>Why:</b> To ensure compliance with monitoring provisions.	
<b>When:</b> Before SAT/FIT/14	<b>Status:</b> Adopted by SAT/FIT/13
<b>Who:</b> <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: RMAs	

3.6 SATMA/CFRA reported to the meeting that it did not receive any operational or technical reports from SAT States and airlines on FANS interoperability issues. Furthermore, SATMA/CFRA did detect FANS interoperability issues during the analysis period.

3.7 The meeting was reminded of the need for Required Communication Performance (RCP) and Required Surveillance Performance (RSP) to be monitored. The meeting was reminded that States/ANSPs have a major responsibility to compile data and troubleshooting issues and make them available to CFRA.

3.8 The meeting was informed that about 54% of the EUR/SAM Corridor flights (Canarias area) connected to ENAIRE FANS Ground System. Additionally, almost 95% of flights indicated the FANS equipage in their flight plans and connected to ENAIRE FANS Ground System. It represents an increase from 2016.

3.9 Regarding usage of ADS-C, the initial ADS-C contracts established currently consists of a 15-minute periodic contract, and involved requests for transmission of flight identification, predicted route, earth reference and air reference for every periodic report, and an event contract including vertical rate change, altitude range, waypoint change and lateral deviation events, (the latter with a 5 nautical mile threshold). Position accuracy notified in ADS-C reports is not worse than 0.25 NM 99.98% of the times (i.e. 99.98% of the times FOM 6 or 7 is notified, being FOM 6 the most common value).

3.10 Regarding CPDLC message elements used:

- a) For uplink, the most used message elements by controllers related to the process of CPDLC communications transfer (NEXT DATA AUTHORITY and END SERVICE), representing about 25% of the total uplink messaged. Along with the CONTACT message these three represent about 46% of the total messages. Apart from the three pre-formatted message above, the normal priority free text is also frequently used message elements.
- b) For downlink elements, response message elements WILCO and ROGER represent almost 70% of the received message elements.

3.11 For downlink messages delay, an average of 95% of the calculated delays are usually not greater than 60 seconds, whilst 99% of calculated delays are usually well below 180 seconds (RCP180).

3.12 Central FANS Regional Agency (CFRA) FANS analysis for 2017 is attached to this report as Appendix – D.

3.13 EUR/SAM States and ANSPs were therefore requested to report ADS-C/CPDLC troubleshooting to SATMA/CFRA. Other non-EUR/SAM States and ANSPs in the SAT area were also requested to report ADS-C/CPDLC troubleshooting issues to their respective RMAs as applicable.

3.14 Air Navigation Service Providers (ANSPs) and users are invited to 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). In accordance with regional recommendations and in order to improve air navigation services, ASECNA took the decision to implement ADS-C/CPDLC in several centers.

3.15 Since 2002, ASECNA started to implement ADS-C and CPDLC systems in several centers, including Dakar, Abidjan, Antananarivo, Brazzaville, Niamey and Ndjamena.

3.16 A complete simulator system is also implemented at the training center EAMAC in Niamey, to support the training of Air Traffic Controllers.

3.17 A systems performance assessment conducted by ASECNA in 2017 on the FANS Datalink traffic for Abidjan and Dakar is presented below:

Centers	ASA Aircom Service Availability		USR Uplink Success Rate= 1		UDT Uplink messages Delivery Time	
	VHF Service via DHP	Satellite Service via DHP	VHF Service	Satellite Service	FANS (< 120s )	FANS (< 360s )
<b>Abidjan</b>	97.37%	<b>100.0%</b>	100.0%	<b>100.0%</b>	<b>98.58%</b>	<b>99.84%</b>
<b>Dakar</b>	95.56%	<b>100.0%</b>	100.0%	<b>99.98%</b>	<b>99.33%</b>	<b>99.96%</b>

3.18 Operational enhancement: The following observations were made:

- Most of the aircraft flying within Dakar Oceanic airspace are now ADS-C/CPDLC equipped (More than 90%); This has improved the provision of air navigation services in this airspace where flexible (iflex) and random routing (AORRA) operations are performed;
- Nevertheless, some aircraft are not equipped or do not use ADS-C/CPDLC even when they are equipped, and this could be a challenge for the implementation of new airspace concepts such as RNP4 in the SAT Region;
- Some ANSPs in the SAT region are engaged in a process of implementation of space base ADS-B which is a candidate for air traffic surveillance in the oceanic airspace to support the implementation of new airspace concept when the technical specifications and standards will be matured.

3.19 The summary report of the performance of ASECNA ADS-C/CPDLC systems conducted in 2017 is attached to this report as Appendix –E.

3.20 The meeting recalled previous discussion on the need for aircraft operating in Oceanic airspaces to be equipped and have the capability to use ADS-C/CPDLC since it will remain a more reliable means of communication in oceanic airspace for a long time, noting, that other systems such as Space based ADS-B is becoming a serious candidate as surveillance mean for the Oceanic airspace. This will enhance the level of safety.

3.21 The meeting commended SATMA and ASECNA for the surveys and analysis which they conducted. States/ANSPs and users were urged to regularly conduct assessment of the systems and provide feedback to the SAT Group to help with planning and implementation of systems and programmes for improvement of ATS over the South Atlantic. From the foregoing, the meeting adopted the following conclusions.

<b>CONCLUSION</b>	
<b>SAT/FIT/13/03: Equipage and Usage of CPDLC in the Oceanic Airspace</b>	
<b>What:</b> That, Operators are urged to take appropriate measures to equip their aircraft with CPDLC and ensure its proper usage in the interest of safety, as CPDLC is expected to remain a reliable mean of communication in oceanic airspace for a long time.	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
<b>Why:</b> CPDLC is expected to remain a reliable mean of communication for air navigation safety in oceanic airspace for a long time	
<b>When: Before SAT/FIT/14</b>	<b>Status: Adopted by SAT/FIT/13</b>
<b>Who:</b> <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: IATA, Airlines, ANSPs, RMAs	

<b>CONCLUSION</b>	
<b>SAT/FIT/13/04: Survey on aircraft datalink capabilities</b>	
<b>What:</b> That, States and ANSPs, in collaboration with users and airlines, conduct an aircraft equipage survey.	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical

<b>Why:</b> In order to facilitate planning of datalink implementation.	
<b>When:</b> Before SAT/FIT/14	<b>Status:</b> Adopted by SAT/FIT/13
<b>Who:</b> <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Others: ANSPs, IATA, airlines.	

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

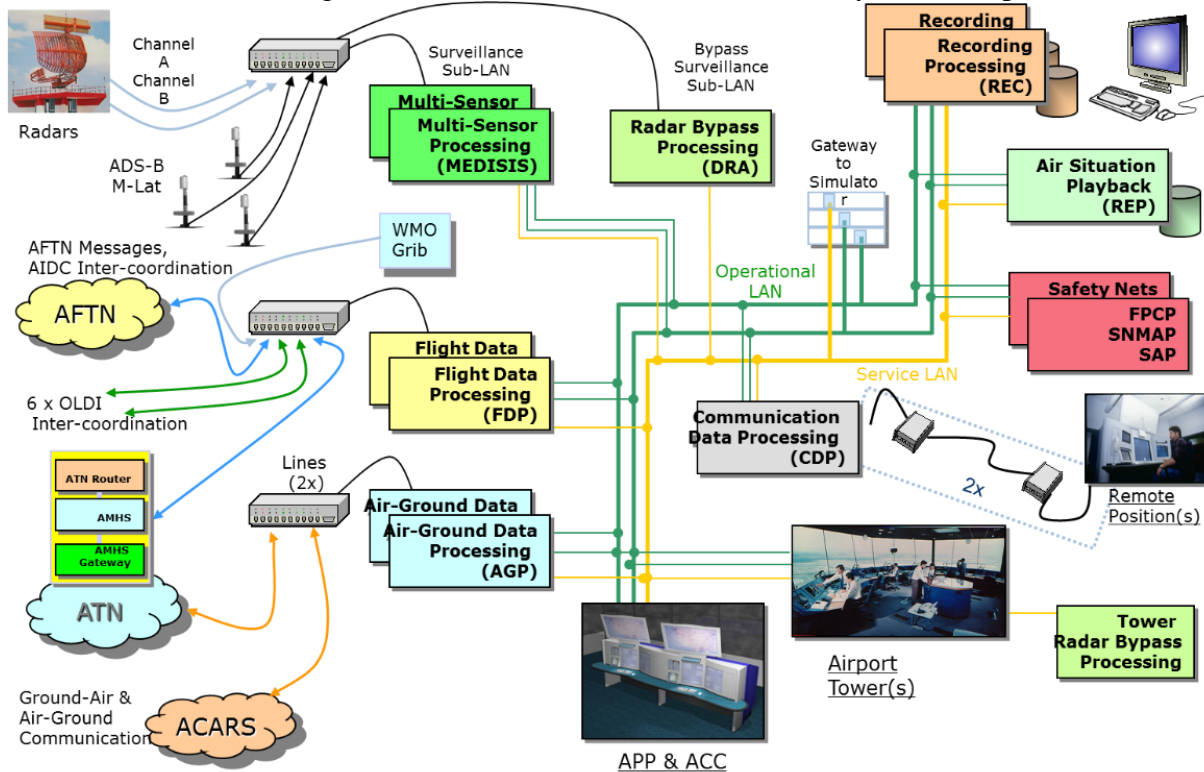
##### *ASECNA ADS/CPDLC Treatment Function*

4.1.1 This meeting was presented with information regarding ADS/CPDLC system performance monitoring and maintenance in ASECNA FIRs. Details of the systems architecture, treatment function, as well as Air/Ground Data Link Infrastructure which addresses interoperability requirements and safety monitoring aspects of the system were provided.

4.1.2 ADS/CPDLC operations in ASECNA FIRs are performed from the FDPS, which principal function controls are based on flight plan data usage associated with Radar, ADS-B and/or ADS/CPDLC. The system provides monitoring function and on line support functions for the extraction and analysis of operational.

4.1.3 The Air/Ground Data Link treatment function ensure establishment and automatic process of Air/Ground Datalink communications between ATC center and FANS/1 or FANS/A avionic according to ARINC 622 standard. These data links are used as basis for ADS and CPDLC as define in Doc 4444-RAC/501/12, RTCA/DO-212, RTCA/DO-219, ARINC 622.

4.1.4 The schematic diagram of the ASECNA ADS-C/CPDLC system was provided as below:



### *Interoperability*

4.1.5 The AGDP function manages automatic ADS contract transfers to an adjacent ATC center by using contact recommendation message. The ATCO can also give clearance to the pilot to contact the new Data Authority from the Flight Plan Integrated window.

4.1.6 The establishment of CPDLC connection with the pilot is automatic. The CPDLC functions are integrated with other components of the system, such as FDP process tool, to allow automatic transfer of CPDLC connection to the next ATC center in association with coordination messages (AIDC) exchanged between both centers.

### *Safety and Monitoring aspect*

4.1.7 The safety and monitoring aspect are both managed at ATC system level and at Air/Ground Datalink connection.

4.1.8 At ATC operational level, the system provides the ATCO with several visual and sonorous alerts and warnings which are mandatory for safe operations. These alerts and alarm result from 4D Flight profile in real time calculation processed by the FDP after integration of external information (messages from Radar, ADS, CPDLC, AFTN, etc.) and Emergency Messages (STCA, DAW, MSAW, CLAM, RAM, ARCW).

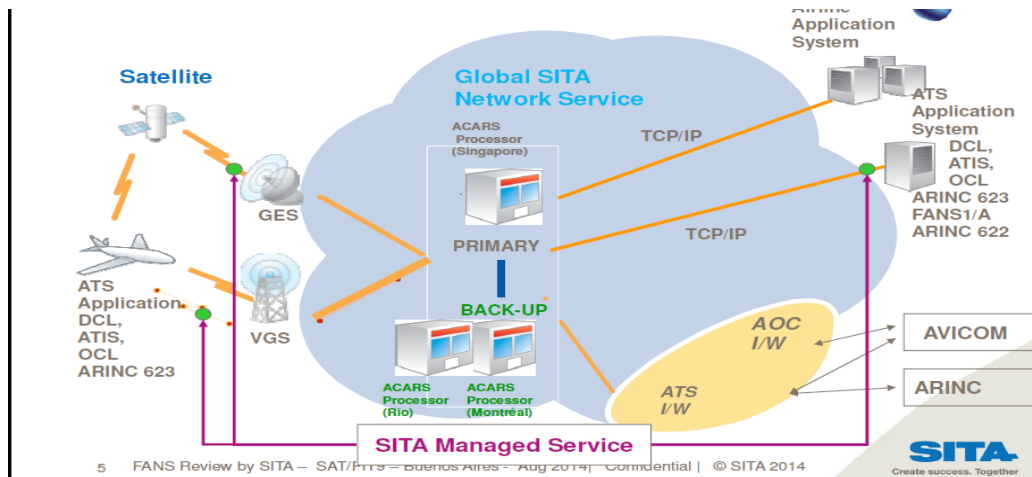
4.1.9 The FDP trajectory calculation also includes integrated control such as ETO, MPR, FPCP and SAR. At A/G Datalink level, SITA as part of its contract with ASECNA undertakes to transmit



monthly the measurement of traffic performance of ADS-C/CPDLC connections. These statistics show:

- FANS traffic statistics with the global datalink traffic and the traffic by media and airlines;
- FANS performance with the service availability, RGS and GES availability, the uplink success rate and the uplink reject rate.

4.1.10 Micro failures in the ACARS link are reported when they occur, and provides the platform for ASECNA and SITA to coordinate in real time to restore availability of the link.



4.1.11 The meeting noted that ADS-C/CPDLC has system has enormous the capacity and capabilities of which provide significant operational benefits in the management of air traffic in the SAT area if the interoperability, safety and performance monitoring of the systems are properly integrated.

4.1.12 Airlines were encouraged to report ADS-C/CPDLC events which they encounter during the usage of the ADS-C/CPDLC to enable ASECNA and other States/ANSPs to improve upon the overall performance of their systems.

## 4.2 Improper Use of Certain Pre-Formatted CPDLC Message Elements

4.2.1 ASECNA presented a paper about the improper use of pre-formatted CPDLC messages and its potential impact of flight safety. The paper provided awareness on the hazardous use of some pre-formatted CPDLC message elements as conventional expression during exchanges between Air Traffic Controllers and Pilots, which in many reported cases could be confusing and may lead to unsafe situation for flights.

4.2.2 ASECNA reported that its analysis of the current situation indicates that a great number of CPDLC messages elements are being incorrectly used by air traffic controllers and pilots, and urged for mitigation actions to be taken in the interest of safety.

4.2.3 The most common circumstances that lead to inadvertent, unexpected, inappropriate or ambiguous use of CPDLC messages occur when:

- relaying messages,
- answering to requests,
- delivering traffic information...

4.2.4 As an illustration, the meeting was presented with an actual example of a request from a flight to climb to FL350 or FL370 due to its aircraft performances; as a respond, the ATC issued that followed clearance: “*cruise climb to FL370*”, whilst it was expected from the traffic to use “*expedite climb*”. Contrarily, “cruise climb to” clearance allows a flight to “step-climb” as its weight decreases and gives discretion to pilots to optimize flight level increases until reaching the cleared cruising level.

4.2.5 The meeting urged pilots to request for clarification when they issued with such unexpected clearances. The meeting was informed that the situation may be caused by the existence of a huge number of pre-formatted messages per section, thus making it difficult for the controller or pilot to find easily the suitable pre-formatted message. Furthermore, the absence of pre-formatted messages to be used in some particular situations may contribute to the event.

4.2.6 In the interest of safety, the meeting reiterated the need to use standardized pre-formatted message elements provided for in Doc.10037 Appendix A. ANSPs and operators were urged to monitor the incorrect usage of pre-formatted CPDLC messages which are likely to be confusing, and take action to mitigate the risk of misinterpretation to uplink or downlink messages.

### 4.3 Free-Text Messages

4.3.1 The use of “free text” messages in CPDLC links between Air Traffic Controllers and Pilots in many reported cases is susceptible to errors that can lead to misunderstanding. The use of “free text” is recommended only in situations of absolute necessity and where preformatted messages do not exist.

4.3.2 Analysis of the current situation indicates that there is significant number of CPDLC free-text messages currently being used mainly by air traffic controllers and pilots instead of those allowed by the GOLD document. This situation is mainly due to the absence of preformatted messages available to the controller to be used in particular situations where it is difficult for him to easily find the required preformatted message.

4.3.3 The set of frequently used “free text” messages was noted by SAT FIT/12 and referred the “Reduction in the Use of Free-Text Messages Go-Team” for analysis and further, to provide its recommendation for standardization, adoption and consideration for inclusion in ATSU where appropriate, in order to mitigate the risk of misinterpretation of uplink or downlink messages.

4.3.4 ASECNA as team leader have received information related to the frequently CPDLC free-text messages from three ACCs in SAT area and EUR/SAM corridor, namely Dakar, Accra and Sal.

#### 4.3.4.1 CPDLC free text messages frequently used in Dakar ACC

Message Text
REQUEST RELAY TO [call sign] TO REPORT ESTIMATE [position]
REQUEST RELAY TO [call sign] TO CONTACT [unit name] ON HF FREQUENCY.....
ARE YOU ABLE [level]
UNABLE DUE TO TRAFFIC
UNABLE DUE ROUTING ALTERNATIVE [level] ADVISE
CAN YOU ACCEPT [speed]
REPORT ESTIMATE [position]
TRAFFIC IS [type] [direction] [level]

#### 4.3.4.2 CPDLC free text messages frequently used in Accra ACC

Message Text
VERTICAL /UPLINK MESSAGES
UNABLE
STANDBY
ROGER
AFFIRM
NEGATIVE
SYSTEM MANAGEMENT MESSAGES
NEXT DATA AUTHORITY

#### 4.3.4.3 CPDLC free text messages frequently used in SAL ACC

Message Text
REQUEST POSITION REPORT
ADVISE ETA POSITION... AND SPEED
WHEN CAN YOU ACCEPT ( FL...)
CONTACT (unit name) FOR OCEANIC CLEARANCE
CLEARED TO DEVIATE UP TO (distance/direction) OF ROUTE
LOGON TO (facility designation)
DISCONNECT CPDLC THAN LOGON TO (unit designation)
UNABLE DUE TRAFFIC
CONTACT (UNIT NAME) FREQ...LOGON (unit designation)
REQUEST RELAY TO (call sign) TO CONTACT (unit name) ON FREQUENCY

4.3.5 A comprehensive CPDLC message set is contained in ICAO Doc 4444: PANS-ATM, Annex 5 and this is supplemented by the same in the GOLD (doc 10037).

4.3.6 The use of free text message elements by controllers or pilots should be avoided. This is intended to reduce the possibility of misinterpretation and ambiguity. If no pre-formatted message set exists, then free text can be used but has to be kept to a minimum.

4.3.7 Provisions concerning the use of free text message elements are contained in Annex 10, Volume II, Chapter 8. The global communication procedures are detailed in the ICAO Provisions: Annex 10 Volume III Part 1 Chapter 3.

4.3.8 The meeting noted the information and updates provided by ASECNA and ATNS and referred them to the SAT FIT Go-Team for the Reduction of Free-Text for consideration in their work.

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

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

**Decision 13/05: 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 F to this report.**

**Agenda Item 6: Any other business**

6.1 The SAT FIT was urged to endeavour to implement the conclusions and decisions which were adopted by meeting. The Team Leaders, focal points and members of the reconstituted programmes were urged to have regular teleconferences and provide quarterly update reports to the Secretariat.

6.2 The Team Leads were requested to regularly liaise with the Secretariat and Rapporteur of SAT FIT to ensure that focal points and Go-Team members who are nominated by States, ANSPs, industry and international organisations, actively participate in the implementation of the conclusions and decisions, as well as develop and/or update the Action Plans during their quarterly teleconference.

6.3 The various programme leads were reminded of the need to submit reports and working papers to the next SAT FIT meeting.

6.4 SAT FIT member States, ANSPs and international organizations were also urged to submit working papers on agenda items for SAT FIT meetings.