



**FIFTEENTH MEETING ON THE IMPROVEMENT OF AIR TRAFFIC SERVICES OVER THE  
SOUTH ATLANTIC (SAT 15)**

**(LISBON, PORTUGAL 19- 21 MAY 2010)**

**Agenda Item 1: Air Traffic Management (ATM)**

**1.3 Proposal of safety procedures to prevent LHD's based on ADS-C CPDLC or only ADS-C**

(Presented by SATMA)

**SUMMARY**

This paper is a proposal of new safety procedures based on the use of ADS/C- and CPDLC, where available, to prevent LHD's due to operational coordination errors between adjacent ACC's.

**1. INTRODUCTION**

The main cause of the LHD's reported to SATMA for the period June 2009- March 2010 has been "operational error in the ATC unit to unit coordination". The most common error is the lack of revision of the cleared flight level to the next ACC. This error is also detected in other RMA's and some general procedures for ATC staff regarding training, communications, phraseology, supervision, etc. are on the way to be implemented. To prevent LHD's and on addition to these general procedures, some specific procedures should be applied.

Since the last SAT14 Meeting FANS1/A systems have been, fully or partially, implemented along the Corridor. Until the complete implementation of FANS1/A procedures along the Corridor, at least the use of ADS/C, even in cases where ADS/C is not fully operational, makes possible for equipped aircrafts, to provide to the next ACC advanced information about real flight level of the incoming aircraft before overflying the common boundary. This information gives to the receiving ACC the possibility of comparing the flight level information provided, at least, by means of ADS/C with the flight level information contained on the traffic estimate provided by the previous ACC and, if needed, take preventive actions to avoid a possible LHD.

**2. DISCUSSION**

As all ACC's of the EUR-SAM Corridor are ADS-C equipped (operational or not) and some of them are also CPDLC equipped, one of these procedures between the transferring and receiving ACC should be applied:

2.1. Cases where both collateral ACC's are ADS-C & CPDLC equipped.

2.1.1.- The transferring ACC shall send to the aircraft the CPDLC message (UM160) NEXT DATA AUTHORITY (facility designator) at least 1 minute before doing the next step.

2.1.2.- 30 minutes before the common boundary, the transferring ACC will initiate the connection transfer procedure sending a FN\_CAD message that will instruct the aircraft system to initiate an AFN Log- on to the next ACC (still full connection with the transferring ACC).

2.1.3.- If 20 minutes before reaching the common boundary point the automatic Log- on with the receiving ACC has not been successful, the pilot shall start a manual Log-on.

2.1.4.- Once the Log- on is accepted by the receiving ACC, the receiving controller will establish the CPDLC connection which will remain inactive until the CPDLC END SERVICE message is sent from the transferring ACC and received by the aircraft.

2.1.5.- Immediately after the reception of the Log- on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a way point change event contract. (Demand contracts will also be used if it is considered necessary).

2.1.6.- The transferring ACC will send the CPDLC END SERVICE message 5 minutes before the common boundary point.

2.1.7.- The transferring ACC will not terminate the ADS- C connection before the aircraft has over flown the boundary point.

2.2.- Case where the transferring ACC only ADS-C equipped and receiving ACC is ADS-C & CPDLC equipped.

2.2.1.- 30 minutes before the common boundary the transferring ACC shall initiate the connection transfer procedure sending a FN\_CAD message that will instruct the aircraft system to initiate an AFN Log- on to the next ACC (still ADS-C connection with the transferring ACC).

2.2.2.- If 20 minutes before reaching the common boundary point the automatic Log- on with the receiving ACC has not been successful, the pilot shall start a manual Log- on.

2.2.3.- Once the Log- on is accepted by the receiving ACC, the receiving controller can establish the CPDLC connection which will be active on the receiving ACC. The receiving ACC will never start the CPDLC message interchange (attend new requests or provide clearances) with the aircraft until reaching the common boundary point.

2.2.4.- Immediately after the reception of the Log- on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a waypoint change event contract. (Demand contracts will also be used if it is considered necessary).

2.2.5- The transferring ACC will not terminate the ADS-C connection before the aircraft has over flown the boundary point.

2.3. Cases where the transferring ACC is ADS-C & CPDLC equipped and receiving ACC only ADS-C equipped.

2.3.1.- 30 minutes before the common boundary the transferring ACC shall initiate the connexion transfer procedure sending a FN\_CAD message that will instruct the aircraft system to initiate an AFN Log-on to the next ACC (still full connection with the transferring ACC).

2.3.2.- If 20 minutes before reaching the common boundary point the automatic Log-on with the receiving ACC has not been successful, the pilot shall start a manual Log-on.

2.2.3.- Immediately after the reception of the Log-on, the receiving ACC will establish, at least, a 15 minutes periodic contract and a waypoint change event contract. (Demand contracts will also be used if it is considered necessary).

2.3.4.- The transferring ACC will send the CPDLC END SERVICE message to CPDLC connected aircrafts 5 minutes before the common boundary point.

2.3.5.- The transferring ACC will not terminate the ADS-C connection before the aircraft has over flown the common boundary point.

2.4.- General

The implementation of these procedures implies that SAT States should:

- a) Any inconsistency of flight level information between the ADS-C track with the previous estimate should be confirmed by the receiving ACC.
- b) The specific FANS1/A procedures should be reflected on the respective LoA between the adjacent ACC's.
- c) Each SAT State, at the agreed common date, should publish an AIC reflecting these procedures.

### 3. ACTION BY THE MEETING

The SAT/14 Meeting is invited to analyse and discuss the conclusions of this WP and, if decided so, agree the common steps ahead to perform a common implementation of these procedures.

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