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Future Air Navigation Systems (FANS) Controller - Pilot Data Link Communications (CPDLC) in the Santa Maria Oceanic Control Area (OCA)

1. INTRODUCTION

Operational trials of FANS 1 / A controller-pilot data link communications (CPDLC) in the Santa Maria Oceanic Control Area are planned to commence on December 18, 2006.

CPDLC is a data link service that allows pilots and controllers to exchange text messages, alleviating frequency congestion problems and reducing the risk of communication errors. Communications can be conducted via a defined message element (a message element whose content and format are pre-determined) or via a free text message element, usually referred to as free text message (a message element whose content is variable, i.e., composed by the sender).

2. PURPOSE

The purpose of this Aeronautical Information Circular (AIC) is to present information about the NAV Portugal operational CPDLC trial to be implemented in the Santa Maria OCA.

The procedures described in this Circular are in accordance with the procedures in the the International Civil Aviation Organization (ICAO) document " *Guidance Material for ATS Data Link Services in North Atlantic Airspace* ", which is available on the ICAO North Atlantic Programme Coordination Office (NATPCO) website at www.nat-pco.org.

3. AREA OF APPLICATION

Santa Maria Oceanic Control Area (OCA).

4. IMPLEMENTATION

NAV Portugal will implement in Santa Maria OCA CPDLC services at Phase 3, as defined in the ICAO document "Guidance Material For ATS Data Link Services in North Atlantic Airspace".

Flight crews will be able to request en-route altitude and speed changes and to report leaving / reaching levels via CPDLC. Responses to these requests are also via CPDLC. Other messages will be supported in accordance with the message set defined by the Guidance Material.

Date of implementation : **December 18, 2006**

Note: Any changes to this schedule will be published by NAV Portugal through a NOTAM.

5. PROCEDURES

5.1 General

The backup system for the CPDLC service in the Santa Maria OCA is voice radio service provided by the Santa Maria Radio Station.

In order to assure that aircraft are always reachable via voice radio, **flight crews shall always make a contact prior to the boundary with Santa Maria Radio Station to check the SELCAL and receive the frequencies allocation for the Santa Maria OCA and for the next ATS Unit**, in accordance with flight crew procedures included in this document.

5.2 Flight Planning

To facilitate the eventual migration to a standardized Communications, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) system and in keeping with the flight planning provisions as specified in ICAO's Procedures for Air Navigation Services, Air Traffic Management (PANS-ATM Doc.4444), operators should insert the following items into the ICAO Flight Plan form for FANS 1 / A equipped aircraft:

- a) Field 10a (Radio communication, navigation and approach equipment): insert the letter " J " to indicate data link equipment;
- b) Field 10b (Surveillance equipment): insert the letter 2 D " to indicate ADS capability;
- c) Field 18 (Other information): when the letter " J " is inserted in Fiel 10a, insert the characters " DAT/ " followed by one or more letters as appropriate to indicate the type of Data Link equipment carried (see table below).

Letter Following DAT/	Type of Data Link equipment
S	Satellite Data Link
H	HF Data Link
V	VHF Data Link
M	SSR Mode S Data Link

5.3 ATS Facilities Notification (AFN) Logon

Santa Maria OACC AFN logon address: **LPPO**

Flights must be logged on to LPPO before a CPDLC connection or ADS contract can be established with Santa Maria OAC. An AFN logon provides ground systems with the aircraft information required to support FANS 1 / A data link applications and to positively identify the aircraft from a communications standpoint within the system.

Flight crews should be aware that the requirements to establish successfully an ADS contract and a CPDLC connection are different and depends from where the aircraft is entering the Santa Maria OAC airspace.

- Entering from an airspace where FANS 1 / A data link services are used:

Flights entering the Santa Maria OCA from airspace where FANS 1 / A data link services are being received, such as Shanwick OAC, Gander OAC or New York OAC, **do not need to perform another AFN logon**, unless specified by any of those ATS Units, because the transfer of communications will occur automatically.

- Entering from an airspace where FANS 1 / A data link services are not used:

Flights entering the Santa Maria OCA from airspace where FANS 1 / A data link services are not being received, such as Madrid ACC, Lisboa ACC, Canaries ACC, Sal ACC and Piarco ACC, should ensure that their ADS function is turned on and perform an AFN logon:

- a) 15 to 45 minutes prior to entering the airspace; or

- b) Prior to departure, for flights departing airports adjacent to or underlying the airspace.

Note: *To avoid misunderstandings with oceanic clearance request procedures, flight crews are advised that they should verify the Portuguese AIP for the proper oceanic clearance request procedures, which may have different time requirements that should be complied independently from the participation on the CPDLC operational trials.*

- Exiting the Santa Maria airspace

Flights exiting the Santa Maria OAC into adjacent airspace where ADS and CPDLC services are offered do not need to perform another AFN logon to continue participating in ADS or to initiate the next CPDLC connection, unless specified by Santa Maria ATS personnel, because the transfer of communications will occur automatically.

Flights exiting the Santa Maria OAC into adjacent airspace where ADS and CPDLC services are not offered do not need to manually disconnect the ADS function, unless specified by Santa Maria ATS personnel, because the Santa Maria FANS front-end will automatically uplink the end service and disconnect messages for the CPDLC function and will issue the ADS contract termination after receiving the boundary waypoint report.

5.4 **Flight Crew**

As stated before, flight crews shall contact the Santa Maria Radio Station on the proper or allocated HF or VHF frequencies prior to entering the Santa Maria OAC and identify the data link status of the aircraft using the term **"CPDLC"**.

If the aircraft is also participating in the ADS WPR trial, the term ADS should not be used in this case, because when stating the status as "CPDLC" it automatically implies that both ADS and CPDLC functions will be used.

Flight crews should continue to use the data link term "CPDLC" until either the selective calling system (SELCAL) check has been completed or the frequency assignment has been received.

On initial contact with the Santa Maria Radio Station the flight crews shall:

- a) **not** include a position report;
- b) use the data link term "CPDLC" after the aircraft call sign;
- c) state the name of the next OCA or flight information region (FIR) to be entered; and
- d) request the SELCAL check

- Example:

Santa Maria Radio, Airline 251, CPDLC

Airline 251, Santa Maria Radio, CPDLC, go ahead

Santa Maria, Airline 251, CPDLC, Next Shanwick, request SELCAL check ABCD

Airline 251, Santa Maria, CPDLC, Voice reports not required in LPPO, primary frequency 1234, secondary frequency 4567, next contact Shanwick on 1245, SELCAL ABCD coming up for check

Santa Maria, Airline 251, SELCAL received, out

5.5 **Position Reporting**

Flight crews are required to submit position reports via voice unless otherwise advised by Santa Maria Radio. To reduce frequency congestion, when instructed "VOICE REPORTS NOT REQUIRED IN SANTA MARIA OCA" flight crews should not send position reports via voice.

ADS WPR flights that have been instructed "VOICE REPORTS NOT REQUIRED" are exempted from all routine voice meteorological reporting. Reports of unusual meteorological conditions such as severe turbulence should be made by voice to Santa Maria Radio. CPDLC should not be used for meteorological reports unless voice contact cannot be established.

Flight crews should not ask Santa Maria Radio questions regarding the status of ADS or CPDLC connections, or whether an ADS WPR has been received. Should Santa Maria OCA fail to receive an expected ADS WPR, a voice report will be requested.

Flight crews should note that standard ATS procedures require that when an ATS Unit is in communication with a flight under the control of another ATS Unit, no clearance or instructions are given to that flight without the appropriate coordination between the ATS Units.

5.6 **Radio Station Procedures**

On the initial contact with the Santa Maria Radio Station, flight crews should expect that the radio operator:

- a) use the proper data link term after the aircraft call sign;
- b) advise the flight crew that voice reports are not required in the Santa Maria OCA
- c) allocate the primary and secondary frequencies to be used within the Santa Maria OAC;
- d) provides the frequency or frequencies for the next OCA / FIR; and
- e) perform the SELCAL check.

For other voice communications, flight crews should expect that radio operator will use the standard ICAO procedures for voice communications as defined on Annex 10, Volume II, Chapter 5.

5.7 **Onboard System Failure**

In the event of an onboard systems failure prevents CPDLC and ADS WPR or if any of these services is terminated:

- a) if the failure or termination occurs prior to initial contact with Santa Maria Radio, flight crews shall not use the data link term "CPDLC" after the aircraft call sign;
- b) flight crews shall resume normal voice communications, including providing all subsequent position reports via voice;
- c) flight crews should not inform Santa Maria Radio that the service has been terminated; and
- d) flight crews should inform the company operations department in accordance with the company established problem reporting procedures.

5.8 **Ground System Failure**

In the event of a ground system failure at the Santa Maria OAC, that prevents the normal provision of the ADS or CPDLC services, flight crews may receive a voice contact advising:

- a) to manually switch off the ATC communications function, terminate the ADS connection, revert to voice operations and to manually perform an AFN logon to the next ATS Unit;
- b) to terminate the existent connections and perform a new AFN logon to Santa Maria

6. **Additional Information a Participation Requirements**

For further information on data link services, consult "Guidance Material for ATS Data Link Services in North Atlantic Airspace" on the ICAO NAT PCO website at www.nat-pco.org. This document also details participation requirements.

For specific information about Santa Maria OAC operational CPDLC Trial, you may contact the following NAV Portugal staff:

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