INTERNATIONAL CIVIL AVIATION ORGANIZATION

FIFTH MEETING OF THE SAT FANS I/A INTEROPERABILITY TEAM
(SAT FIT/5)
(Lisbon, Portugal, 17 to 18 May 2010)

Agenda Item 3: **Review of ADS-C/CPDLC programme and implementation activities in SAT FIRs**

The correct use of CPDLC downlink report

(Presented by South Africa)

SUMMARY
To maximize the benefits that may be achieved by the use of CPDLC, it is important for ATS Units and flight crews to correctly use the CPDLC message set. This working paper focuses on the correct use of CPDLC reports.

1. INTRODUCTION

1.1 CPDLC (Controller Pilot Data Link Communications) provides the capability to communicate with an aircraft operating outside the range of normal VHF communications. There are other benefits that may be achieved through the use of CPDLC, including ground system automation that may be applied upon receipt of specific downlink message elements. To be effective, this automation requires the correct use of the CPDLC message set.

2 DISCUSSION

2.1 The CPDLC uplink message set contains a number of message elements whose purpose is to obtain specific information from the avionics. This information includes - but is not limited to – the present position, speed and altitude of the aircraft. The downlink message set contains corresponding reports which contain the information requested in the uplink.

2.2 A number of examples of this "pairing" of message elements are included in Table I below.

Uplink	**Associated downlink report**
CONFIRM ALTITUDE	**PRESENT ALTITUDE [altitude]**
CONFIRM POSITION	**PRESENT POSITION [position]**
CONFIRM SPEED	**PRESENT SPEED [speed]**

Table 1 Examples of uplinks with the corresponding downlink report

2.3   In most aircraft types, the night crew cannot initiate a downlink report unless the corresponding uplink has been sent to the aircraft. So, if the controller requires the night crew to report the present level of the aircraft, the uplink "'CONFIRM ALTITUDE" is used. From Table 1, the night crew responds with "'PRESENT ALTITUDE [altitude]", where [altitude] is the present level of the aircraft. It should be noted that the night crew do not have to go searching for this downlink, or manually enter the present level of the aircraft - the avionics should present the night crew with the appropriate response, with altitude data already loaded.

2.4   On many occasions, free text downlink "reports" have been received from night crews in response to an uplink. Apart from the loss of automation associated with these free text messages, these types of downlinks arc prone to errors, as well as being displayed in a non-standard format to the controller.

2.5   ATS Units should ensure that appropriate controller procedures are in place, requiring the use of correct uplink message elements when a specific report is required. For an ATS Unit, the general principle that should he followed by the controller is:

•   If a downlink report (e.g. a "level report" or "back on route" report) is required, then ensure that the appropriate uplink is sent to the aircraft, using the correct preformatted message element.

2.6   Aircraft operators should ensure that night crew procedures and training includes information concerning the arming and transmission of CPDLC reports. In an aircraft, the general principle that should he followed by the night crew is:

•If an instruction to report is included in an uplink, ensure that the appropriate report is downlinked, using the correct preformatted message element;
•If an instruction to report is not included in an uplink, do not send a downlink report (free text or otherwise).

3.   **ACTION BY THE MEETING**

3.1   The meeting is invited to discuss the contents of this working paper; namely:

a)   ATS Units should ensure that controllers use the correct uplink message elements when a specific report is required ; and

b)   Aircraft operators should ensure that flight crew procedures and training includes information concerning the arming and transmission of CPDLC reports.