



ED-110B Change 2

INTEROPERABILITY REQUIREMENTS STANDARD FOR AERONAUTICAL THELECOMMUNICATION NETWORK BASELINE 1 (ATN B1 INTEROP STANDARD)

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COMPLEMENTS ED-110B INCLUDING CHANGE 1

FOREWORD

1. This document was developed jointly by EUROCAE Working Group 78 “Standards for Air Traffic Data Communication Services” and RTCA SC-214 “Standards for Air Traffic Data Communication Services”, and was approved by the Council of EUROCAE on 10. October 2024.
2. This document complements ED-110B ‘Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard)’ (December 2007) including Change 1 (March 2014).

As compared with the previous version, the main changes are intended to:

- a. Item 1 reduces pilot confusion using UM79 CLEARED TO [position] VIA [route clearance] in cases where the [route clearance] parameter only contains waypoints and not airways.
- b. Item 2 allows sending the transfer instructions as a distinct CPDLC message and then the CPDLC-End request as independent steps in the operating method transfer of voice communication using CPDLC to the next ATSU. This is a recommendation based on several years of operational usage by European ANSPs.
3. This document is technically identical to RTCA DO-280B Change 2.
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SUMMARY OF CHANGES

Change 2 to ED-110B is summarized as follows:

Description of change	Affected paragraphs and tables
Item 1 – Use of Uplink Message Element UM79. Rewording of the interoperability requirement to not require the repetition of the “CLEARED TO” waypoint at the end of the <i>[route information]</i> variable when the <i>[route clearance]</i> parameter is expressed as a sequence of waypoints and not airways.	Vol I, Section 3.3.7.6.4.10 Use of Uplink Message Element UM79 The interoperability requirement 3.3.7.6.4.10.2
Item 2 – Capability to send the Transfer Instruction (UM117 / UM120) not included in the CPDLC-End request. In operating method tables and figures describing the transfer of voice communication using CPDLC to the next ATSU, allowing sending of the transfer instruction (VCI) before the CPDLC-End request or in the CPDLC-End request.	Vol I, 4.3.4 Transfers between T-ATSU using CPDLC and R-ATSU using CPDLC <u>Descriptive text in 4.3.4 (before Table 4-3)</u> <u>Table 4-3: Transfers Between T-ATSU Using CPDLC And R-ATSU Using CPDLC,</u> - Title - Step 3a (editorial only)
	4.3.4.2 Time Sequence Diagrams 4.3.4.2.1 Transfers between T-ATSU using CPDLC and R-ATSU using CPDLC; Sample 1 - Figure 4-2 Description - Figure 4-2
	4.3.4.2 Time Sequence Diagrams 4.3.4.2.2 Transfers between T-ATSU using CPDLC and R-ATSU using CPDLC; Sample 2 Figure 4-3 Description
	Vol I, 4.3.6 Transfers Between T-ATSU Using CPDLC and R-ATSU Not Using CPDLC <u>Descriptive text in 4.3.6 (before table 4-3)</u> <u>Table 4-5: Transfers Between T-ATSU Using CPDLC And R-ATSU Not Using CPDLC,</u> - Title - Step 3a (editorial) - Step 3d (editorial)
	4.3.6.2 Time Sequence Diagrams

Description of change	Affected paragraphs and tables
	4.3.4.2.1 Transfers between T-ATSU using CPDLC and R-ATSU not using CPDLC; Sample 1 • Figure 4-6 Description • Figure 4-6
	4.3.4.2 Time Sequence Diagrams 4.3.4.2.2 Transfers between T-ATSU using CPDLC and R-ATSU not using CPDLC; Sample 2 • Figure 4-7 Description

CHAPTER 1

CHANGE DETAILS

1.1

ITEM 1, CHAPTER 3.3.7.6.4.10.2

3.3.7.6.4.10.2 When a ground system intends that the change in route will rejoin the current route, the UM79 *[position]* field shall be the same as a point on the current route. ~~and~~ The waypoint contained in the *[position]* field shall be repeated as the last point in the *[route information]* field only when the *[route information]* field ends with an airway designator connecting to this waypoint.

1.2 ITEM 2

1.2.1 Chapter 4.3.4 Transfers between T-ATSU using CPDLC and R-ATSU using CPDLC

4.3.4 Transfers between T-ATSU using CPDLC and R-ATSU using CPDLC

Ground systems shall conduct the ACM service when the T-ATSU and the R-ATSU are both using air-ground data link in accordance with either Case A or Case B:

- | | |
|--------|---|
| Case A | Transfer instructions passed without concatenation of other operational instructions. |
| Case B | Transfer instructions passed with concatenation of operational instruction UM135, requiring specific response DM38. |

An aircraft shall be able to interact correctly with both Case A and Case B.

When the T-ATSU and the R-ATSU are both using CPDLC, the transfer instructions may be sent before the CPDLC end request or it may be sent in the CPDLC end request. Each option is described below.

Option 1: Transfers between T-ATSU and R-ATSU both using CPDLC and the transfer instructions are sent before the CPDLC end request.

When the T-ATSU and the R-ATSU are both using CPDLC and the transfer instructions are sent before the CPDLC end request (i.e. not sent in the CPDLC end request):

- the transfer instructions (Case A and Case B) are processed per 4.4.3.3 'Controller Initiated Exchange';
- the subsequent CPDLC end request is processed per 4.3.11 'C-ATSU ends CPDLC connection'.

Option 2: Transfers between T-ATSU and R-ATSU both using CPDLC and the transfer instructions are sent in the CPDLC end request.

Table 4-3 provides the requirements for the ACM service when the T-ATSU and the R-ATSU are both using CPDLC and the transfer instructions are sent in the CPDLC end request.

TABLE 4-3: TRANSFERS BETWEEN T-ATSU USING CPDLC AND R-ATSU USING CPDLC AND THE TRANSFER INSTRUCTIONS ARE SENT IN THE CPDLC END REQUEST.

Step	Requirements
1a	The T-ATSU shall automatically send UM160 (NDA) to the aircraft, authorizing the aircraft to accept a CPDLC connection request from the R-ATSU. The T-ATSU shall be prohibited from sending UM160 (NDA) until after receipt of DM99 (CDA). NOTE 1: <i>In some cases the trigger to send the NDA message is initiated prior receipt of DM99.</i> NOTE: <i>The precise timing of this transmission and the means by which the message is triggered is outside the scope of this document.</i>
1b	The R-ATSU shall request the establishment of a CPDLC connection with the aircraft (CPDLC-start request). NOTE 1: <i>The precise timing of this request and the means by which the request is triggered is outside the scope of this document.</i> NOTE 2: <i>When the NDA does not request the establishment of the CPDLC connection prior to termination of the CDA connection, this will result in no CPDLC connection. At this point any ground system can establish a CPDLC connection.</i>
1c	The airborne system shall confirm the connection establishment (CPDLC-start response). NOTE: <i>Some ground systems consider CPDLC available at this step and may indicate this to the controller.</i>

Step	Requirements	
2a	Case A	Case B
	The T-ATSU controller must trigger the data link transfer instruction to contact or monitor (UM117/UM120) the R-ATSU on the R-ATSU voice channel. This shall be sent in a CPDLC-end request. The ground timer <i>tts</i> is set (per 4.2.1.4.3). If the ground system has implemented <i>tr</i>, and the message requires a LACK, <i>tr</i> is set (per 4.2.1.2.2). NOTE 1: <i>Setting timers have no affect on the behavior of CPDLC-end processing.</i> NOTE 2: <i>Sending the transfer instruction in a CPDLC-end request will prevent a LACK to the WILCO of the transfer instruction as per Doc 9705.</i> Once the T-ATSU initiates the transfer instruction (UM117/UM120), it will prohibit transmission of any other CPDLC messages unless and until: • receipt of an ERROR response, or • receipt of an UNABLE response.	As Case A, but the T-ATSU controller concatenates an instruction UM135 (Confirm Assigned Level) with the transfer instruction (UM117/UM120).
2b	The airborne system receives the message. The airborne system will transmit a LACK to the ground when: • required in the uplink message, and • the received message has been validated and is available for display to the aircrew.	
2c	When a LACK response is required, and is received by the ground before the expiration of the ground timer <i>tr</i>, <i>tr</i> is cancelled (per 4.2.1.2.3).	
2d	The air timer <i>ttr</i> is set (per 4.2.1.3.3).	