



International Civil Aviation Organization

ICAO

Twenty-First Meeting of the ICAO Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/21)

Bangkok, Thailand, 19 – 22 May 2026

Agenda Item 4: AIS-AIM Updates

CPDLC UPLINK ISSUE CAUSED BY DUPLICATE 5LNC

(Presented by Secretariat)

SUMMARY

This paper presents information on the North Atlantic (NAT) CPDLC Route Clearance Project Team (CRCPT) activities related to CPDLC route uplink issues associated with duplicate 5LNCs. Cases were identified in which duplicate fixes resulted in incorrect route loading and operational impacts, including deviations from cleared routes. The paper highlights coordination initiated between the EUR/NAT and APAC Offices regarding the review and resolution of duplicate 5LNCs within the APAC Region. States are encouraged to accelerate efforts towards resolving long-standing duplicate 5LNC issues in view of their potential impact on the safety and orderly conduct of aircraft operations and air traffic management.

1. INTRODUCTION

1.1 The North Atlantic (NAT) Controller Pilot Data Link Communications (CPDLC) Route Clearance Project Team (CRCPT), established under the NAT Implementation Management Group (IMG) and supervised by the NAT Planning and Operations Group (POG), conducted work from January to April 2025 to identify limitations associated with CPDLC route uplinks in the NAT Region, including route discontinuities and unloadable routes. The project examined impacts on current operations as well as future operational concepts, including Trajectory-Based Operations (TBO) and Flight and Flow Information for a Collaborative Environment (FF-ICE).

1.2 The project developed recommendations for Air Navigation Service Providers (ANSPs), Original Equipment Manufacturers (OEMs), aircraft operators, and standardization organizations aimed at improving CPDLC route uplink capabilities and mitigating identified operational limitations. The project also considered potential actions required to support alignment of NAT operations with future FF-ICE services. The team included operational and technical experts from the NAT POG, NAT Technical Interchange Group (TIG), IATA, IBAC, IFALPA, Boeing, and Airbus.

1.3 The work included the identification and assessment of issues associated with CPDLC route uplinks, including route discontinuities, unloadable routes, and duplicate fixes within the NAT Region and adjacent airspaces. The project further evaluated operational impacts on existing systems and procedures, identified technical and operational mitigation measures based on lessons learned, and considered possible ground system enhancements and common fixes required to address the identified issues. In addition, the project reviewed the use of CPDLC route clearance uplinks in relation to ICAO Doc 10037 provisions.

1.4 The project also examined the impacts of proposed changes on technical systems, together with operational impacts such as controller workload and effects on adjacent units and Regions. Future operational requirements associated with the anticipated implementation of FF-ICE services by 2034 were also considered.

1.5 The Meeting was informed of cases in which duplicate 5LNCs resulted in CPDLC route uplink failures, and discussed possible mitigation measures to address the issue.

2. DISCUSSION

2.1 The Meeting noted that cases had been observed in which CPDLC route uplinks using UM74 or UM79 messages resulted in the selection of incorrect duplicate fixes from the navigation database. It was further noted that proximity-based logic used by certain FMS configurations when processing duplicate waypoints could, in some cases, result in unintended route modifications and potential deviations from the cleared route.

- UM74 PROCEED DIRECT TO (position)
- UM79 CLEARED TO (position) VIA (route clearance)

2.2 Cases of operational impacts associated with the issue were reported by several ATC units, including instances in which aircraft unexpectedly deviated from the cleared route following CPDLC route uplinks. It was further noted that the issue could result in incorrect route loading within the FMS, requiring flight crew intervention to identify and correct the routing discrepancy.

2.3 Potential next steps to address the issue were discussed, including mitigation measures related to duplicate 5LNCs, improvements to CPDLC route uplink processing, and enhanced coordination among ANSPs, aircraft operators, and system manufacturers. Consideration was also given to possible impacts on future operational concepts and associated system enhancements.

2.4 Consequently, the EUR/NAT Office initiated coordination with the APAC Office regarding the review and possible resolution of duplicate 5LNCs within the APAC Region. In this regard, the States associated with the registration of the affected 5LNCs are being contacted individually and requested to provide timely Corrective Action Plans (CAPs) to support the resolution of the duplicate 5LNC issues.

2.5 These occurrences demonstrated that duplicate 5LNCs, even when geographically separated by more than 1,000 NM, may still adversely affect aircraft operations. The cases highlighted the importance of giving due consideration to the potential operational and safety impacts of duplicate 5LNCs on the safe and orderly conduct of aircraft operations and air traffic management.

2.6 In light of the above, States/Administrations are strongly encouraged to accelerate ongoing efforts towards the resolution of long-standing duplicate 5LNC issues, recognizing the potential impact on the safety and orderly conduct of aircraft operations and air traffic management. The Secretariat also expressed its intention to continue closely monitoring progress related to the resolution of duplicate 5LNCs within the Region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and

- b) recognize the potential operational and safety impacts associated with duplicate 5LNCs on CPDLC route uplink operations;
- c) encourage States/Administrations to expedite actions towards the resolution of long-standing duplicate 5LNC issues; and
- d) discuss any relevant matters as appropriate.

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