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Departure Clearances over Data Link

PDC, US DCL and European DCL

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The FAA has begun to roll out its plan to provide departure clearances over the FANS 1/A data link system at more than 50 airports within the US. This comes after several years of testing the concept with airlines at KMEM and KEWR. This new capability, known as "DCL," is supplemental to existing voice capability (as is Pre-Departure Clearance [PDC] over ACARS), however it is distinctly different from PDC in how it is delivered to the aircraft. It is also different from the DCL system utilized in Europe, which does not rely on the FANS 1/A system.

Although each of these 3 capabilities, US DCL, PDC and Europe DCL are similar in that they deliver a departure clearance to the flight crew in textual format, the following explains their differences:

PDC

PDCs are generated by a controlling agency at designated airports (primarily in the US National Airspace System). Operators must subscribe to this service via an AOC service provider (e.g. Honeywell's Global Data Center). PDCs are sent from the FAA to the service provider to be stored in their system for dissemination. The service provider then sends the clearance to the aircraft (via the ACARS network) or other device, or holds it until the flight crew requests it via the FMS AOC pages. It is important to note the following:

> PDC does not support revisions to the flight plan of any kind – any flight plan that has been revised is not eligible for PDC services
> A PDC can only be issued once in a 24-hour period for a given call sign at a given airport – even if the initial PDC is not delivered the first time, subsequent submissions will be denied.
> PDC is only supported thru an AOC service provider
> PDCs are requested thru the AOC FMS or AOC CMF menus (e.g., CMU ATS menu)
> PDC availability is charted on airport diagrams as shown below:

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DCL (US)

DCL in the US is a departure clearance issued over the FANS 1/A data link system using Controller Pilot Data Link Communication (CPDLC). The aircraft must be certified for FANS 1/A or FANS 1/A+ data link and have DCL capability. The flight crew must request a DCL from the FMS by first logging into the FANS system to establish a CPDLC (ATC COMM) session, and then using the appropriate data link menus to send FANS downlink message directly to ATC. The FAA responds with the clearance on file, after which the crew has the ability to accept, reject, standby, and, on many aircraft, load the clearance directly into the FMS with a single button push.

> DCL communication is directly between ATC and the flight crew – unlike a PDC, a DCL is never routed to the aircraft through an AOC service provider
> Requests for a DCL in the US are initiated in the FMS CPDLC menus (Honeywell equipment)
> DCL enables digital delivery of revisions to clearance – ATC may send revisions to the original clearance up to time of departure
> DCL capability at US airports is not yet charted – however, recommendations have been made to add CPDLC information to US airport diagrams as shown below:

DCL (Europe)

DCL in Europe is a departure clearance issued over the ACARS network, similar to how PDCs are sent. However, it is direct ATC-to-Pilot data link communication using ARINC 623 standards; the clearance is not routed through an AOC service provider. Once the flight crew requests a clearance from the FMS AOC menus, it is routed directly to ATC who then respond with the clearance via data link.

> European DCL uses ACARS and provides direct communication between ATC and the flight crew
> Aircraft must be compliant with ARINC 623 messaging standards. Current Honeywell 623-capable equipment includes G450/550 Cert G and later and aircraft with CMU Mark III (based on APM configuration)
> Requests for DCL in Europe are initiated in the FMS AOC or AOC CMF menus (Honeywell equipment e.g., CMU ATS menu)
> Europe does not currently have capability to reissue clearance – subsequent changes to the clearance requires voice contact
> DCL availability in Europe is charted as shown below:

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PDC, DCL and European DCL are all methods to deliver a departure clearance to the aircraft using data link technology, but each requires specific equipment and has different limitations. US DCL capability is just rolling out and specifications for avionics functionality have recently been released. Therefore, while FMS menus may indicate DCL capability exists, the software may not yet be functional. Look for more information on this topic in a future issue of Direct-TO.

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