



Aircraft Data Link Test Service



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EU MANDATE

The EU Single Sky regulation on Data Link services requires that all aircraft flying above FL285 be equipped to use Controller Pilot Data Link Communications (CPDLC). CPDLC is a text-based communication between pilot and Air Traffic Controller. The ATN Data Link system is used primarily in European airspace and FANS is used in Oceanic airspace and North America.

FEBRUARY 2015 DEADLINE

New aircraft operating in European airspace must have been equipped by February 2013 and existing aircraft must be retrofitted by February 2015. For retrofits, at least one aircraft of each aircraft type must undergo a certification test. Documentation must be provided to show that the Data Link equipment complies with the mandate.

More information can be found on the DLS Mandate and Regulation EU 29/2009 at <https://www.eurocontrol.int/articles/data-link-services-dls-mandate>

MAINTENANCE REPAIR OPERATORS

The Data Link Services (DLS) implementing rule 29/2009 targets airspace users and Air Navigation Service Providers operating in the EU region. Therefore MROs, maintenance, repair and overhaul organisations as well as organisations which do their own MRO work including airlines, business and private jet operators and air forces all must ensure that aircraft comply with this mandate.

TEST SERVICES

Airtel ATN has been offering a Data Link test service to enable organisations meet the EU mandate since EUROCONTROL discontinued its service in 2011. This test service specifically addresses the suite of tests that are mandated by EUROCONTROL and the European Aviation Safety Agency.

Airtel ATN was one of the first companies to provide an independent test service. Our Data Link solutions are used by avionics companies around the world.

WHY AIRTEL ATN?

- EUROCONTROL Experimental Centre (EEC), Brétigny-sur-Orge, uses Airtel ATN's Test software
- ARINC uses Airtel ATN's Test software in its test centre in Annapolis, Maryland, USA
- SITA uses Airtel ATN's Test software in its test centre in Montreal, Canada
- Airtel ATN has 20 years' international experience in the aviation sector
- Airtel ATN Data Link Test Equipment is used by many companies around the world including Airbus, Boeing, Garmin, GE, Honeywell, Spectralux, UASC

AIRTEL ATN DATA LINK TEST SERVICE

Airtel ATN's CPDLC Test Service simulates one or more Air Traffic Control (ATC) centres and sends CM and CPDLC messages to an aircraft for testing purposes. The tests can optionally include ATC transfer between simulated ATC centres. Airtel ATN offers both a remote testing service, from the Test Facility in Dublin, Ireland and an onsite testing service. Either service can be used by airlines and Maintenance Repair Operators (MROs) to test retrofit aircraft that must meet the EU mandate.

1. REMOTE DATA LINK TEST SERVICE

Airtel ATN's Test Facility in Dublin is connected to both ARINC and SITA's European ATN Networks to provide ATN testing. Airtel ATN's Test Service uses these to communicate with an aircraft that is also connected to the ARINC or SITA networks. Typically, this involves test communications to an aircraft grounded at an airport or location with VDLM2 coverage.

2. ONSITE DATA LINK TEST SERVICE

Airtel ATN has test equipment that can simulate the ARINC or SITA networks as well as the Air Traffic Control centre. An Airtel ATN engineer undertakes the tests on the customer site using this portable test equipment which supports both FANS and ATN. This enables tests to be carried out during normal aircraft downtime at a site that does not have VDLM2 coverage and without the need for any specialist internal technical knowledge.

Providing an onsite service means that tests can be carried out in a shorter timeframe thereby ensuring that normal business operations are not impeded.



3. ONSITE ACARS TEST SERVICE

Airtel ATN also provides onsite testing of ACARS systems which test the VHF radio (VDR) and Air Traffic Services Unit or Communication Management Unit systems. This includes the delivery of uplinks to flight deck peripherals such as cockpit printer and aircraft monitoring systems.

The test system can uplink any type of Airline Operational Communication (AOC) data to the aircraft and receive and display the data sent by the aircraft. Any inability of the aircraft to respond to data exchanges is immediately determined.

PROCESS

1. Airtel ATN and client agree scope, which can be guided by Airtel ATN's experience
2. The relevant avionics partner provides aircraft details and confirms aircraft will be out of commercial operation for duration of tests
3. ATN connectivity checks with the aircraft should be undertaken in advance of test sessions to identify any connectivity issues requiring co-ordination with the Air Communications Service Provider (ACSP; ARINC or SITA)
4. Tests are carried out in accordance with the agreed test plan and Airtel ATN provides a test report
5. After completion, Airtel ATN ensures that all buffered test messages are cleared from the aircraft's systems



LIVE AND AUTOMATED TESTS

In order to carry out the tests, the aircraft must be grounded and out of commercial operation. As this frequently is at night and therefore out of normal office hours, Airtel ATN offers both a live test and an automated test session.

LIVE TEST

The live test session is generally carried out during office hours, but can also be done outside office hours if required. Two Data Link engineers are required; one on the airline or MRO side - the aircraft operator - and one Airtel ATN Test Facility operator.

AUTOMATED TEST

The Airtel ATN Test Facility operator configures the system to enable the airline or MRO aircraft operator to run the tests automatically at a convenient time.

TESTS UNDERTAKEN

The following areas are tested for both nominal and error cases:

- CM logon
- CM contact
- CPDLC establishment
- CPDLC dialogues
- CPDLC parameters
- CPDLC timeouts
- CPDLC concatenations
- CPDLC end
- CPDLC abort

For further information on tests carried out, refer to the EUROCONTROL Link2000+ Generic Interop Test Plan for Avionics.
<http://www.eurocontrol.int/documents/generic-test-plan-avionics>

REPORT

Once testing is complete Airtel ATN issues a report containing the following:

- Matrix of success/failure of tests defined in the test plan
- Cross-reference of tests to log files produced by timestamp
- Detailed analysis of any deviations from expected results
- Log files



AIRTEL ATN DATA LINK TEST CUSTOMERS





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