

## **DESCRIPTION OF EXPERIMENT**

Rockwell Collins, Inc. (“Rockwell Collins”) intends to conduct developmental testing of VHF Datalink radio equipment in Cedar Rapids, Iowa.

This testing is intended to validate the communication protocols and formats used by airborne Datalink equipment prior to deployment on actual aircraft, and is critical in allowing Rockwell Collins to develop Datalink avionics systems and radios to be used by civil aircraft. This testing will allow Rockwell Collins to contribute to development of next-generation avionics systems that will improve the safety, reliability, and capability of aircraft.

This testing will be done in the following configurations:

- System Rig: This test configuration contains most of the avionics used by a specific aircraft type
- Data Link Lab: This test configuration utilizes a generic aircraft environment simulator and is specifically used for validation of the air / ground message formats against the operational systems which produce or consume the messages.

The avionics will communicate with ground-based stations on three frequencies:

- 131.550 MHz – ARINC Aircraft Communication Addressing and Reporting System (ACARS)
- 136.850 MHz – Sita ACARS
- 136.975 MHz – VHF Digital Link (VDL) Mode 2

ASRI has concurred with Rockwell Collins’ use of these frequencies, as has Sita. Letters indicating those concurrences are attached to this application.<sup>1</sup> Rockwell Collins’ use of these frequencies is permitted provided that use does not cause harmful interference to other users. In the event of harmful interference, Rockwell Collins will cease operations.

Note that, although the transmitting equipment that will be used in this testing is not capable of station identification, the Datalink protocol requires that transmissions include either an aircraft registration or an ICAO address. All transmitting equipment to be used in this testing is capable of including that information.

The antennas to be used in this testing are directional. All directional antennas are oriented vertically, level with the ground, at a bearing of 197 degrees to point directly at

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<sup>1</sup> ARINC is a wholly-owned subsidiary of Rockwell Collins.

CID airport where the ARINC and Sita ground stations are located. The directional antennas have the following beam widths:

- 74 (Cushcraft PLC-1296 (6 element, 7.1 dBd gain))
- 45 (Cushcraft PLC-1369 (9 element, 11.1 dBd gain))