

## **EXPLANATION OF EXPERIMENT**

Rockwell Collins, Inc. (Rockwell Collins) seeks an experimental license with the same parameters as its current Special Temporary Authority experimental license (Call Sign WJ9XEB) for its contract with the Office of Naval Research (Contract N00014-12-0299). Rockwell Collins seeks to continue to test a prototype networking radio system from July 1, 2016 through December 31, 2016 within 200 miles of Cedar Rapids, IA. Rockwell Collins seeks this experimental license to perform a new government-observed test and follow-up testing ahead of equipment delivery. To align with Rockwell Collins' testing timeline, the government has extended Rockwell Collins' contract period of performance until December 2016. Testing will include basic operational verification, enhanced feature capability characterization, and link performance envelope characterization of an Advanced Tactical Data Link (ATDL) radio system from fixed, mobile and airborne nodes.

The ATDL Transmitter is designed as a hybrid direct-sequence frequency-hopping system. The ability to select the frequency channels was included in the design to allow for frequency coordination on a case-by-case basis. Up to 16 of the 25 frequency channels can be selected for a network hop-set with some limitation on cross band selection due to transmitter tune time. The system is always in hop-mode even if it is restricted to a single frequency. The system would be transmitting a 14M6G1D emission on each channel used. Channeling is under software control. The power level is software controlled and is managed in 10 dB steps. Initial contact is planned to be established at the 100 Watt setting and then reduced to the minimum level required to maintain reliable communications.

Rockwell Collins has obtained the necessary coordination letter from AFTRCC for one of the bands (1443.167-1509.833 MHz) that it requests in this experimental license.