

## **EXPLANATION OF EXPERIMENTATION**

Rockwell Collins, Inc. (Rockwell Collins) seeks modification and renewal of its experimental license (Call Sign WI2XKS) granted August 30, 2016. The modification seeks to slightly alter the parameters of WI2XKS for a new contract with the Defense Advanced Research Projects Agency (Contract FA8650-15-C-7533).

Under the modified license, Rockwell Collins will test a prototype networking radio system from May 1, 2017 through May 1, 2019 within 200 miles of Cedar Rapids, IA. Rockwell Collins will perform this test under a different government contract, but the experiment is very similar to that being conducted under the current license. Testing will include basic operational verification, enhanced feature capability characterization, and link performance envelope characterization of a QNT-CH radio system from fixed, mobile, and airborne nodes. Rockwell Collins will perform outdoor testing of new hardware which can perform timing and ranging functions. The third phase of the program, STOIC Phase 3, is anticipated to end May 1, 2018, and possible transition and integration follow-on efforts could last until May 1, 2019.

The QNT-CH Transmitter is designed as a hybrid coherent 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. 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 25 Watts maximum output power.

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.