

**Experimental Special Temporary Authorization Information**  
**October 10, 2018**

**1.0 Requestor**

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**2.0 Is confidentiality needed for this application?**

Confidentiality is not needed for this application.

**3.0 Estimated Field Test Start Date**

The testing will start on 11/30/2018.

**4.0 Why an STA is Necessary**

An STA is needed to demonstrate and to determine the performance of an experimental radio system. These tests are in support of the public good because they provide validation of new communications technology to be used for defense applications.

**5.0 Purpose of Operation**

This communication system's purpose is to increase the amount of spectrum available to DoD operations. The tests will be a combination of short (minutes) and long term (several hours) duration tests during the 6 month STA period.

The system uses Dynamic Spectrum Access (DSA) software that enables operation on unused channels without causing interference to legacy systems. The system uses spectrum sensing to determine channels not used by legacy transceivers. The system automatically chooses an acceptable channel based on the potential interference to legacy users and interference from other users.

**6.0 Location of Operation**

The tests will occur within a 15 km radius of the Shared Spectrum Company offices, 1593 Spring Hill Road, Vienna, VA. The location is: N 35 55 33, W 77 14 42.

## 7.0 Equipment Information

Figure 1 shows the equipment configuration. There are three transmitters involved (ENG, DRL and DSA). The ENG and DRL transmitters will be fixed. The DSA transmitter will be fixed or mobile. The transmitters will be ground-based and located within 5 km of each other. The paths will include line of sight and non-line of sight paths.

The ENG unit is an RF Central RMT II 2 GHz HD ENG band transmitter. The unit features COFDM modulation formats (QPSK, 16 QAM, and 64 QAM), selectable 6, 7, 8 MHz bandwidth and 500 mW nominal RF power. The emission designator is 8M0W7D. The ENG transmitter will operate at one of these frequencies: 2,031.50 MHz, 2,043.50 MHz, 2,055.50 MHz, 2,067.50 MHz, 2,079.50 MHz, 2,091.50 MHz, or 2,103.50 MHz. This frequency will be selected based on Society of Broadcast Engineers (SBE) frequency coordination. It will use either a directional 20 dBi antenna or an omni-directional antenna. The ENG antenna height will be less than 3 meters above the ground.

The Data Return Link (DRL) unit is custom built, uses BPSK modulation, 25 kHz bandwidth and 1 W transmit power. The emission designator is 25K0G1D. The DRL transmitter will be between 2025.0125 MHz-2025.4875 MHz or 2109.5125 MHz - 2109.9875 MHz. This frequency will be selected based on Society of Broadcast Engineers (SBE) frequency coordination. It will use either a directional 20 dBi antenna or an omni-directional antenna. The ENG receiver and the DRL transmitter will be co-located and will use the same antenna. The DRL antenna height will be less than 3 meters above the ground.

The DSA unit is custom made, is a frequency hopper (~10 hops/second), FSK modulation format, 8 MHz instantaneous bandwidth and 1 W nominal RF power. The emission designator is 8M0F2D. The DSA transmitter will operate at 2067.5 MHz with an 80 MHz bandwidth. Potentially, some frequency ranges will be excluded based on Society of Broadcast Engineers (SBE) frequency coordination. It will use an omni-directional antenna. The DSA antenna height will be less than 3 meters above the ground.

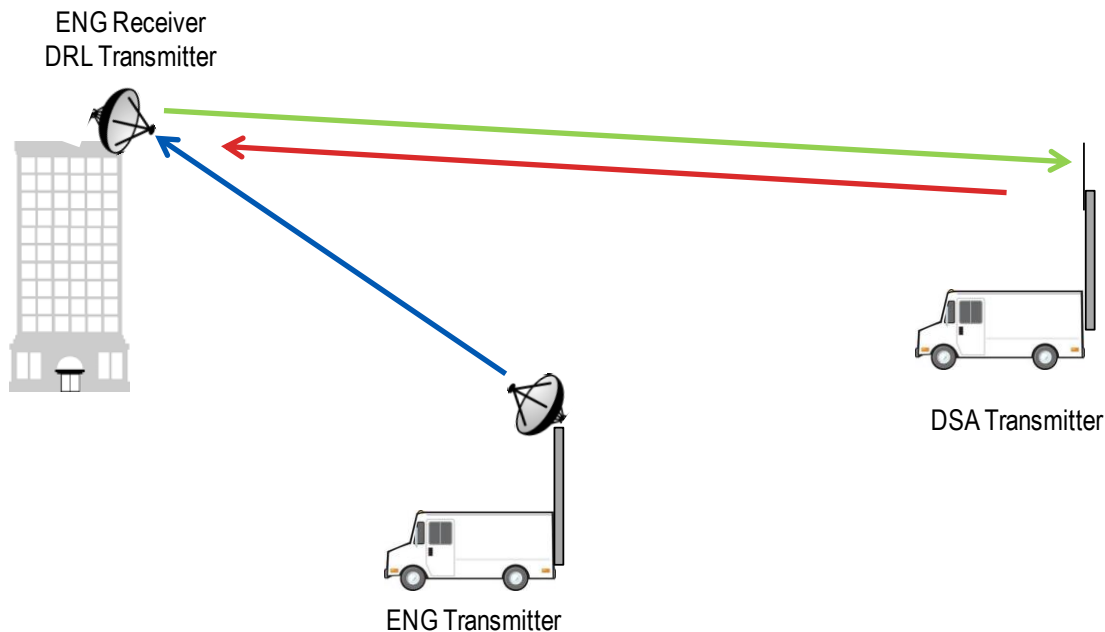


Figure 1. Dynamic Spectrum Access (DSA) test configuration.

## **8.0 Society of Broadcast Engineers (SBE) Coordination**

SSC plans to coordinate with the Society of Broadcast Engineers (SBE) frequency coordination representatives for the Northern Virginia/DC area.

James Dugan, 703-307-6555, [coordinator@sbe37.org](mailto:coordinator@sbe37.org)

Mike Rhodes, 703-392-9090, [coordinator@sbe37.org](mailto:coordinator@sbe37.org)

## **9.0 Kill Switch POC**

The tests will be manually operated by SSC employees. The person to contact to report suspected interference is Mark McHenry, 703-862-7495.