

## Description of Government Research Project for File Number 0969-EX-CN-2021

The project objective is to create prototype 5G network technologies (hardware, software, and systems) specifically to enable dynamic spectrum sharing and spectrum co-existence capabilities. The outcome will directly demonstrate the impact of enhanced 5G networks and the effectiveness of dynamic spectrum sharing and spectrum co-existence systems.

The communications facilities requested are necessary for this research project because the tests involve the detection of military radar signals and the modification of 5G signals based on these detections. It is necessary to test system capabilities in free space to insure proper system operation.

The existing communications facilities in 5G systems are inadequate for this purpose. Existing 5G systems are not designed to detect and characterize radar signals. Presently, 5G systems are not designed to modify their operating characteristics to avoid causing harmful interference to the radar operation and to the 5G system.