

Explanation:

Shared Spectrum Company (SSC) is under contract with the Department of Navy Space and Naval Warfare Systems Center, San Diego (SPAWAR) to provide three dynamic spectrum access radios developed under the DARPA NeXt Generation (XG) cognitive radio technology program (contract number FA8750-05-C-0150; contracting agency Air Force Rome Laboratory). SPAWAR is conducting evaluations of radios for use in remotely controlled robotic vehicles for use in counter improvised explosive device (IED) and explosive ordinance disposal (EOD) operations. As part of their evaluation efforts SPAWAR is participating in a robot evaluation exercise. This STA is necessary in order to conduct a demonstration of XG technology from November 16 to 22, 2008 in conjunction with the National Institute of Standards and Technology (NIST) Response Robot Evaluation Exercise.

This activity is a series of response robot evaluation exercises for the Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA) Urban Search and Rescue (US&R) teams and will be hosted November 17 - 21, 2008 at the Texas Task Force 1 training facility known as [Disaster City®](#) located at Texas A&M University, College Station, Texas. This exercise will capture robot performance data within emerging standard robot test methods and operationally relevant practice scenarios. Emerging standard test methods and usage guides for US&R robot performance are under development within the ASTM (American Society for Testing and Materials) International Committee on Homeland Security, Operational Equipment (E54.08.01). These events help refine the proposed standard test methods and fixtures/props that developers can use to practice critical capabilities and measure performance in ways that are relevant to emergency responders. These events are conducted in US&R training scenarios to help correlate the proposed standard test methods with envisioned deployment tasks and to lay the foundation for usage guides identifying a robot's applicability to particular response scenarios.

SSC respectfully requests expedited processing of this application. SSC is a small business concern and its primary revenue source is federal government contracts. This exercise was not part of our original evaluation plan or contract with SPAWAR, but was only recently added. A delay in obtaining the STA would cause a significant hardship since another real-world, demonstration opportunity like the NIST Robot Evaluation Exercise may not arise again before the end of the SPAWAR contract. Finally, SSC is taking extraordinary steps to ensure that no harmful interference results from these short-term experiments.

Purpose of operation:

Demonstrating next generation cognitive radio technology in conjunction with the National Institute of Standards and Technology (NIST) Response Robot Evaluation Exercise. This demonstration, like others that SSC has already conducted, will show that the XG prototype utilizing "Dynamic Spectrum Sharing" technology are capable of identifying available spectrum pursuant to sharing "rules" provided to the XG radio. These frequencies will be used to demonstrate the XG system, which uses an IEEE 802.16 modem (1.75 MHz bandwidth) that can be frequency translated anywhere from 225 – 512 MHz, 1215 – 1390 MHz, 1435 – 1525 MHz, 1755 – 1850 MHz, and 2200 – 2290 MHz. These are tightly controlled outdoor experiments that NIST hosts to showcase emerging technologies which will improve US&R readiness and in this case with the attendance of SPAWAR and the XG radios will demonstrate technology that will improve the war fighter's effectiveness.

Shared Spectrum Company developed cognitive radio technology under a DARPA contract. The radios developed are based on platform 802.16 Wi-Max allowing for wideband, spectrum sensing, dynamic spectrum access radios. These radios have been evaluated in different environments throughout the country and have the ability to locate and transmit on usable spectrum and

abandon that spectrum when a legacy user transmits. In upcoming evaluations these radios will be used on robot platforms being evaluated by the Department of the Navy for counter-IED and EOD operations. The ability of these radios to locate spectrum, avoid interference, and operate in dense RF environments makes them extremely valuable for military and disaster operations.

The Navy is eager to identify emerging technology to increase the warfighter's effectiveness and SSC has contracted with the Navy to evaluate SSC's cognitive radio technology on robot platform. These tests are the first in a series of test over the next several months to assess the value of the SSC technology. This same technology should prove as valuable to the Department of Homeland Security and first responders for their use in emergency situations.

Although wide ranges of spectrum are requested in the application, our needs could be met with approximately 12 frequencies in each frequency range.