Request for Special Temporary Authority

Booz Allen Hamilton Engineering Services, LLC, requests an FCC-issued Special Temporary Authority (STA) in order to conduct a demonstration of LTE communications in support of the 2013 Army Expeditionary Warrior Experiment (AEWE).

Booz Allen Hamilton is actively engaged in the development of LTE technology for Public Safety and FirstNet applications and has been asked by the Army to support similar LTE technology for AEWE.

The proposed demonstration will be conducted through February 28, 2014 at Fort Benning, located in a rural area near Columbus, GA. AEWE is the Army's premier live, prototype experimentation campaign. The goal of the LTE demonstration is to provide a validated, credible, and repeatable demonstration of how LTE technology can be used to provide advanced communications to tactical military operations. These operations include both warfare and national security/emergency preparedness missions.

This environment is directly analogous to operating environments that will be faced by FirstNet in terms of providing advanced communications for public safety users operating in tactical law enforcement and disaster response situations. As such, supporting this demonstration will provide useful information to FirstNet, Industry, and US Government agencies involved in emergency and disaster response such as the US Army, National Guard, FEMA, and other US military branches.

The proposed demonstration would consist of a single-sector 700 MHz Band 14 LTE macrocell located on a fixed tower site within the Fort Benning training area, deployable backpack-sized microcells operating in man-portable, land vehicle, or airborne operation for providing LTE range extension, and advanced LTE smartphone user devices.

The vendor providing the macrocell and deployable microcell technology is Lemko, Incorporated, and the vendor providing the LTE smart devices is Motorola. Booz Allen Hamilton Engineering Services, LLC, will be providing system integration and testing services and will be responsible for the over the air operation of the system.

Band 14 is desired for conducting this testing for the following reasons:

- Previous testing at 1900 MHz showed that this band did not provide adequate coverage in the rural pine scrub forests making up the test area.
- The Motorola LTE devices are intended for Public Safety applications and are only available in Bands 13 and 14, with Band 13 in use in the area by Verizon (while no Band 14 operations are observed within a 50-mile radius according to current FCC ULS records).

Benefits to FirstNet in providing this STA concurrence include:

- Formal testing under rigorous military conditions will provide useful information on LTE user experience and system operation under real-world conditions
- Coverage measurements of 700 MHz Band 14 performance in rural pine scrub areas will provide useful data for FirstNet rural coverage design.
- Operational testing of Motorola LTE devices will provide this vendor with useful feedback on device operation and design.
- Firsthand demonstration to the Army of the benefits of LTE technology that may inform future relationships between the Army and FirstNet.
- A detailed technical report will be provided to FirstNet upon completion of AEWE testing that will contain information on the performance of the LTE system infrastructure, user devices, coverage, and the effectiveness of portable/mobile/airborne range extension.

The technical parameters of the proposed system include:

- 10 MHz Bandwidth, 2 x 2 MiMo operation
- 2 x 40W transmitter power output
- Downlink frequency band 758 – 768 MHz
- Uplink frequency band 788 – 798 MHz
- Single-sector directional fixed base station operation
- Single fixed site located at N32^{o} 22’ 7”, W84^{o} 48’ 33.78”
- Antenna height above ground of approximately 150’
- User devices to include Motorola LEX 750 Mission Critical handheld and USB dongles for use with laptop computing devices
- Portable microcells and user devices operating within 10-km radius of fixed site

The proposed operation is not expected to cause any harmful interference since the FCC ULS database does not show any licensed users of the 758-768 and 788-798 MHz Band 14 spectrum within 50 kilometers of the proposed fixed site location. The closest metropolitan areas are Atlanta and Montgomery, AL, and both are over 100 kilometers from Fort Benning and would not be caused any interference should there be any Band 14 operations in those areas during the term of the STA. The Georgia State Patrol (through the Georgia Technology Authority) has confirmed that they have no operations in the desired frequency bands.

As with all STA operations, Booz Allen Hamilton Engineering Services understands that operations are secondary to those of licensed users such as FirstNet, and that demonstration operations must cease in the event that FirstNet or other licensed users experience interference. Booz Allen Hamilton Engineering Services will retain the ability to shut the system off in the event that interference is reported. The single point of contact for this STA operation is:

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