

Exhibit 1
Description of Experimentation

Massachusetts Institute of Technology (MIT LL) requests short term Special Temporary Authority (“STA”) to conduct necessary experimental testing at and around its facility in Lexington, MA in support of RF communications link testing funded by the Office of the Undersecretary of War for Research and Engineering (OUSW R&E). MIT LL is a Federally Funded Research and Development Center (FFRDC) located at Hanscom Air Force Base and funded under prime contract FA8702-25-D-B002. Over-the-air testing is critical to this federally funded research and in the public interest.

The proposed testing involves the use of three mobile troposcatter communications terminals, two commercially available terminals (2-meter and 3-degree half power beamwidth antenna) and an MIT LL custom-built terminal (1-meter, 5-degree half power beamwidth). MIT LL requests authorization to transmit within 150 km of MIT Lincoln Laboratory, located at 244 Wood Street Lexington, MA 02421 (42.460 N, 71.266 W). Each antenna requires the ability to point in 360 degrees azimuth and will be pointed as low to the horizon as possible, while avoiding ground obstructions.

Each unit will utilize tropospheric scattering (troposcatter) RF propagation to transmit and receive a continuous wave that bounces off the troposphere. This method of propagation uses the tropospheric scatter phenomenon, where radio waves are scattered at small angles as they pass through the upper layers of the troposphere to communicate at ranges beyond radio line-of-sight. Radio signals are transmitted in a narrow beam aimed at the troposphere, midway between the transmitter and receiver sites. As the signals pass through the troposphere they are scattered, allowing the receiver station to pick up the signal. The experimental data to be collected includes characterization of tropospheric fading, changes in performance versus seasonal climactic changes, measurement of aperture coupling losses and characterization of overall system performance. RF propagation through troposcatter is significantly more lossy than line-of-sight propagation and uses directional antennas, which minimizes the potential for unintended RF interference.

MIT LL requests frequency authorization to transmit up to 50 dBW effective radiated power (ERP) within two 15 MHz bandwidth channels in the 4400 – 4650 MHz and 4750 – 5000 MHz bands, respectively. The request is for three antennas to all be able to transmit in the same two 15 MHz allocations, not independent allocations for each antenna.

The Tactical Satellite Communications Group at MIT Lincoln Laboratory will build the custom troposcatter terminal referred to in this memo. This group has a legacy of building and certifying military satellite communications terminals for test and experimentation and will design this terminal to adhere to practices that prevent unintentional interference. Safeguards include compliance with FCC spectral mask requirements to eliminate any risk of interference to incumbent license holders in the band and employment of directional, low side lobe antennas.

MIT LL acknowledges that all testing conducted under this experimental STA will be on a noninterference basis. Further, MIT LL will coordinate frequency usage pursuant to any

directives issued by the Commission on the experimental authorization. MIT LL believes that no RF interference to any existing license holders will occur and will adhere to any immediate shut down requests.

The stop buzzer contact for this experimentation is Joseph Kummer at MIT Lincoln Laboratory, office: (781) 981-3116, cell: (781) 402-9921, e-mail: joseph.kummer@ll.mit.edu