

Application: 0154-EX-PL-2003
Confirmation Number: EL13479

Institute for Defense Analyses, Center for Computing Sciences

Experimental License Project Experiment/Testing:

Application for experimenter's license was made to support research activities in short range ground wave propagation. Under the sponsorship of the Department of Defense, contract MDA904-01-C0901, the applicant plans to conduct the following two classes of experiments:

- 1) HF Groundwave Propagation: A mobile, commercial SSB transceiver (power less than 10 watts into an omnidirectional antenna) will make sporadic J3E voice transmissions in and around our Bowie, MD facility at ranges not to exceed 20 miles. The duration of the transmissions will be two minutes or less – several transmissions may be made during the course of a day. Frequencies will be selected primarily based upon minimizing interference to existing radio services. However, in order to assess ground wave propagation effects, we request freedom to conduct these brief transmissions throughout the 2 to 30 MHz band. As an adjunct, we also want to assess VHF transmissions and will repeat experiments in the 150-170 MHz band with narrowband F3E modulation.
- 2) Synthetic Aperture Propagation: Our experiments serve to assess propagation and multipath effects for a synthetic aperture system using pulsed transmissions. The transmissions will be made from a stationary platform; the synthetic aperture calculation will be made from a mobile, moving receiver. Unlike standard synthetic aperture radar, this experiment is designed to test the techniques in the 25-50 MHz range. Nominally, an FM chirp waveform (1000 pulses/sec, 50 microsecond pulse width) will be transmitted for approximately 10 seconds. Minimal interference should occur due to the low duty cycle of the waveform. Our intention is to also experiment at UHF in the 300-400 MHz band where we can use practical directional antennas on transmit. Identification/call signs will be sent via CW at the end of each transmission.

Both categories of experiments described above will be conducted very sporadically. We estimate that experiments will occur on average less than five days per calendar month with the total transmit time less than one hour cumulative per experiment-day.

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