

From: Wayne Jerzak

To: Behnam Ghaffari

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Subject: FCC File No. 0948-EX-ST-2013

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Message:

1. Original question: "The Coast Guard requests additional information on the operational use of the system due to the large numbers of RADAR's they have in use."

2. The purpose of the experiment is to collect radar data that will support algorithm development and proof of concept for an Airborne Sense and Avoid (ABSAA) project. The project is research only at this point and the radar transmitter used here will not be the objective radar even if the research proves out, an R&D program is commissioned and successful, and a system is eventually acquired. The radar transmitter in use here is not being planned for proliferation as part of the project; it is only to support this particular experiment.

3. Experiment OPTEMPO. Over the course of the STA, we expect to conduct two, possibly three, experiments in the area. Each experiment will last approximately one week and consist of three to five flights. Each flight will last approximately 3 hours. We expect the radar to be actively transmitting for the duration of each flight. Specific dates have not yet been determined and are based on personnel, equipment and airspace availability and algorithm maturity.

4. Transmitter operation during the experiment.

a. Antenna mounting. The transmit antenna will be mounted on a tripod and radiate from approximately 2 meters above ground level.

b. Antenna pointing. As described in the STA exhibit, the antenna will be pointed 15° above the horizontal. The azimuth pointing of the antenna will be dependent on airspace availability. Our nominal planning has the antenna oriented at 10° True as shown in the exhibit, but we would like to be able to point the antenna in other directions for flexibility in flight planning.

Once set for a given flight, the antenna will not be re-steered within the time of flight. The aircraft maneuvers of interest to the project will be within the radar beam.

If needed, we can restrict the available azimuth pointing ranges to prevent interference with other systems and evolve our flight test plans around those constraints. For instance, to avoid Coast Guard radars, we could limit our azimuth pointing to angles from roughly northwest clockwise to southeast of our position.

c. Transmitted waveform. To amplify the STA information, the peak power of the system is 200 W (6320 W peak ERP) and pulses at 10,000 pulses per second with a 25% duty cycle. The modulation on the pulses is linear frequency modulation. The pulse repetition frequency and center frequency of the waveform is constant for any given run of the experiment.

Only one frequency band of the six listed in the STA is required for operation in the experiment. The others are available for flexibility. If we must be limited to one frequency, we prefer (not require) the 9.4 GHz center frequency as noted in one of the exhibits to the STA.

Wayne Jerzak