

Response to Question 7, Description of Experiment

This application is for an experimental license to support development and demonstration of new Ku band AESA antenna technology and hardware, combined with new control and processing software. Various technologies will be evaluated relevant to equipment intended for future federal agency contracts. Active testing of the system is required to fully assess its capability against real targets.

The radar will operate from 16.2 GHz to 17.2 GHz. The waveforms will make use of linear FM techniques to support SAR and GMTI modes as well as certain air search and weather capabilities. The processor for the frequency agile radar selects the proper frequency to ensure the mask of the radar emission is contained within the authorized bandwidth. The maximum transmitter power is 4000 Watts output. The gain of the antenna provides a peak ERP of 31.6 MW. The maximum duty cycle is 20%, for a mean ERP of 6.32 MW. Pulse Widths will be 200 usec, 50 usec, & 100 usec with PRFs of 300 Hz, 3 kHz, & 2 kHz.

The testing will take place in two phases / locations. System Laboratory testing will take place at the Northrop Grumman facility in Hanover, MD, near BWI airport. The lab is located in Building 23 at the Ridge Road facility (39-11-10.6 N; 76-42-11.0 W). The antenna is an active AESA, mounted on a stand that permits operation in any azimuth. The elevation scan is from 0 degrees to +20 degrees.

After the system has satisfied basic requirements for operational stability and performance, airborne testing will be conducted using Northrop Grumman-owned experimental aircraft. Operations will be mostly over the DelMarVa peninsula, centered on the Georgetown Delaware (Sussex County) Regional Airport, with an operational radius of 371 km and a maximum altitude of 26,000 feet MSL.

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