

### **Northrop Grumman Systems Corporation Application for Experimental License**

This application is to support Northrop Grumman Systems Corporation (NGSC) research for and development of an advanced Ka band radar system that will incorporate a new, compact hardware design and operational software for radar control and processing of signal returns. The intent is to evaluate potential technologies for inclusion in future Department of Defense (DOD) and other federal agency contracts. The request is to permit continued testing the hardware around the Baltimore, MD area, both from a fixed ground lab in Linthicum, MD, and from Northrop Grumman test aircraft over the DelMarVa Peninsula, as authorized by current Special Temporary Authority (STA) WI9XPU. NGSC is in communication with potential government (DOD) customers and also seeks approval for operations at three anticipated government test ranges to conduct more detailed evaluations / demonstrations of the system capability, as detailed in the application.

The radar operates in the frequency band 33.4 to 36.0 GHz. The test waveform is linear FM, with emission designators 40MQ3N and 800MQ3N. The system processor will center the transmission frequency to maintain all emissions within the allocated bandwidth. The transmitter output power is 600 watts. The active AESA antenna gain is 38 dBi, yielding a peak ERP of 2.3 MW. The maximum duty cycle of the system is 33%, for a mean ERP of 769 KW.

As noted above, most operations will take place in the Baltimore, MD area. System Laboratory testing will take place at the Northrop Grumman facility in Linthicum, MD. The lab is located on the roof of the Northrop Grumman building. The fixed laboratory installation of the antenna supports a sector scan of +/- 20 degrees about a fixed azimuth of 45 degrees true. The elevation scan is from 0 degrees to + 20 degrees.

Airborne testing will be conducted using Northrop Grumman owned experimental aircraft (CRJ tail number N804X). Operations will be centered on the Georgetown Delaware (Sussex County) Regional Airport, with an operational radius of 200 nmi (371 km), and a maximum altitude of 31,000 feet MSL. Additional anticipated test areas include Eglin Air Force Base, California; the China Lake Naval Air Weapons Station, California; and Holloman AFB, New Mexico.

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