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Raytheon Technologies Request for FCC STA License

- File No: 1599-EX-ST-2026
- Confirmation No: EL721259

Applicant Name (Company): Raytheon Technologies
1001 Boston Post RD
Marlborough, MA 01752
Date: 08/10/2026

Purpose of Operation:
Raytheon Company is applying for a Special Temporary Authority (STA) license within the frequency range of 8.4 -8.9 GHz and 9.3 – 10.5 GHz to conduct data collection activities for our radar system developed on Internal Research and Development (IRAD) funds. The goal of this testing phase is to collect maritime surface clutter data to support clutter mitigation algorithm development efforts.

Requested Frequencies
X-Band, 8.4 - 8.9 GHz and 9.3 – 10.5 GHz

Raytheon Technical Point of Contact:
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Raytheon Spectrum Manager filing application
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FRN: 0003628344

Period of Use:
Start Date: 9/1/2026
Stop Date: 8/30/2027

Test Setup Description

The radar system is a horn-based system that is secured to a stationary mount on the roof of the Raytheon facility in Portsmouth, Rhode Island (RI). The radar system faces outwards toward the Narragansett Bay. The system consists of two horns: one for transmit and one for receive. Both horns have a gain of 26dBi. The transmit horn is fed by a 100W high power amplifier that is physically located inside of the Raytheon facility in Portsmouth, RI and is connected via a Radio Frequency (RF) coaxial cable, introducing 11.5dB of interconnect loss at X-band. The horns have a Half Power Beamwidth (HPBW) of approximately 9 degrees at X-band and are oriented at 0 degrees relative to the horizon.

Equipment Information:
Transmitter Info: X-Band Radar
Manufacturer: Raytheon Company
Number of units: 1
Experimental: No

Antenna Information:

Manufacturer: RF Lambda RWR90HORN25B X-band 26dBi Standard Gain Horn
Antenna Type: Standard Gain Horn
No of Units: 1
Experimental : N
Dimensions : 7.087” [180mm] x 9.843” [250mm]. The horn is 30.512” long [775mm].

Emission Designators
The system utilizes a pulsed, X-band signal that operates between 8.4 and 8.9 GHz, and 9.3 and 10.5 GHz with a phase-modulated bandwidth up to 1 GHz. The waveform center frequency is chosen such that the lower and upper ends of the bandwidth fall outside the range of 8.9 - 9.3 GHz.

Wideband Operation
9.3 GHz-10.5 GHz
1G00Q0N
750MQ0N
800MQ0N
900MQ0N
600MQ0N

Narrowband Operation
8.4 - 8.9 GHz

20M0Q0N
500MQ0N

Pulse Information

List as appropriate for the type of modulation:
Effective radiated power from the antenna (If pulsed emission, specify peak power): The maximum EIRP out of the antennas (max instantaneous power) is 2818 Watts (+64.5 dBm)

Necessary Bandwidth: Explain how it is determined:
The Necessary Bandwidth was calculated, and emission designator is below.

Location:

The horns on the roof of the Raytheon facility in Portsmouth, RI are located at 41°34'30.65"N, 71°16'54.87"W. The address is 1847 W Main Road, Portsmouth, RI, 02870. The antenna testing will take place within 1 km of these cited coordinates at a maximum ground elevation of 65 meters Above Sea Level (ASL).

Is a directional Antenna (Other than the radar used): Yes

Width of beam in degrees at the half-power point: 8.5° in azimuth, 7.5° Elevation

Orientation in horizontal plane (degrees from True North): 290°, the horn is re-orientable between 220° and 350°

Orientation in vertical plane (degrees from horizontal): 0° relative to horizon

Will the antenna extend more than 6 meters above the ground, or if mounted on an existing building, will it extend more than 6 meters above the building, or will the proposed antenna be mounted on an existing structure other than a building: 2-meter-tall horn mount

a. Overall height above ground to tip of antenna in meters: 65m
b. Elevation of ground at antenna site above mean sea level in meters: 63m
c. Distance to nearest aircraft landing area in kilometers: 4.8 km

Newport State Airport	4.8 km
Quonset State Airport	11 km
TF Green International Airport	20 km

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(d) List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft: None