

JHU/APL STA Application



Antenna Description:

- Antenna >6m AGL? **No (on short tripod)**
- Directional? **Yes**
- Manufacturer: **Echodyne**
- Model #: **Echoshield 700-0025-200-200**
- Polarization: **Linear, Horizontal**
- 3-dB Beamwidth One Way: **8.74° Az / 4.6° El**
- Orientation in horizontal plane: **20° up**
- Orientation in vertical plane: **variable**

- Experiment Point of Contact: Tim Case, tim.case@jhuapl.edu Cell: 443-974-4307
- Background: This Special Temporary Authority (STA) License Application covers a capability assessment of a new Mid Range Radar (MRR) for detecting dismounts and UAVs.
- Objective: Capability Assessment of the Echodyne Echoshield radar for tracking of dismount and UAV targets. Use assessment study to explore additional capabilities for sponsor.
- Experiment Description: Determine capability of the radar to detect different dismount and UAV targets at various ranges and speeds. Confirm manufacturer claims of tracking capability. Compare against similar Radar from another manufacturer (RADA).
 - What transmitters and receivers are involved? How many? **1 unit for Tx/Rx**
 - Nodes are fixed on the ground/rooftop
 - Location: **APL Campus (MP4 and Building 21)**
 - How long will the experiment last? **6 months – intermittent testing**
 - What will be the duty cycle of transmission? **On continuously for multi-day assessment. Repeat multi-day assessment multiple times over 2023.**
- Location Details:
 - APL Campus
 - Latitude and Longitude: **39.164445, -76.891**
 - Street address: **7703 Montpelier Rd. Bldg MP4, Laurel, MD 20723**
11100 Johns Hopkins Road Bldg 21, Laurel, MD 20723
- Emission Details (include for each signal if multiple)
 - Peak output power: **160W**
 - Peak ERP: **74.45 dBm**
 - Frequency of operation: **15.4-16.6 GHz**
 - Frequency Tolerance : **+/- 0.1%**
 - Signal Bandwidth: **configurable 25/50/100 MHz**
 - Signal Type/description: **LFM Pulsed Doppler**
- FCC License Request Dates:
 - **02/28/2023-08/27/2023**
 - **Monday thru Friday**
 - **8Am- 5PM**

Experimental Map



- 20 km (10.8 nmi) radius from Building 21
- Notch of no Tx from 64 degrees to 125 degrees to avoid transmitting towards BWI
- Radar has FOR of 120 Az and 90 El