

PUBLIC INTEREST STATEMENT

By the instant application (“Application”), Leidos, Inc. (“Leidos”) requests that the Commission grant a 2 year conventional experimental license to permit Leidos to operate the facilities specified in the instant application.

1. Purpose of Operation

Leidos wishes to test functionality and evaluate the performance of the L-3 17.5in. KU/KA configurable SATCOM terminal (L-3 PN: 8164114-003) that is installed on Leidos’ de Havilland dash-8 aircraft. The proposed operation will be used to test the mobile aircraft mounted SATCOM antenna for system reliability and performance within the following KU & KA band transmit frequency ranges:

Ku: 13.75 – 14.50 GHz

KA: 29.5 – 31.0 GHz

A license is requested for the transmit frequencies that will fall within the above band ranges but specific frequencies are assigned at the time of bandwidth purchase by the satellite provider.

This license will support Leidos’ integration, testing and fielding the L-3 17.5in antenna system into multiple aircraft that are directly supporting DOD operations worldwide. These systems are capable of transmitting at a maximum of 50 Watts (KA) & 150 Watts (KU) from a directionally steerable parabolic antenna on the aircraft. Leidos’ primary use for this experiment will be for i.p. data transport over satellite. The intended purpose of this experiment is to prove operability and performance, pursuant to government contract requirements.

Waiver of the Station ID rules set forth at Section 5.115 is respectfully requested.

The applicable government contract information is as follows;

Customer/Agency: U.S. Army
Contract No.: W56KGY-16-D-0001
Contract POC’s:

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A. Ground-Based Transmissions

1. Ground-Based Location #1 (Bridgewater, VA):

Ground based transmissions conducted will be located at the test area center point at 38°22'00" N; 78°57'37"W, on a radius of 1km about the center point. Ground elevation above sea level at the center point coordinates is 355.1m at this location. The antenna will be no more than 5 meters above ground level when transmitting from the ground.

2. Ground-Based Location #2 (Manassas VA):

Ground based transmissions conducted will be located at the test area center point at 38°43'15" N; 77°30'54.36"W, on a radius of 1km about the center point. Ground elevation above sea level at the center point coordinates is 58.6m at this location. The antenna will be no more than 5 meters above ground level when transmitting from the ground.

B. Airborne Transmissions

1. Airborne Operations Around Bridgewater VA Ground Location #1:

Mobile airborne transmissions conducted within a flight pattern centered on the test area center point at 38°22'00" N; 78°57'37"W, with the furthest waypoints lying on a radius of 370km about the center point. The maximum flight ceiling planned is 5486.4m (18,000 feet) above ground level (AGL) (range will be from 15ft-18,000 ft). Ground elevation above sea level at the center point coordinates is 355.1m at this location. The nearest airport to the center point coordinates is the Bridgewater Airpark (VBW) at 1402 Airport Rd, Bridgewater VA, within 1 km from the center point coordinates.

2. Airborne Operations Around Manassas VA Ground Location #2:

Mobile airborne transmissions conducted within a flight pattern centered on the test area center point at 38°43'15" N; 77°30'54.36"W, with the furthest waypoints lying on a radius of 370km about the center point. The maximum flight ceiling planned is 5486.4m (18,000 feet) above ground level (AGL) (range will be from 15ft-18,000 ft). Ground elevation above sea level at the center point coordinates is 355.1m at this location. The nearest airport to the center point coordinates is Manassas Regional Airport/Harry P. Davis Field Washington, District of Columbia, USA within 1 km from the center point coordinates.

2. Other technical information

A. Emission:

- a. 10M0G1W (return link)

B. Direction of Emission:

a. Ground based:

- i. Multiple satellites are possible for utilization so direction cannot be predetermined but generally in a Southerly Direction.

b. Airborne:

- i. Variable, but generally in a Southerly Direction.
 - 1. Depending on elevation and direction of travel.

C. Feed Power and off-axis emission:

- a. Feed Powers will be limited to comply with criteria per 25.222

D. Aeronautical Antennas:

- a. TX gain 32.7 dB for KU-band (rotating linear polarization)
- b. RX gain 30.8 dB for KU-band (rotating linear polarization)
- c. TX gain 38.0 dB for KA-band (LHCP & RHCP not simultaneous)
- d. RX gain 33.0 dB for KA-band (LHCP & RHCP not simultaneous)

E. Transmitting Equipment

Manufacturer	Model Number	No. Units	Experimental (Yes/No)
L-3	17.5in PN: 8164114-003	9	No

F. Modulating Signals (for both KA and KU Bands):

OQPSK spreading of 165A waveforms w/spread factors of 3-32

3. Prevention of Interference

Leidos is well aware of its obligations under Part 5 of the Commission's rules to avoid interference. During testing, PSD shall not exceed limits specified in 25.222.

Testing shall be coordinated with the satellite operator. A control point operator will establish telephone communications with the satellite operator prior to any illumination of the satellite. The control point operator will maintain positive control of all transmissions and will cease transmission immediately upon request of the satellite operator or on request of the adjacent satellite operators.

Stop buzzer contacts:

JOE WADDELL -540-831-0261

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The (relatively) small antennas required for aeronautical applications have wide beam-widths. This poses interference concerns to adjacent satellites. L-3 utilizes spread spectrum techniques to lower the power spectral density to acceptable interference levels. The spread spectrum modulation combined with tracking antennas and transmission suppression techniques for off pointed conditions are imperative to interference mitigation.