

Comprehensive Exhibit Text Document for
Special Temporary Authorization License Application

File #: 0862-EX-ST-2014
Confirmation #: EL384054
FRN: 0021209564

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This application is similar to File Number 0649-EX-ST-2011, for testing that was completed in 2012 with the exception of a new requested location in Longmont, CO. The station hardware will be the same and is described here:

Antenna Information:

The antenna is a mobile station with a maximum radiation aperture of about 12 inches (in the horizontal plane). Please see Exhibit: antenna01_img.jpg for a reference. The antenna connects to a PC-based data processing system. The entire station is compact in size and can operate as a mobile standalone unit as shown.

The antenna radiates a 0.7° horizontal by 4.0° vertical beam. Please see Exhibit: antenna02_img.jpg for visualization of the antenna's beamwidth and scanning principle. Linear vertical polarization is utilized for operation.

Modulating Signal Description:

The modulation used by this antenna is a standard linear frequency modulation which spans a specified bandwidth about a carrier frequency of 93 GHz. Please see Exhibit: modulation_img.jpg for a description of the modulating waveform.

Necessary Bandwidth Description:

The modulation envelope utilizes up to a total of 1.0 GHz about a center frequency of 93.0 GHz (i.e. 92.5 GHz – 93.5 GHz). With a specified tolerance of 0.005 at 93 GHz (0.465 GHz), the radiation will fall within the specified band of 92-94 GHz. The bandwidth is swept repeatedly over a specified average sweep time of 500 us per sweep.

Nature of research project:

This project covers the general development of an experimental W-band imaging radar for obstacle and target detection mainly for small airborne platforms such as helicopters and UAVs. The license is requested to perform local radiation testing as well as experimental flight testing at various mobile locations. The testing of this system requires the following:

Operating power up to 500 mW (ERP)
Operating frequency between 92-94 GHz

Requested Station Locations:

Mobile: Honeywell Aerospace, Torrance, CA within 15 km centered around:

33.8601705 -118.3196640
33° 51' 36.6156" -118° 19' 10.7904"

Mobile: Honeywell Aerospace Paine Field, Everett, WA within 15 km centered around:

47.9107330 -122.2764372
47° 54' 38.6388" -122° 16' 35.148"

Mobile: Honeywell Aerospace Deer Valley, Phoenix, AZ within 15 km centered around:

33.6844964 -112.0927762
33° 41' 4.1856" -112° 5' 33.9936"

Mobile: Arete Longmont Office and Table Mountain Facility Site, Longmont, CO 15 km centered around:

40° 8'50.00"N 105°14'30.00"W