Silvus Technologies
Experimental License Application 0221-EX-CN-2018
Narrative Explanation of Operation
Use of GPS Repeater in Support of R&D Program
Los Angeles, CA

This application (a refiling, with modifications, of an STA application earlier dismissed without prejudice; See, 1558-EX-ST-2017 and correspondence Reference Numbers 39387 and 39852) proposes the use of a single Global Positioning System (GPS) repeater at a single indoor location for use in fulfillment of a research project. Silvus Technologies has an ongoing research program with DARPA for development of new technology based on GPS signals (i.e. advanced communication and navigation technologies that use GPS signals for timing and synchronization). For this ongoing project, Silvus needs to receive GPS signals indoors at its Research and Development facility at Los Angeles, California to develop and test this technology.

The occupied bandwidths of the signals and the center frequencies to be used are as follows: For the GPS frequency: 1575.42 MHz plus and minus 10 megahertz; and for the GLONASS frequency: 1602 MHz plus and minus 8 megahertz. The device will be deployed indoors only at a height above ground level within an enclosed building of 50 meters.

Compliance with Section 8.3.28 of the NTIA Manual

The Commission, with respect to the previous STA application referenced above, called for a demonstration of compliance with Section 8.3.28 of the NTIA manual and specifically items a, b and e through i. The applicant has obtained a replacement GPS repeater with variable attenuation that permits full compliance with the requirements of that Section of the NTIA Manual. That information is as follows:

a. This Experimental License is for indoor use only and is required for this one device at this one site.
b. The device is to be used as experimental test equipment used for the purpose of developing new technology based on GPS signals for advanced communications and navigation technologies as per the above explanation.
e. The area of potential interference to GPS reception is within the applicant's facility and under the control of the applicant. Areas beyond this range are protected by virtue of the attenuation of the signal and the power level set forth below.
f. The EIRP meets the limit specified in this subsection in that they do not exceed -140 dBm/24 MHz as received by an isotropic antenna at a distance 30 meters from the building where the test is being conducted. The device's operating parameters are as follows:

Radius around center point (intended operating range)
10m
Distance from nearest interior wall

10m
Average power
12.6 dBm - 85 dB = -72.4 dBm (57.5 pW)
ERP
13.5 dBm - 85 dB = -71.49 dBm

Meeting formula requirement
PTmax(pW) = 69.8 pW from formula
PT of our equipment = 57.5 pW using variable attenuation

Upon receipt of any complaint of interference from any source, FCC licensee or government entity (or otherwise), operation pursuant to this Experimental Authorization will cease and will not resume unless and until the interference complaint is resolved satisfactorily to the complainant. GPS users in the building will be notified that GPS information may be impacted for periods of time.

The stop buzzer contact for this operation is Phoebe Basilio, whose telephone number is 310-479-3333. This person will be available at all times during GPS re-radiator operations.

All other communications can be directed to the office of counsel for Silvus Technologies, as follows:

Christopher D. Imlay
Booth, Freret & Imlay
14356 Cape May Road
Silver Spring, MD 20904-6011
1-301-384-5525 office telephone
1-301-351-3795 cell
chris@imlaylaw.com