Explanation of Experiment

Background:

Vertex is a DoD contractor that integrates radio and radio systems into a variety of defense technologies. As a result, it needs to test a radio networking system to make advances needed by Vertex's customers using an experimental license. The experimental operations that are the subject of this application are being conducted in support of a federal government control, but the contract number is classified and cannot be disclosed even on a confidential basis.

The current application requests a license for testing of a dual band Silvus radio network system. This application seeks authority for one year to continue the testing using a subset of the frequencies that were previously authorized for testing pursuant to experimental STA call sign WV9XTY.

Synopsis:

- Silvus Technologies model numbers SC42A0-139235 and SC44K0-139235
- J/F 12: 11402
- Spectrums required: 1427-1430 MHz, 2200-2305 MHz and the 2360-2500 MHz bands
- Time of use: limited to ten minute tests, with only intermittent spectrum use
- Power Amplifier output: 20 Watts
- Antenna Gain: 12.1 dBi
- Antenna Type: Cross-Polarized 4x4 Sector, Polarization 45 degree slant
- Antenna orientation: Directional 120 degrees azimuth, zero degree elevation
- ERP: 324 W maximum
- Emission Designators: 22M6D7W, 11M3D7W, and 5M65D7W
- Reference: Indianapolis (Marion), IN - NL 39-47-29; WL 86-03-34

Radio System Under Development:

The radio is used to communicate between nodes of other Silvus radios setup on Vertex property, per the Silvus radio design parameters. The radio is operated using the power and modulation settings required for safety, reduced interference, and effective operation. The radio nodes will be used in a point to point configuration within the Vertex facility at 6125 E 21st street, Indianapolis, IN 46219.

Test Time:

During testing, the time required to send two-way communication data is less than ten minutes. Transmitter use will be intermittent during that period. During the remainder of the testing, the Silvus radio will not be transmitting. For the ongoing testing and development, the radio system is expected to be in use only 120 minutes per day, and only intermittently across those minutes.

RF Safety Compliance:

Vertex will use its established RF Safety Plan for ground vehicle demonstration testing to ensure that no personnel are subjected to RF power density levels exceeding the Maximum Permissible Exposure limits (MPE) set forth in 47 C.F.R. § 1.1310 and the guidelines in FCC OET Bulletin Number 65. The existing RF safety plan limits the time that the radio system can be tested, it cordons off the test area at a distance of 1.5 meters from the transmitter, which is the only area where the signal strength could exceed the maximum exposure limit, and there are signs posted alerting other Vertex personnel to the testing. The Vertex plant is a secure facility and it is not accessible to the general public. All RF exposure levels will be below the limits set forth in the Commission's Rules, therefore the proposed operations are in compliance with 47 C.F.R. 1.1307(b) of the Commission's Rules.

Stop Buzzer Point of Contact:

The Stop Buzzer Point of Contact for the proposed operations is:

Yin Su
317.306.7725 (office)
317.389.7694 (cell)

Conclusion:

This license is being filed to allow Vertex's testing of the Silvus radio network system. The testing is expected to be conducted for a period of one year beginning February 1, 2024. For questions please contact Brian Kavalar, Spectrum Manager, Vertex, brian.kavalar@vtxco.com or 317-517-9989

Vertex Indianapolis Test Site – Antenna Sketch