

L-3 Communications, CS-W
Special Temporary Authorization
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License: ??????

Application Background:

The purpose of this project is to do a passive intermodulation (PIM) test on a SATCOM antenna that will be used on the Boeing E-4B that serves as the United States National Airborne Operations Center.

Concept of Operations:

The PIM test requires very high RF signals in-order to measure the very low intermodulation products. The RF radiated power can be dissipated into a high power load or directly into free space. In this case, the antenna under test will transmit into free-space. The transmitting antenna elevation angle will be adjusted to 45° above the horizon. The antenna azimuth will be 49° west of true north. The transmit antenna azimuth and elevation angles have been selected to minimize potential interference. See figure 1 for a concept of o

Spectrum Requirements:

Two CW frequencies will be used as the tones for the intermodulation test. Tone1 will be at 7.9 GHz and tone2 is at 8.1 GHz. These frequencies are fixed, un-modulated, continuous wave signals. The tones are generated in COTS test equipment, amplified through high power amplifiers to 1 kW, and filtered/power combined before radiating.

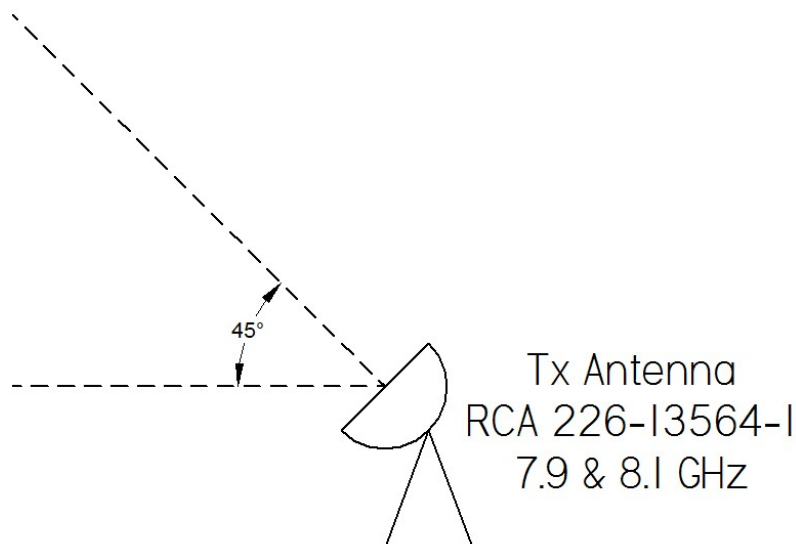


Figure 1 Concept of Operations

Location of Testing:

The location of the antenna testing is at L-3 CS-W Building Z. The GPS coordinates for that location are $40^{\circ} 46' 37.5''$ N and $111^{\circ} 57' 0.33''$ W. The transmitting antenna will be pointing in a north westerly direction (-49° from true north) to avoid military and FAA installations. The transmitting antenna elevation angle will be 45° . See Figure 2 test location and horizontal orientation.

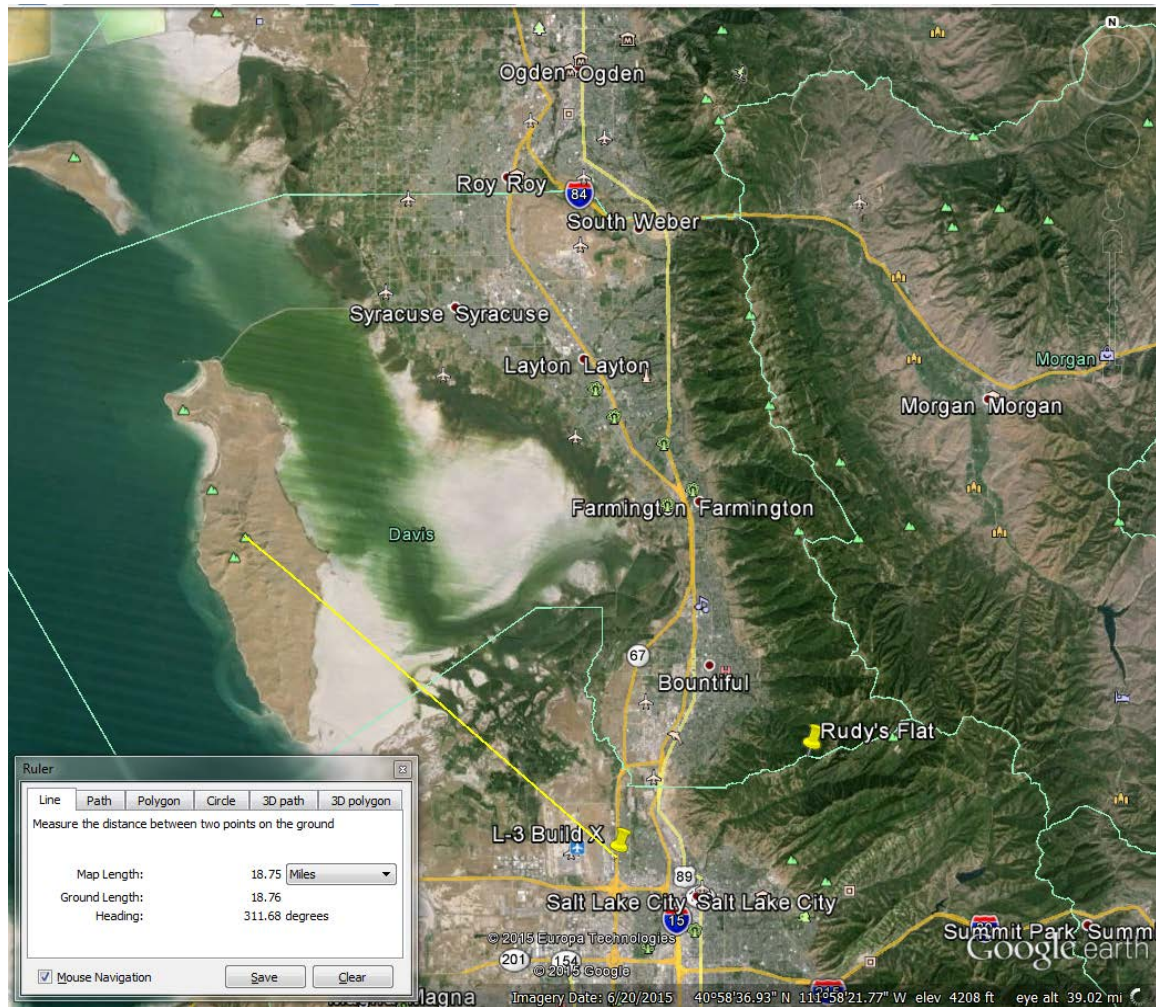


Figure 2 Test Location and Horizontal Orientation of the Antenna