

Alliant Techsystems Operations LLC Request for Modification

Alliant Techsystems Operations LLC submits the attached Form 442 application, FCC File No. 0134-EX-CM-2020, to request authorization of two additional locations at which to perform the described tests. All technical parameters at the two new sites will be identical to those authorized currently at Elk River, Minnesota by experimental license WK2XDH, FCC File No. 0384-EX-CR-2020.

Two antennas are used in our testing. One antenna will be mounted at the fixed station to receive data from the projectile. The fixed antenna has a peak gain of 34dB and the pattern shown in figures 1 and 2. The other antenna will be mounted on the projectile (mobile station). The mobile antenna has a peak gain of 5.4dB and the pattern shown in figures 3 and 4.

Figure 1 - Fixed Antenna Horizontal Pattern

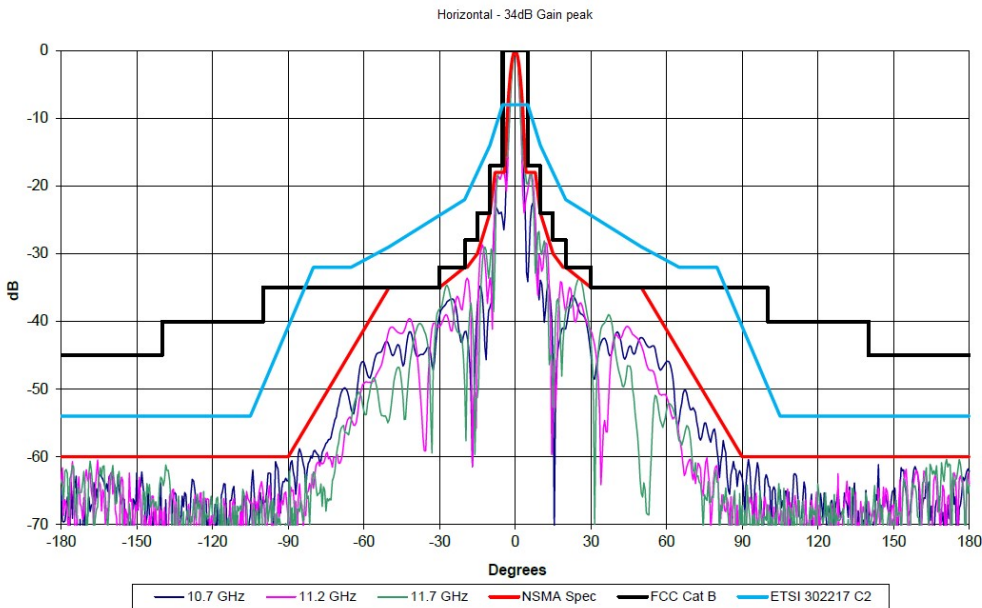


Figure 2 - Fixed Antenna Vertical Pattern

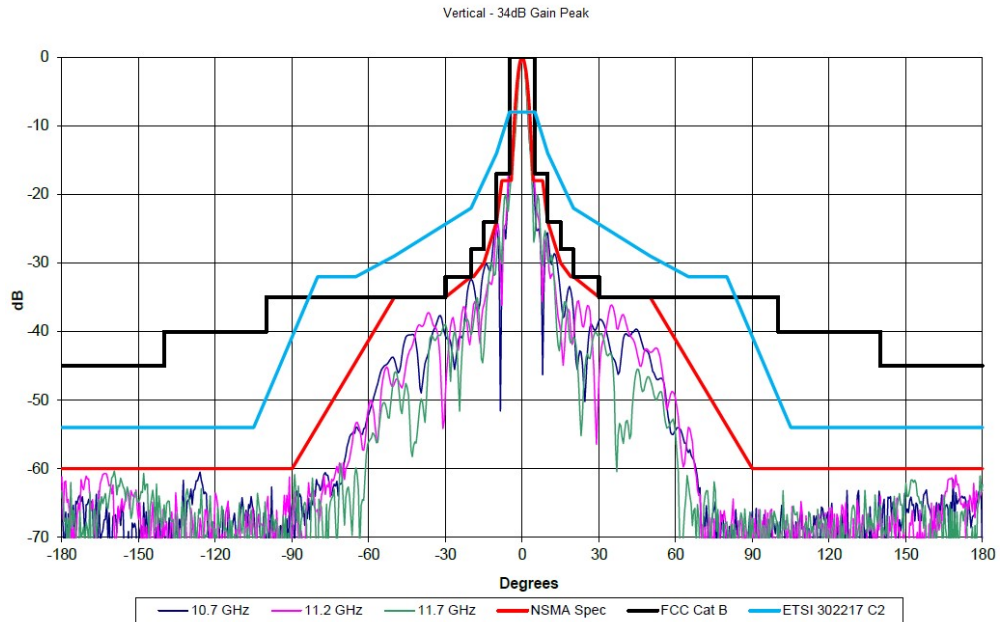


Figure 3 - Mobile Antenna (E Plane)

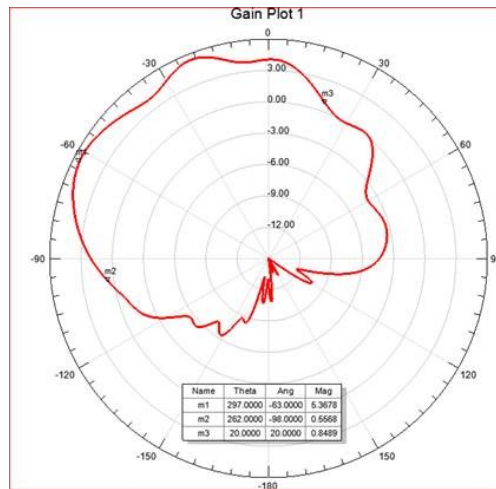
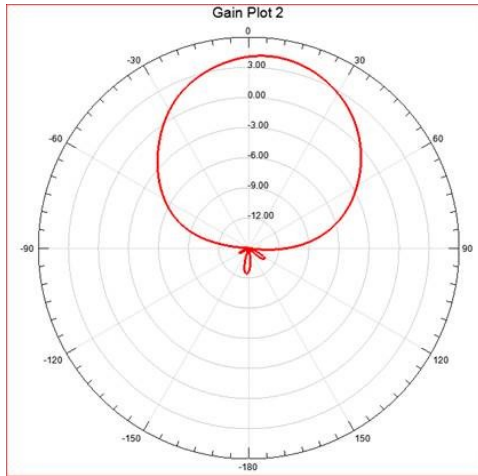


Figure 4 - Mobile Antenna (H Plane)



Transmissions are active only during the flight of the projectile (under 1 second) during each test. The target area and firing position are at similar elevations. Antenna will be pointed directly at the target position with zero incline from horizontal.