

From: Thomas Fagan

To: John Kennedy

Date: November 07, 2005

Subject:

FCC File # 0143-EX-PL-2004

Message:

As requested, here is the analysis for Raytheon's GPS re-rad system:

In order to perform GPS re-radiation, the maximum equivalent isotropically radiated power must be such that the calculated emissions are no greater than -140 dBm/24 MHz at a distance of 100 feet (30 meters) from the building where the test is being conducted. Calculations showing compliance with this requirement must be provided with this application for frequency assignment and should be based on free space propagation with no allowance for building attenuation.

GPS Signal Analysis: □ □ □ □ □

Frequency:	1227.6 MHz	Signal Level	□ □
Wavelength	0.2 meters	dBm	□ Watts
			picoWatts
GPS Input Signal Level	□ -130 dBm	□ -130	□ 1E-16
GPS RX ant amplifier gain	□ 38 dB	□ -92	□ 6.30957E-13
GPS RF Amplifier gain	□ 23 dB	□ -69	□ 1.25893E-10
GPS RF Attenuator	□ -20 dB	□ -89	□ 1.25893E-12
LMR400 Coax loss per foot	□ -0.067 dB	□ □ □	
Coax Length	□ 100 feet	□ □ □	
Total Coax Loss	□ -6.7 dB	□ -95.7	□ 2.69153E-13
GPS Transmitting Ant Gain	□ 3 dB	□ -92.7	□ 5.37032E-13
Distance from TX Ant.	□ 1 meter	□ □ □	
Distance from TX Ant.	□ 3.2808399 feet	□ □ □	
Pathloss to unit under test	□ -34.2 dB	□ -126.94	□ 2.031E-16
Signal level at unit under test ERIP to ERP	□ □ □	□ -129.06	□ 1.24082E-16
			□ 0.000124082
Distance from TX Ant.	30.48 meters	□ □ □	
Distance from TX Ant.	100 feet	□ □ □	
Pathloss to 100 ft	□ -63.9 dB	□ -156.6	□ 2.18615E-19
Signal level at 100 ft ERP		□ -158.7	□ 1.33561E-19

Please submit the name and telephone number (preferably the cell phone number) of a person who will be available to stop transmissions at all times during GPS re-radiation operation of the device under any condition.

Thomas J. Fagan 520 794-0227, 520 465-7087 cell
Michele F. Brown 520 794-3417, 520 275-2055 cell

Also, please submit the government contract number under which the GPS re-radiation will be performed in this experiment.

N00019-84-C-0569

Please convert powers from EIRP to ERP.