

John Kennedy**Subject:** FCC File # 0069-EX-ML-2006 [Reference Number: 4600]**Attachments:** 2006 10 31 GPS 1575 network Pathloss.pdf; 2006 10 31 GPS 1227 network Pathloss.pdf**From:** Thomas J Fagan [mailto:tjfagan@raytheon.com]**Sent:** Tuesday, October 31, 2006 3:36 PM**To:** John Kennedy**Subject:** Fw: FCC File # 0069-EX-ML-2006 [Reference Number: 4600]

I sent that data to you. However it is difficult to read. See attached pdf files. I was out of town until today and I wanted to make sure all the data was correct before I sent this to you.

Tom

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----- Forwarded by Thomas J Fagan/RWS/Raytheon/US on 10/31/2006 01:34 PM -----

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cc

Subject FCC File # 0069-EX-ML-2006 [Reference Number: 4600]

10/12/2006 01:00 PM

Mr. Thomas Fagan:

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.

Confirmation Number: EL #####
 jkennedy@fcc.gov

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The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of 10/12/2006 may result in application dismissal pursuant to Section 5.67 and forfeiture of the filing fee pursuant to Section 1.1108.

10/31/2006

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All references to this correspondence must contain reference number 4600

GPS Signal Analysis

Frequency	1227.6 MHz	Signal Level		
Wavelength	0.244379 meters	dBm	Watts	picoWatts
GPS Input Signal Level	-130 dBm	-130	1E-16	0.0001
GPS Receive Antenna amplifier gain	38 dB	-92	6.3E-13	0.63
GPS RF Amplifier gain	23 dB	-69	1.3E-10	125.89
GPS RF Attenuator	-20 dB	-89	1.3E-12	1.26
LMR400 Coax loss per foot	-0.067 dB			
Coax Length	100 feet			
Total Coax Loss	-6.7 dB	-95.7	2.7E-13	0.269
GPS Transmitting Antenna Gain	3 dB	-92.7	5.4E-13	0.537
Distance from transmit antenna	1 meters			
Distance from transmit antenna	3.28084 feet			
Pathloss to unit under test	-34.2229 dB	-126.9	2E-16	0.000203
Signal level at unit under test ERIP to ERP		-129.1	1.2E-16	0.000124
Distance from transmit antenna	30.48 meters			
Distance from transmit antenna	100 feet			
Pathloss to 100 ft	-63.9032 dB	-156.6	2.2E-19	2.19E-07
Signal level at 100 ft ERP		-158.7	1.3E-19	1.34E-07

GPS Signal Analysis

Frequency	1575.42 MHz	Signal Level		
Wavelength	0.190425 meters	dBm	Watts	picoWatts
GPS Input Signal Level	-130 dBm	-130	1E-16	0.0001
GPS Receive Antenna amplifier gain	38 dB	-92	6.3E-13	0.63
GPS RF Amplifier gain	23 dB	-69	1.3E-10	125.89
GPS RF Attenuator	-20 dB	-89	1.3E-12	1.26
LMR400 Coax loss per foot	-0.067 dB			
Coax Length	100 feet			
Total Coax Loss	-6.7 dB	-95.7	2.7E-13	0.269
GPS Transmitting Antenna Gain	3 dB	-92.7	5.4E-13	0.537
Distance from transmit antenna	1 meters			
Distance from transmit antenna	3.28084 feet			
Pathloss to unit under test	-36.3897 dB	-129.1	1.2E-16	0.000123
Signal level at unit under test ERIP to ERP		-131.2	7.5E-17	7.53E-05
Distance from transmit antenna	30.48 meters			
Distance from transmit antenna	100 feet			
Pathloss to 100 ft	-66.07 dB	-158.8	1.3E-19	1.33E-07
Signal level at 100 ft ERP		-160.9	8.1E-20	8.11E-08