Form 442 Confirmation Number: EL968492
Form 442 File Number: 0259-EX-PL-2006

Exhibit 4 – INDOOR USE ONLY and The maximum equivalent isotropically radiated power (EIRP) calculation

Pursuant to GPS Re-Radiate requirements, NTIA 8.3.28, do you concur that "Individual authorization is for indoor use only, and is required each device at a specific location." please answer Yes or No.

Answer is Yes

Pursuant to GPS Re-Radiate requirements, NTIA 8.3.28, part 6, the following calculations are submitted

GPS L1 Link Budget

Satellite Tranmitter

Transmitter Power (25 Watts)	14	dBW
RF Losses in trasmitter path	-1.25	dB
Antenna Gain (with respect to an isotrope)	13.5	dBi
Satellite EIRP	**26.25**	**dBW**

Propagation

Atmoshperic and Polarization Losses	-0.5	dB

$$Free\ Space\ Path\ Loss = -10\times\log_{10}\left[\left(\frac{4\pi d}{\lambda}\right)^2\right]$$

where d = distance (25236 km)
lambda = wavelength = c/f
c = speed of light (3x10^8 m/sec)
f = frequency (1.57542 GHz)

= -10 log [317.125x10^6/190.425x10^{-3}]^2
= -10 log [1.665x10^9]^2
= -184.43 dB

Received Power on Earth	**-158.68**	**dBW**
	-128.68	**dBm**
Gain of Receive Antenna	38	dBic
RF losses in LMR400 cabling and connectors from Receive Antenna to Line Amplifier	-6.7	dB
Gain of Line Amplifier	20	dB
Gain of Passive Radiating Antenna	3	dBic

$$Free\ Space\ Path\ Loss = -10\times\log_{10}\left[\left(\frac{4\pi d}{\lambda}\right)^2\right]$$

where d = 100 feet distance (30.48m)
lambda = wavelength = c/f
c = speed of light (3x10^8 m/sec)
f = frequency (1.57542 GHz)

= -10 log [383.023/190.425x10^{-3}]^2

	=	$-10 \log [2011.41]^2$	
	=	-66.07 dB	**100 foot distance**

RF power level at 100 ft distance **-140.45 dBm**

GPS L1 Link Budget

Satellite Tranmitter

Transmitter Power (25 Watts)	14	dBW
RF Losses in trasmitter path	-1.25	dB
Antenna Gain (with respect to a dipole)	11.35	dBd
Satellite ERP	**24.10**	**dBW**

Propagation

Atmoshperic and Polarization Losses	-0.5	dB

$$Free\ Space\ Path\ Loss = -10 \times \log_{10}\left[\left(\frac{4\pi d}{\lambda}\right)^2\right]$$

where d = distance (25236 km)
lambda = wavelength = c/f
c = speed of light (3x10^8 m/sec)
f = frequency (1.57542 GHz)

=	$-10 \log [317.125 \times 10^6 / 190.425 \times 10^{-3}]^2$	
=	$-10 \log [1.665 \times 10^9]^2$	
=	-184.43	dB

Received Power on Earth	**-160.83**	**dBW**
	-130.83	**dBm**
Gain of Receive Antenna	38	dBic
RF losses in LMR400 cabling and connectors from Receive Antenna to Line Amplifier	-6.7	dB
Gain of Line Amplifier	20	dB
Gain of Passive Radiating Antenna	3	dBic

$$Free\ Space\ Path\ Loss = -10 \times \log_{10}\left[\left(\frac{4\pi d}{\lambda}\right)^2\right]$$

where d = 100 feet distance (30.48m)
lambda = wavelength = c/f
c = speed of light (3x10^8 m/sec)
f = frequency (1.57542 GHz)

= -10 log [383.023/190.425x10^{-3}]^2

= -10 log [2011.41]^2

= -66.07 dB **100 foot distance**

RF power level at 100 ft distance	**-142.60**	**dBm**