

John Kennedy

From: Bron Tamulion [Bron.Tamulion@plexus.com]
Sent: Tuesday, May 19, 2009 2:14 PM
To: John Kennedy
Subject: Follow Up to our conversation
Attachments: RE: FCC Questions/Calculations (again); FCC Calcs 2.xls

John,

Following up with our conversation last week. I forwarded the information you provided on to GPS source and I attached their responses. I also put together my own calculations and have attached these as well. Since I was above the threshold for the NTIA I change my cable run from LMR400 cable to LMR200 to increase the cable loss from 3.9dBm to 10dBm.

I would appreciate if you could review this again before submittal to see if everything looks OK. Thanks again.

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$36.6 + 20\log D + 20\log F$, where D is the distance in miles and F is the frequency in MHz

Free Space Loss = $32.45 + 20\log(d) + 20\log(f)$ dB (where d is in km and f is in MHz)

The calculation of ERP based on EIRP is shown below:

ERP is the Transmitter Power Output (TPO) plus the gain: $ERP = TPO + dBd$

Since $dBd = dBi - 2.15$, therefore: $ERP = TPO + (dBi - 2.15)$

EIRP is the TPO plus the isotropic gain: $EIRP = TPO + dBi$

Substituting: $ERP = EIRP - 2.15$

		Mile
Distance	206	0.039015152
Frequency	1575.42	
Dipole Gain	2.15	
Free space loss	72.37259	
Receive Gain	35	
Ant Cable loss	-10	75' of LMR200 Cable
Repeater amp gain	30	
Repeater ant Gain	3	
Avg receive power L1 dBm NA	-130	
Effective Isotropic Radiated Power (dBm)	-72	63.09573445 pW
Effective Radiated Power ERP (dBm)	-74.15	38.4591782 pW
Repeated Signal Power @ Range In dBm	-144.3726	
Pre-receiver strength	-105	0.031622777 pW