



## GPS Networking Link Budget Calculator

The following spreadsheet calculates the effective radiated power for a GPS Networking reradiating system as well as the effective signal. Enter the components for the strongest repeating path in your system into the section with the **red** border. NTIA regulations require that than -140 dBm when measured 100 FT outside of the reradiated structure. Please feel free to reach out to GPS Networking if you

Receive Ant Gain	Ant Cable Insertion Loss	Repeater/Splitter Amp Gain	Repeater Ant Gain Best Case	Building Length (Feet)	Signal Power @ End of Building
38	-8.68	28	4	100	-134.78
GPS Carrier Frequency MHz	1575.42		Total System Gain	Range in Miles	Total Signal Power @ Range in Watts
Avg Receive Power L1 dBm North America	-130		61.32	0.018939	33.3E-18
Free Space loss with Isotropic Antennas	-66.10			Range in Meters	Radiated Power dBm
				30.48	-68.68
				Range in Kilometers	Transmitted Power (W)
				0.030480	67.9E-12

### Helpful Links:

Get an FCC Registration Number:	<a href="https://apps.fcc.gov/coresWeb/publicHome.do">https://apps.fcc.gov/coresWeb/publicHome.do</a>	Effective Radiated Power (W)
FCC Experimental Broadcast Form 442:	<a href="https://apps.fcc.gov/oetcf/els/forms/442Entry.cfm">https://apps.fcc.gov/oetcf/els/forms/442Entry.cfm</a>	135.5E-12
Cable Loss Calculator	<a href="https://www.timesmicrowave.com/Calculator">https://www.timesmicrowave.com/Calculator</a>	
GPS Networking Store	<a href="https://www.gpsnetworking.com/store">https://www.gpsnetworking.com/store</a>	Effective Radiated Power (dB)
Tim's Email Address (if you need help)	<a href="mailto:tim@gpsnetworking.com">mailto:tim@gpsnetworking.com</a>	-98.68



### System Receive Antenna

Part Number	Gain/Loss (dB)
L1GPSA-N	38

### Passive Components (Cause Loss)

Part Number	Gain/Loss (dB)
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### Amplified Components (Cause Gain)

Part Number	Gain/Loss (dB)
PRRKAMP-N	22
NH1APDCS1X2	6

### Repeating Antennas

Part Number	Gain/Loss (dB)
L1RRKPA-S	4

### Cable Runs

Cable Type	LMR Cable Loss	
	Per 100 Feet	Feet of Cable
LMR-400	-6.2	20
LMR-400	-6.2	120



power at given range in dBm.  
the repeated signal be weaker  
ou need assistance.

Signal Power @ 100'  
Outside of Building In  
dBm

-140.7958486

l)

w)

**Cable Losses**

-1.24  
-7.44  
0  
0  
0  
0  
0  
0  
0  
0  
0