

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 power at given range in dBm. Enter the components for the strongest repeating path in your system into the section with the red border. NTIA regulations require that the repeated signal be weaker than -140 dBm when measured 100 FT outside of the reradiated structure. Please feel free to reach out to GPS Networking if you need assistance.

Receiving Antenna Gain	Antenna Cable Insertion Loss	System Gain	Nominal Antenna Gain Best Case	Distance to Nearest External Wall (FT)	Signal Power at Nearest External Wall Building	Signal Power at 100' Outside of Nearest External Wall In dBm
38	-4.7	10	4	80	-146.86	-153.90
GPS Carrier Frequency MHz			Total System Gain	Range in Miles	Total Signal Power @ Range in Watts	
L1: 1575.42				0.02	2.1E-18	
Avg Receive Power dBm North America			47.3	Range in Meters	Radiated Power dBm	
-130				24.38	-82.7	
Free Space loss with Isotropic Antennas			0.02	Range in Kilometers	Power (pW)	
-64.16				0.02	2.69	
Helpful Links:						Effective Radiated Power (pW)
Get an FCC Registration Number						5.37
FCC Experimental Broadcast Form 442						Effective Radiated Power (dBW)
Cable Loss Calculator						
GPS Networking Store						
Email Tim Waite for help						-112.7

Distance to External Wall (FT): 80 ft

System Receive Antenna

Part Number	Gain/Loss (dB)
L1GPSA	38

Passive Components (Cause Loss)

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

Part Number	Gain/Loss (dB)
HNRRKIT	10

Cable Runs

Cable Type	Loss Per 100 Feet (LMR400 =)	Length of Cable	U O M	Cable Losses
LMR-400	-6	78.4	ft	-4.70
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00
			ft	0.00

Repeating Antennas	
Part Number	Gain/Loss (dB)
L1GRRKPA	4

ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00
ft 0.00

System Diagram

