GPS Networking Link Budget Calculator

Customer:

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.

Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Building Length (Feet)	Repeated Signal Power @ End of Building In dBm	Repeated Signal Power @ 100' Outside of Building In dBm
38	-3	29	3	290	-138.34	-140.3142243

GPS Carrier Frequency MHz	**Total System Gain**	**Range in Miles**	**Total Signal Power @ Range in Watts**
1575	67	0.05	14.7E-18
Avg Receive Power L1 dBm North America			
-130		**Range in Meters**	**Radiated Power dBm**
Free Space loss with Isotropic Antennas		90.39	-63
-75.34			
		Range in Kilometers	**Transmitted Power (W)**
		0.09	251.2E-12
			Effective Radiated Power (W)
			501.2E-12
			Effective Radiated Power (dBW)
			-93

Helpful Links:

Get an FCC Registration Number:	https://apps.fcc.gov/coresWeb/publicHome.do
FCC Experimental Broadcast Form 442:	https://apps.fcc.gov/oetcf/els/forms/442Entry.cfm
Cable Loss Calculator	https://www.timesmicrowave.com/Calculator
GPS Networking Store	https://www.gpsnetworking.com/store
Tim's Email Address (if you need help)	mailto:tim@gpsnetworking.com

System Receive Antenna

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

Passive Components (Cause Loss)

Part Number	Gain/Loss (dB)

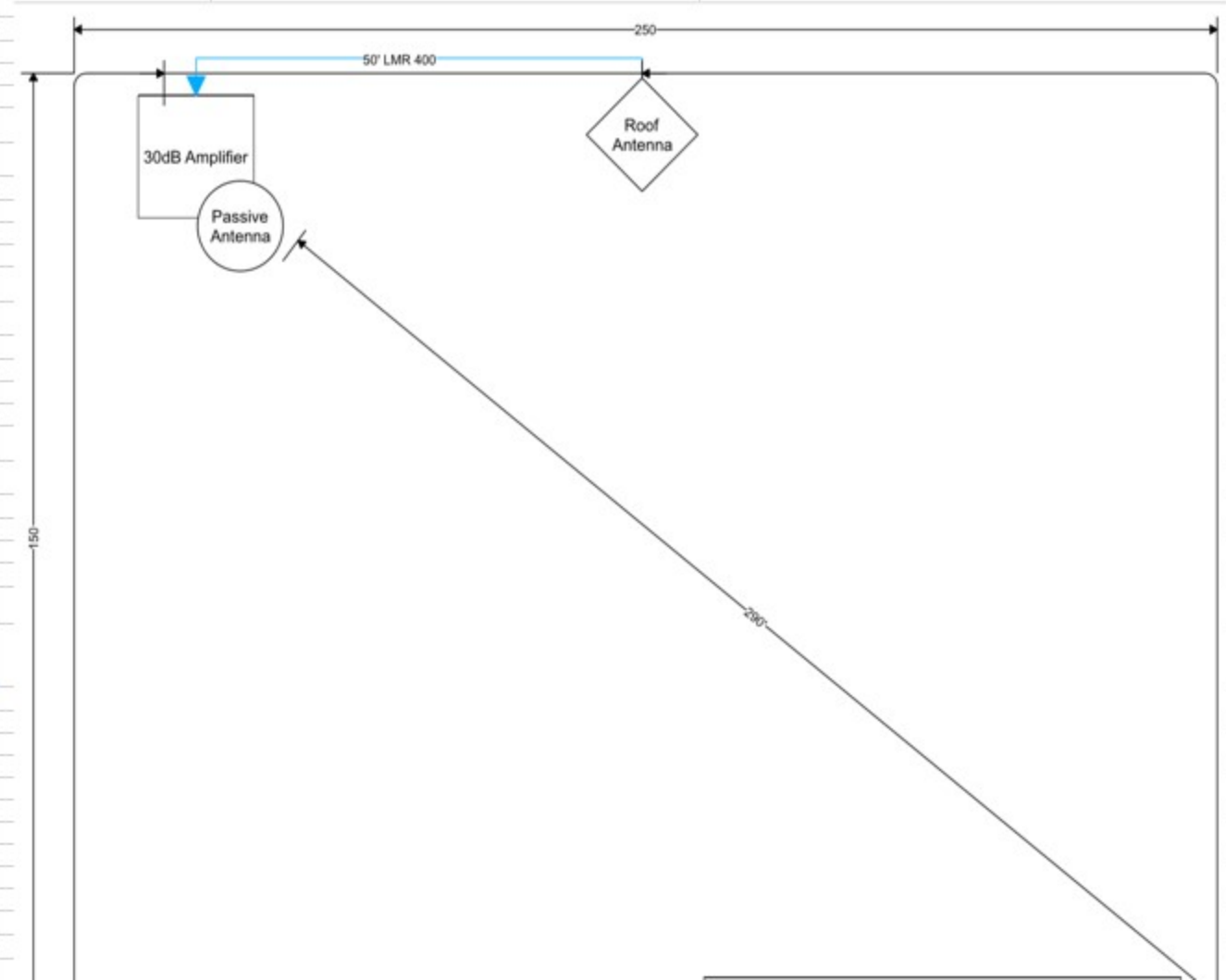
Amplified Components (Cause Gain)

Part Number	Gain/Loss (dB)
VGLCDLA30RPDC(set to 29)	29

Repeating Antennas

Part Number	Gain/Loss (dB)
L1PRRKA-S	3

Cable Runs

Cable Type	Loss Per 100 Feet (LMR400) = -6	Feet of Cable	Cable Losses
LMR400	-6	50	-3
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0

System Diagram