

Link Budget for GPS L1 Carrier and HNRRKIT Re-Radiation

Received Power Calculation

Parameter	Unit	Value
GPS L1 Frequency	MHz	1575.42
GPS L1 Wavelength	m	0.19
Satellite Transmit Power (for 25 Watts)	dBW	13.98
RF Transmission Losses	dB	1.25
Antenna Gain (wrt a dipole)	dB	13.50
Atmospheric Loss	dB	1.00
Polarization Loss	dB	1.50
Distance to Satellite	km	25200.00
Path Loss	dB	184.42
User Received Signal Power	dBW	

Transmitted Power Calculation

Parameter	Unit	Value
GPS L1 Frequency	MHz	1575.42
GPS L1 Wavelength	m	0.19
User Received Signal Power	dBW	160.69
Receiver Antenna Gain	dB	38.00
Receiver RF Losses	dB	6.70
Receiver Amplifier Gain	dB	20.00
Gain of Re-Radiating Antenna	dB	3.00
Distance to Evaluation Point (100ft)	m	30.48
Path Loss	dB	66.07
User Received Signal Power	dBW	

RF Power at 100 feet from Source

ing Kit

Contribution
13.98
-1.25
13.50
-1.00
-1.50
-184.42
-160.69

Contribution
-160.69
38.00
-6.70
20.00
3.00
-66.07
-172.46

-142.46 dBm