



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.

<i>Receiving Antenna Gain</i>	<i>Antenna Cable Insertion Loss</i>	<i>System Gain</i>	<i>Nominal Antenna Gain Best Case</i>	<i>Distance to Nearest External Wall (FT)</i>	<i>Signal Power at Nearest External Wall Building</i>	<i>Signal Power at 100' Outside of Nearest External Wall In dBm</i>
38	-16.50	30	4	6	-116.16	-141.10
GPS Carrier Frequency MHz			Total System Gain	Range in Miles	Total Signal Power @ Range in Watts	
L1: 1575.42			55.5	0.00	2.4E-15	
Avg Receive Power dBm North America				Range in Meters	Radiated Power dBm	
-130				1.83	-74.5	
Free Space loss with Isotropic Antennas				Range in Kilometers	Power (pW)	
-41.66				0.00	17.78	
Helpful Links:					Effective Radiated Power (pW)	
Get an FCC Registration Number					35.48	
FCC Experimental Broadcast Form 442					Effective Radiated Power (dBW)	
Cable Loss Calculator					-104.5	
GPS Networking Store						
Email Tim Waite for help						



Distance to External Wall (FT): 6 ft

System Receive Antenna

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

Passive Components (Cause Loss)

Part Number	Gain/Loss (dB)
1000	0
1001	1
1002	2
1003	3
1004	4
1005	5
1006	6
1007	7
1008	8
1009	9
1010	10
1011	11
1012	12
1013	13
1014	14
1015	15
1016	16
1017	17
1018	18
1019	19
1020	20
1021	21
1022	22
1023	23
1024	24
1025	25
1026	26
1027	27
1028	28
1029	29
1030	30
1031	31
1032	32
1033	33
1034	34
1035	35
1036	36
1037	37
1038	38
1039	39
1040	40
1041	41
1042	42
1043	43
1044	44
1045	45
1046	46
1047	47
1048	48
1049	49
1050	50
1051	51
1052	52
1053	53
1054	54
1055	55
1056	56
1057	57
1058	58
1059	59
1060	60
1061	61
1062	62
1063	63
1064	64
1065	65
1066	66
1067	67
1068	68
1069	69
1070	70
1071	71
1072	72
1073	73
1074	74
1075	75
1076	76
1077	77
1078	78
1079	79
1080	80
1081	81
1082	82
1083	83
1084	84
1085	85
1086	86
1087	87
1088	88
1089	89
1090	90
1091	91
1092	92
1093	93
1094	94
1095	95
1096	96
1097	97
1098	98
1099	99
1100	100

Amplified Components (Cause Gain)

Part Number	Gain/Loss (dB)
HNRRKAMP	30

Repeating Antennas

Part Number	Gain/Loss (dB)
L1GRRKPA-S	4

Cable Runs

[illegible]



System Diagram
