

GPS Re-Radiator Signal Strength Calculation for L2 Frequency

Component	Signal Level		Manufacturer	Part Number	Notes
GPS Signal Input (Pr)	-130	dBm	(typical)		-110 to -149 dBm (-130dBm typ)
Antenna Gain (Gr)	3.3	dB	Antcom Puck Antenna	P/N 3G1215	
Rx Antenna LNA (G lna)	35	dB			
Cable Loss (Lc1)	-4	dB	(~70ft)	LMR400-PL (-6dB/100ft)	
(Lc2)	-10	dB	(~55ft)	LMR240-LL-PL (-10dB/100ft)	
Variable Attenuator (L attn)	0	dB	(nominal)		Self-Adjusting (Auto control)
Amplifier (G amp)	30	dB	GPS Source, Inc.	P/N GPSRKXLV	
Re-Radiating Antenna (Gt)	3	dB	GPS Source, Inc.		
GPS Transmit Power	-72.7	dBm			
Path Loss @ 160ft	-68.9	dB	Path Loss = 20 Log F (MHz) + 20 Log D (feet) - 37		
EIRP @ 100ft from Bldg	-141.6 dBm/24 MHz		1227.6	MHz	Frequency L2
			100	ft	Outside Bldg
			60	ft	Antenna to Bldg Walls
			160	ft	Total Distance
$P_{sig} (EIRP) = P_R + G_R + G_{LNA} + L_{C1} + L_{C2} + L_{attn} + G_{amp} + G_T + L_{FS} = -130 + 3.5 + 33 - 4.2 - 5.5 - 11 + 40 + 3 - 69.2 = \mathbf{-143.4 \text{ dBm/24 MHz}}$					

GPS Re-Radiator Signal Strength Calculation for L1 Frequency

Component	Signal Level		Manufacturer	Part Number	Notes
GPS Signal Input (Pr)	-130	dBm	(typical)		-110 to -149 dBm (-130dBm typ)
Antenna Gain (Gr)	4.7	dB	Antcom Puck Antenna	P/N 3G1215	
Rx Antenna LNA (G Lna)	33	dB			
Cable Loss (Lc1)	-4	dB	(~70ft)	LMR400-PL (-6dB/100ft)	
(Lc2)	-10	dB	(~55ft)	LMR240-LL-PL (-10dB/100ft)	
Variable Attenuator (L attn)	0	dB	(nominal)		Self-Adjusting (Auto control)
Amplifier (G amp)	30	dB	GPS Source, Inc.	P/N GPSRKXLV	
Re-Radiating Antenna (Gt)	3	dB	GPS Source, Inc.		
GPS Transmit Power	-73.3	dBm			
Path Loss @ 160ft	-71.0	dB	Path Loss = 20 Log F (MHz) + 20 Log D (feet) - 37		
EIRP @ 100ft from Bldg	-144.3 dBm/24 MHz		1575.42	MHz	Frequency L1
			100	ft	Outside Bldg
			60	ft	Antenna to Bldg Walls
			160	ft	Total Distance
$P_{sig}(EIRP) = P_R + G_R + G_{LNA} + L_{C1} + L_{C2} + L_{attn} + G_{amp} + G_T + L_{FS} = -130 + 3.5 + 33 - 4.2 - 5.5 - 11 + 40 + 3 - 71.4 = \mathbf{-142.6 \text{ dBm/24 MHz}}$					