

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)	3	dBi		Antcom	3G1215A	
Rx Antenna LNA (G Ina)	30	dB	(typical)			
Cable Loss (Lc1)	-5	dB			LMR240 (-10dB/100ft)	
(Lc2)	-5	dB			LMR240 (-10dB/100ft)	
Variable Attenuator (L attn)	0	dB	(nominal)			Self-Adjusting (Auto control)
Amplifier (G amp)	27	dB		GPS Source, Inc.	GLI-METROe	
Re-Radiating Antenna (Gt)	3	dBi		GPS Source, Inc.	2.5" Passive Puck	
GPS Transmit Power	-77	dBm	EIRP			Self-Adjusting (Auto control)
Path Loss @ 103ft	-67.2	dB		Path Loss = 20 Log F (MHz) + 20 Log D (feet) - 37		
EIRP @ 100ft from Bldg	-144.2 dBm/24 MHz			1575.42	MHz	Frequency L1
				100	ft	Outside Bldg
				3	ft	Antenna to Bldg Walls
				103	ft	Total Distance
$P_{sig} (EIRP) = P_R + G_R + G_{LNA} + L_{C1} + L_{C2} + L_{attn} + G_{amp} + G_T + L_{FS} = -130 + 3 + 30 - 5 - 5 + 27 + 3 - 67.2 = \mathbf{-144.2 \text{ dBm/24 MHz}}$						

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	dBi		Antcom	3G1215A	
Rx Antenna LNA (G Ina)	30	dB	(typical)			
Cable Loss (Lc1)	-5	dB			LMR240 (-10dB/100ft)	
(Lc2)	-5	dB			LMR240 (-10dB/100ft)	
Variable Attenuator (L attn)	0	dB	(nominal)			Self-Adjusting (Auto control)
Amplifier (G amp)	27	dB		GPS Source, Inc.	GLI-METROe	
Re-Radiating Antenna (Gt)	3	dBi		GPS Source, Inc.	2.5" Passive Puck	
GPS Transmit Power	-77	dBm	EIRP			Self-Adjusting (Auto control)
Path Loss @ 103ft	-65.0	dB		Path Loss = 20 Log F (MHz) + 20 Log D (feet) - 37		
EIRP @ 100ft from Bldg	-142.0 dBm/24 MHz			1227.6	MHz	Frequency L2
				100	ft	Outside Bldg
				3	ft	Antenna to Bldg Walls
				103	ft	Total Distance
$P_{sig} (EIRP) = P_R + G_R + G_{LNA} + L_{C1} + L_{C2} + L_{attn} + G_{amp} + G_T + L_{FS} = -130 + 3 + 30 - 5 - 5 + 27 + 3 - 65 = \mathbf{-142.0 \text{ dBm/24 MHz}}$						