

Blackbird Technologies, Inc.

GPS L1 Link Budgets

Emitter Location 1	Requirement – NTIA 8.3.28		Max EIRP ≤-140 dBm by an isotropic antenna at a distance of 100 feet		
Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Antenna Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
38	-10.4	22	3	100	-143.49
GPS Carrier Frequency MHz			Total System Gain	Range in Miles	Total Signal Power @ Range in Watts
1575			52.6	0.02	4.5E-18
Avg Receive Power L1 dBm North America				Range in Meters	Radiated Power dBm
-130				31.17	-77.4
Free Space loss with Isotropic Antennas				Range in Kilometers	Transmitted Power (W)
-66.09				0.03	9.1E-12
					Effective Radiated Power (W)
					18.2E-12
					Effective Radiated Power (dBW)
					-107.4

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Emitter Location 2	Requirement – NTIA 8.3.28		Max EIRP ≤-140 dBm by an isotropic antenna at a distance of 100 feet				
	Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Range in Feet		
	38	-27.5	42	3	100		
					Repeated Signal Power @ Range In dBm		
					-140.59		
	GPS Carrier Frequency MHz		Total System Gain		Range in Miles		
	1575		55.5		0.02		
	Avg Receive Power L1 dBm North America				Range in Meters		
	-130				31.17		
	Free Space loss with Isotropic Antennas				Range in Kilometers		
	-66.09				0.03		
					Transmitted Power (W)		
					17.8E-12		
					Effective Radiated Power (W)		
					35.5E-12		
					Effective Radiated Power (dBW)		
					-104.5		