

8/3/2020

Avwatch, Inc. FreeSpace Loss Calculator			
GPS Carrier Frequency (MHz)	Transmitted Power dBm	Range in Feet	Free Space loss with Isotropic Antennas
1575	-70	158	
			70.03905215
Reference Dipole Gain		Range in Miles	
2.15		0.029924242	
		Range in Kilometers	
		0.05	
		Range in Meters	
		48.16	

$$FSPL (dB) = 20 \log_{10}(r)$$

	Building is 90' wide at narrowest area, 100 feet on either side results in a 290' diameter area	
-140 dBm at 100 feet from the building to meet NTIA regulations	At 158' pattern from emitting antenna is at the required level with 42' buffer either side	
Effective Radiated Power dBm @ Range	Effective Radiated Power (dBW) @ Range	Effective Radiated Power (W)
-142.1890522	-172.19	6.0408E-18
Effective Isotropic Radiated Power (dBm)	Effective Isotropic Radiated Power (dBW)	Effective Isotropic Radiated Power (W)
-140.04	-170.04	9.9E-18
d) + 20 log₁₀(f) + 32.44		