



Change the values in the yellow boxes to calculate required readings

-140 or less at a range of 100 feet to meet NTIA regulations

Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
38	-3	20	3	130	-140.37

GPS Carrier Frequency MHz	Total System Gain	Range in Miles	Total Signal Power @ Range in Watts
1575	58	0.02	9.2E-18
Avg Receive Power L1 dBm North America		Range in Meters	Radiated Power dBm
-130		40.52	-72
Free Space loss with Isotropic Antennas		Range in Kilometers	Transmitted Power (W)
-68.37		0.04	31.6E-12
			Effective Radiated Power (W)
			63.1E-12
			Effective Radiated Power (dBW)
			-102





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Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
38	-5	23	3	140	-140.85
GPS Carrier Frequency MHz		Total System Gain		Range in Miles	Total Signal Power @ Range in Watts
1227.6		59		0.03	8.2E-18
Avg Receive Power L1 dBm North America				Range in Meters	Radiated Power dBm
-133				43.64	-74
Free Space loss with Isotropic Antennas				Range in Kilometers	Transmitted Power (W)
-66.85				0.04	20.0E-12
					Effective Radiated Power (W)
					39.8E-12
					Effective Radiated Power (dBW)
					-104





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Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
38	-5	22	3	140	-140.43

GPS Carrier Frequency MHz
1575

Total System Gain
58

Range in Miles
0.03

Total Signal Power @ Range in Watts
9.1E-18

Avg Receive Power L1 dBm North America
-130

Range in Meters
43.64

Radiated Power dBm
-72

Free Space loss with Isotropic Antennas
-68.43

<- based on below calcs

Range in Kilometers
0.04

Transmitted Power (W)
31.6E-12

Effective Radiated Power (W)
63.1E-12

Effective Radiated Power (dBW)
-102

Freespace loss

$20 \cdot \log_{10}(\text{distance in km} \cdot \text{frequency in MHz}) + 32.45$

distance in km = 0.04 (or 0.04364)

frequency in MHz = 1575 (or 1575.42)

freespace loss with less significant figures

-68.43681099

freespace loss with more significant figures

-69.19562193





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Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
38	-3	21	3	130	-140.21
GPS Carrier Frequency MHz		Total System Gain		Range in Miles	Total Signal Power @ Range in Watts
1227.6		59		0.02	9.5E-18
Avg Receive Power L1 dBm North America				Range in Meters	Radiated Power dBm
-133				40.52	-74
Free Space loss with Isotropic Antennas				Range in Kilometers	Transmitted Power (W)
-66.21				0.04	20.0E-12
					Effective Radiated Power (W)
					39.8E-12
					Effective Radiated Power (dBW)
					-104

