

1. Given that $0\text{dBm} = 1\text{mW}$
2. Given that $\text{dBm} = 10\log P_1/P_2$
3. Convert to dBm
4. Given that Repeater tx power is 9.6pW
5. Given that Repeater EIRP is 19.2pW
6. Given that free space loss is $96.6 + 20\log D + 20\log F$ where D is distance in miles and F is frequency in MHz

Calculate signal level in dBm at 100ft free space from source

	Watts	dBm
TX Level Watts	$9.60\text{E-}12$	-80.1773
EIRP Level Watts	$1.92\text{E-}11$	-77.167
Antenna Gain in dB =		3.0103

Distance in Feet	100
Frequency in Ghz	1.57542

TX Power	-80.177288
Tx Antenna Gain	3.01029996
100 ft space loss	-66.095249
Signal at 100ft =	-143.26224

Signal is 3dB less than requirement of -140dBm

frequency in Ghz