

## Free Space Path Loss

**Equation:**  $20 \cdot \log(\text{distance in kilometers}) + 20 \cdot \log(\text{frequency in MHz}) + 32.45$

<b>Calculation Frequencies:</b>	900 MHz Band	928	Mhz
	2.5 GHz Band	2462	MHz
	3.6 GHz Band	3675	MHz
	5.8 GHz Band	5875	MHz

Free Space Path Loss					
Distance (km)	Distance (miles)	Path Loss (dB) @ 900 MHz	Path Loss (dB) @ 2.4 GHz	Path Loss (dB) @ 3.6 GHz	Path Loss (dB) @ 5.8 GHz
0.5	0.3	86	94	98	102
1.0	0.6	92	100	104	108
1.5	0.9	95	104	107	111
2.0	1.2	98	106	110	114
2.5	1.6	100	108	112	116
5.0	3.1	106	114	118	122
7.5	4.7	109	118	121	125
10.0	6.2	112	120	124	128
15.0	9.3	115	124	127	131
20.0	12.4	118	126	130	134
25.0	15.5	120	128	132	136
30.0	18.6	121	130	133	137
40.0	24.9	124	132	136	140
60.0	37.3	127	136	139	143
80.0	49.7	130	138	142	146