

MICROWAVE PATH EVALUATION SPREADSHEET

FREQUENCY 23.175GHZ WAVELENGTH 0.012944984
 ANTENNA HEIGHT ABOVE GROUND 80FEET 80
 ANTENNA DIAMETER 1.5FEET ANTENNA GAIN 38.32222
 FADE MARGIN 25dB BEAMWIDTH LOSSES
 TRANSMITTER POWER 14dBM HALF PPOWER BEAMWIDTH
 CROSS POLARIZATION FACTOR 40dB CLIMATE FACTOR

DISTANCE (MILES)	FREE SPACE LOSS (dB)	PATH ALTITUDE (FT)	FIXED AC LOSS (dB)	CT. FADE PROBROBABILITY (db)	NET PATH LOSS (dB)
0.5	117.87979	302	26.8	5.7254519E-09	-54.035355
1	123.90039	305	26.8	4.5803615E-08	-60.055955
1.5	127.42222		26.8	1.545872E-07	-63.57778
2	129.92099		26.8	3.6642892E-07	-66.076555
2.5	131.8592		26.8	7.1568149E-07	-68.014755
3	133.44282		26.8	1.2366976E-06	-69.59838
3.5	134.78176		26.8	0.00000196383	-70.937316
4	135.94159		26.8	2.9314314E-06	-72.097155
4.5	136.96465		26.8	4.1738545E-06	-73.120205
5	137.87979		26.8	5.7254519E-06	-74.035355
5.5	138.70765		26.8	7.6205765E-06	-74.863209
6	139.46342		26.8	9.8935809E-06	-75.61898
6.5	140.15866		26.8	1.2578818E-05	-76.314222
7	140.80236		26.8	0.00001571064	-76.957916
7.5	141.40162		26.8	0.0000193234	-77.55718
8	141.96219		26.8	2.3451451E-05	-78.117755
8.5	142.48877		26.8	2.8129145E-05	-78.644333
9	142.98525		26.8	3.3390836E-05	-79.140805
9.5	143.45487		26.8	3.9270875E-05	-79.610427
10	143.90039		26.8	4.5803615E-05	-80.055955
10.5	144.32418		26.8	0.00005302341	-80.479741
11	144.72825		26.8	6.0964612E-05	-80.883808
11.5	145.11435		26.8	6.9661574E-05	-81.269912
12	145.48402			7.9148648E-05	-54.83958
12.5	145.8386			8.9460186E-05	-55.194155
13	146.17926			0.00010063054	-55.534822
13.5	146.50707			0.00011269407	-55.86263
14	146.82296			0.00012568512	-56.178515

14.5	147.12775	0.00013963805	-56.483315
15	147.42222	0.0001545872	-56.77778
15.5	147.70703	0.00017056694	-57.062589
16	147.98279	0.00018761161	-57.338354
16.5	148.25007	0.00020575557	-57.605634
17	148.50937	0.00022503316	-57.864933
17.5	148.76116	0.00024547875	-58.116716
18	149.00584	0.00026712669	-58.361405
18.5	149.24383	0.00029001132	-58.599389
19	149.47547	0.000314167	-58.831027
19.5	149.70109	0.00033962808	-59.056647
20	149.92099	0.00036642892	-59.276555

M PATH LENGTH 20MILES

FEET

dB COAXIAL LOSS 0.9dB

6.0409924dB

2.0136641DEGREES EARTH 1.333334

0.25TERRAIN FACTOR 1

EARTH CURVATURE FEET	PATH HEIGHT AMSL	RELIABILITY	TY RCVR LEVEL (dBm)	FIRST FRESNEL ZONE	SECOND FRESNEL ZONE
4.999975	382	100	-29.035355	2.1692023	3.0677154
9.99995	385	100	-35.055955	3.0281303	4.2824229
14.99993	80	100	-38.57778	3.6595632	5.1754039
19.9999	80	100	-41.076555	4.1682044	5.8947312
24.99988	80	99.99999	-43.014755	4.5950134	6.4983303
29.99985	80	99.99999	-44.59838	4.9611555	7.0161335
34.99983	80	99.99998	-45.937316	5.2792685	7.4660131
39.9998	80	99.99997	-47.097155	5.5576058	7.8596416
44.99978	80	99.99996	-48.120205	5.801895	8.2051185
49.99975	80	99.99994	-49.035355	6.0162848	8.5083116
54.99973	80	99.99992	-49.863209	6.2038759	8.7736054
59.9997	80	99.9999	-50.61898	6.3670374	9.0043506
64.99968	80	99.99987	-51.314222	6.507607	9.2031461
69.99965	80	99.99984	-51.957916	6.6270226	9.3720252
74.99963	80	99.99981	-52.55718	6.7264109	9.5125815
79.9996	80	99.99977	-53.117755	6.8066493	9.6260557
84.99958	80	99.99972	-53.644333	6.8684088	9.7133969
89.99955	80	99.99967	-54.140805	6.912185	9.7753058
94.99953	80	99.99961	-54.610427	6.9383181	9.8122636
99.9995	80	99.99954	-55.055955	6.9470073	9.824552
104.9995	80	99.99947	-55.479741	6.9383181	9.8122636
109.9995	80	99.99939	-55.883808	6.912185	9.7753058
114.9994	80	99.9993	-56.269912	6.8684088	9.7133969
119.9994	80	99.99921	-29.83958	6.8066493	9.6260557
124.9994	80	99.99911	-30.194155	6.7264109	9.5125815
129.9994	80	99.99899	-30.534822	6.6270226	9.3720252
134.9993	80	99.99887	-30.86263	6.507607	9.2031461
139.9993	80	99.99874	-31.178515	6.3670374	9.0043506

144.99993	80	99.99986	-31.483315	6.2038759	8.7736054
149.99993	80	99.999845	-31.77778	6.0162848	8.5083116
154.99992	80	99.999829	-32.062589	5.801895	8.2051185
159.99992	80	99.999812	-32.338354	5.5576058	7.8596416
164.99992	80	99.999794	-32.605634	5.2792685	7.4660131
169.99992	80	99.999775	-32.864933	4.9611555	7.0161335
174.99991	80	99.999755	-33.116716	4.5950134	6.4983303
179.99991	80	99.999733	-33.361405	4.1682044	5.8947312
184.99991	80	99.99971	-33.599389	3.6595632	5.1754039
189.99991	80	99.999686	-33.831027	3.0281303	4.2824229
194.9999	80	99.99966	-34.056647	2.1692023	3.0677154
199.9999	80	99.999634	-34.276555	0	0

PREDICTED
OUTAGES (MIN)
PER YEAR

0.0030092975

0.02407438

0.081251034

0.19259504

0.37616219

0.65000827

1.0321891

1.5407603

2.1937779

3.0092975

4.005375

5.2000661

6.6114267

8.2575124

10.156379

12.326083

14.784679

17.550223

20.640772

24.07438

27.869104

32.043

36.614123

41.600529

47.020274

52.891414

59.232003

66.0601

73.393758
81.251034
89.649983
98.608662
108.14513
118.27743
129.02363
140.40179
152.42995
165.12617
178.50852
192.59504