Coax Loss vs. Theoretical Detection Distance

Maple Leaf Communications

http://www.mapleleafcom.com

Reference Distance used is 10.0km line-of-site (no obstructions)
Comparison between 240-size coax cable vs. 400-size coax cable

No coax loss is wanted, but up to about 1dB of loss is usually ok (shown in white)
>1-2dB of coax loss will reduce detection distance by approx. 20%
2-3dB of coax loss will reduce detection distance by approx. 30%
Over 3dB of coax loss can reduce detection distance by 50% (for 6dB loss)

166.38MHz

Coax Length (ft)	**240-Coax** Loss (dB)	% Loss	Distance (km)	**400-Coax** Loss (dB)	% Loss	Distance (km)
0	0	0	10.00	0	0	10.00
10	0.31	6.9	9.65	0.16	3.6	9.82
20	0.62	13.3	9.31	0.33	7.3	9.63
30	0.93	19.3	8.98	0.49	10.7	9.45
35	1.09	22.2	8.82	0.57	12.3	9.36
40	1.24	24.8	8.67	0.66	14.1	9.27
45	1.40	27.6	8.51	0.74	15.7	9.18
50	1.55	30.0	8.37	0.82	17.2	9.10
60	1.86	34.8	8.07	0.99	20.4	8.92
75	2.33	41.5	7.65	1.23	24.7	8.68
100	3.10	51.0	7.00	1.64	31.5	8.28
125	3.88	59.1	6.40	2.05	37.6	7.90

434MHz

Coax Length (ft)	**240-Coax** Loss (dB)	% Loss	Distance (km)	**400-Coax** Loss (dB)	% Loss	Distance (km)
0	0.00	0.0	10.00	0	0	10.00
10	0.50	10.9	9.44	0.27	6.0	9.69
20	1.00	20.6	8.91	0.53	11.5	9.41
30	1.50	29.2	8.41	0.8	16.8	9.12
35	1.75	33.6	8.18	0.93	19.3	8.98
40	2.00	36.9	7.94	1.06	21.7	8.85
45	2.25	40.8	7.72	1.19	24.0	8.72
50	2.50	43.8	7.50	1.33	26.4	8.58
60	3.01	50.0	7.07	1.59	30.7	8.33
75	3.76	57.9	6.49	1.99	36.8	7.95
100	5.01	68.5	5.62	2.65	45.7	7.37
125	6.26	76.3	4.86	3.31	53.3	6.83

Notes: Maple Leaf Communications makes no guarantee for distances calculated above.
All calculations are theoretical.
Actual distances will vary depending on terrain, buildings, and tower installations.

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