

SECONDARY CONSTANTS OF LOADED CABLE
19 GAUGE CNB, ENB, FNB
H88 LOADING

at 68° F.*

Freq. Hertz	Propagation Constant per Mile			Mid-Section Impedance			
	Attenuation		Phase Shift β Radians	R Ohms	X Ohms (Neg.)	Z Ohms	Angle Degrees (Neg.)
	α Nepers	dB					
1	.00537	.047	.00461	10048	8536	13184	40.4
50	.03095	.269	.04002	1515	1163	1910	37.5
100	.03870	.336	.06401	1211	728	1413	31.0
200	.04451	.387	.1114	1055	419	1135	21.7
300	.04650	.404	.1602	1013	292	1054	16.1
500	.04785	.416	.2604	993	181	1009	10.3
800	.04848	.421	.4145	999	115	1006	6.6
1000	.04870	.423	.5194	1013	93	1017	5.3
1200	.04887	.424	.6264	1032	79	1035	4.4
1400	.04904	.426	.7358	1057	69	1060	3.8
1600	.04923	.428	.8484	1089	63	1091	3.3
1800	.04949	.430	.9648	1130	58	1132	3.0
2000	.04986	.433	1.0860	1182	56	1183	2.7
2200	.05041	.438	1.2134	1248	55	1249	2.5
2400	.05128	.445	1.3488	1335	58	1337	2.5
2500	.05190	.451	1.4203	1390	60	1391	2.5
2600	.05269	.458	1.4949	1455	64	1456	2.5
2700	.05373	.467	1.5732	1533	70	1535	2.6
2750	.05437	.472	1.6141	1579	74	1580	2.7
2800	.05512	.479	1.6561	1629	79	1631	2.8
3000	.05973	.519	1.8406	1910	114	1914	3.4
3200	.07043	.612	2.0662	2461	228	2472	5.3
3400	.1166	1.013	2.3950	4198	1273	4387	16.9

* Temperature Variation per Degree F.

Hz	dB	rad.	R	X
300	.0009	.00006	.045	-.538
1000	.0009	.00012	-.095	-.202
3000	.0007	.00061	.914	-.317

Notes: Nominal Cutoff Frequency = 3450 Hz.
Phase Delay = 82.67×10^{-6} Seconds/Mile at 1000 Hz.
Velocity of Propagation = 12.10×10^3 Miles/Second at 1000 Hz.

END-SECTION IMPEDANCE

End Section \ Frequency (Hz)	300		500		1000		1600	
	R	X	R	X	R	X	R	X
0 (Full Coil)	1009	-206	976	- 38	933	+193	863	+398
.1	1012	-223	984	- 67	963	+141	937	+335
.2	1013	-241	988	- 96	986	+ 86	1002	+254
.3	1014	-258	992	-125	1002	+ 27	1052	+158
.4	1014	-275	993	-153	1011	- 33	1083	+ 50
.5 (Mid Section)	1013	-292	993	-181	1013	- 93	1089	- 63
.6	1012	-309	991	-209	1008	-153	1074	-173
.7	1010	-325	988	-237	995	-211	1038	-274
.8	1008	-341	983	-263	977	-265	986	-361
.9	1005	-357	976	-290	953	-315	923	-432
1.0 (Full Section)	1001	-373	968	-315	925	-360	854	-487

End Section \ Frequency (Hz)	2000		2500		2750		3000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	795	+524	676	+678	596	+756	493	+835
.1	908	+468	839	+662	781	+778	689	+913
.2	1016	+379	1025	+593	1016	+744	976	+949
.3	1107	-257	1210	+448	1284	+604	1368	+855
.4	1166	+107	1350	+220	1509	+317	1771	+497
.5 (Mid Section)	1182	- 56	1390	- 60	1579	- 74	1910	-114
.6	1153	-216	1318	-330	1454	-445	1655	-666
.7	1085	-355	1165	-531	1211	-682	1242	-921
.8	992	-463	983	-649	957	-782	891	-958
.9	889	-537	811	-698	746	-795	645	-903
1.0 (Full Section)	786	-582	666	-703	585	-764	482	-823