

SECONDARY CONSTANTS OF LOADED CABLE  
19-GAUGE ANB, DNB, GNB  
H44 LOADING

at 68° F.\*

Freq. Hertz	Propagation Constant per Mile			Mid-Section Impedance			
	Attenuation		Phase Shift $\beta$ Radians	R Ohms	X Ohms (Neg.)	Z Ohms	Angle Degrees (Neg.)
	$\alpha$ Nepers	dB					
1	.00469	.041	.00401	11110	9464	14594	40.4
50	.02865	.249	.03277	1578	1369	2089	40.9
100	.03782	.329	.04962	1194	906	1499	37.2
200	.04706	.409	.07975	960	564	1113	30.4
300	.05145	.447	.1095	879	411	971	25.1
500	.05518	.479	.1704	823	265	864	17.8
800	.05702	.495	.2646	803	171	821	12.1
1000	.05754	.500	.3287	801	139	813	9.8
1200	.05786	.503	.3935	803	116	812	8.3
1400	.05807	.504	.4590	808	101	814	7.1
1600	.05823	.506	.5253	815	89	820	6.2
1800	.05836	.507	.5924	824	80	828	5.5
2000	.05846	.508	.6605	835	72	838	5.0
2200	.05857	.509	.7296	848	67	851	4.5
2400	.05868	.510	.7999	863	62	865	4.1
2500	.05873	.510	.8355	871	60	873	4.0
2600	.05880	.511	.8716	880	59	882	3.8
2700	.05887	.511	.9080	890	57	892	3.7
2750	.05890	.512	.9263	895	56	897	3.6
2800	.05894	.512	.9448	901	56	902	3.5
3000	.05913	.514	1.0199	924	54	926	3.3
3200	.05937	.516	1.0970	952	52	953	3.2
3500	.05988	.520	1.2174	1002	52	1003	3.0
4000	.06151	.534	1.4349	1122	57	1124	2.9
4500	.06537	.568	1.6848	1331	76	1334	3.3
5000	.07713	.670	1.9989	1804	163	1811	5.2

\* Temperature variation per degree F.

Hz.	dB	rad.	R	X
300	.0009	.00006	.229	-.657
1000	.0011	.00009	-.045	-.286
3000	.0010	.00024	-.029	-.126

Notes: Nominal cutoff frequency = 5450 Hz.

Phase delay =  $52.31 \times 10^{-6}$  seconds/mile at 1000 Hz.

Velocity of propagation =  $19.13 \times 10^3$  miles/second at 1000 Hz.

## END-SECTION IMPEDANCE

Frequency (Hz) End Section	300		1000		2000		2500	
	R	X	R	X	R	X	R	X
0 (Full Coil)	879	-368	777	+ 5	729	+216	697	+301
.1	879	-377	786	- 24	766	+168	754	+250
.2	880	-385	793	- 52	796	+114	804	+185
.3	880	-394	798	- 81	819	+ 55	842	+110
.4	880	-402	800	-110	832	- 8	865	+ 26
.5 (Mid Section)	879	-411	801	-139	835	- 72	871	- 60
.6	878	-419	799	-167	828	-135	860	-145
.7	878	-427	795	-195	813	-194	832	-224
.8	877	-435	789	-222	789	-248	792	-292
.9	876	-443	782	-247	759	-296	744	-347
1.0 (Full Section)	874	-451	773	-272	724	-337	692	-390

Frequency (Hz) End Section	2750		3000		4000		5000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	678	+342	656	+383	540	+541	336	+705
.1	746	+292	736	+335	670	+527	491	+802
.2	808	+225	812	+265	821	+473	743	+885
.3	857	+141	873	+173	972	+357	1141	+867
.4	888	+ 45	913	+ 65	1086	+172	1625	+543
.5 (Mid Section)	895	- 56	924	- 54	1122	- 57	1804	-163
.6	880	-155	904	-168	1062	-275	1442	-740
.7	845	-244	859	-269	935	-436	975	-906
.8	795	-318	796	-350	787	-528	649	-865
.9	735	-376	724	-408	649	-565	450	-772
1.0 (Full Section)	672	-418	651	-447	534	-566	329	-679