

SECONDARY CONSTANTS OF LOADED CABLE  
22 GAUGE ASA, BSA, CSA, DSA, ESA  
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	.00732	.064	.00626	13978	11922	18372	40.5
50	.04629	.402	.04947	1920	1783	2620	42.9
100	.06316	.549	.07248	1405	1219	1860	40.9
200	.08335	.724	.1098	1065	805	1335	37.1
300	.09553	.830	.1437	930	616	1116	33.5
500	.1091	.948	.2098	817	423	920	27.4
800	.1180	1.025	.3108	761	287	813	20.7
1000	.1208	1.049	.3800	748	236	784	17.5
1200	.1225	1.064	.4506	744	201	770	15.1
1400	.1235	1.072	.5225	745	175	765	13.2
1600	.1240	1.077	.5957	750	155	766	11.7
1800	.1244	1.080	.6704	758	140	771	10.5
2000	.1245	1.082	.7465	769	128	780	9.5
2200	.1246	1.082	.8242	783	119	792	8.6
2400	.1246	1.082	.9039	800	111	808	7.9
2500	.1246	1.082	.9445	810	108	817	7.6
2600	.1246	1.082	.9857	821	106	828	7.3
2700	.1246	1.082	1.027	833	104	839	7.1
2750	.1246	1.082	1.049	839	103	845	7.0
2800	.1246	1.082	1.070	846	102	852	6.9
3000	.1247	1.083	1.157	875	100	881	6.5
3200	.1250	1.085	1.248	911	99	916	6.2
3500	.1259	1.093	1.392	980	103	985	6.0
4000	.1308	1.136	1.663	1167	133	1174	6.5
4500	.1511	1.312	2.007	1598	284	1623	10.1
4800	.2063	1.792	2.299	2227	909	2406	22.2

\* Temperature Variation Per Degree F.

Hz	dB	Rad.	R	X
300	.0014	.00012	.469	-.810
1000	.0022	.00015	.064	-.431
3000	.0022	.00030	.021	-.224

Notes: Nominal cutoff frequency = 4900 Hz  
Phase delay =  $60.48 \times 10^{-6}$  seconds/mile at 1000 Hz.  
Velocity of propagation =  $16.53 \times 10^3$  miles/second at 1000 Hz.

END-SECTION IMPEDANCE

End Section \ Frequency (Hz)	300		1000		2000		2500	
	R	X	R	X	R	X	R	X
0 (Full Coil)	929	-572	720	- 88	648	+173	609	+272
.1	930	-581	732	-118	692	+124	675	+222
.2	930	-590	740	-148	727	+ 67	734	+156
.3	930	-599	745	-178	753	+ 5	779	+ 75
.4	930	-607	748	-208	767	- 62	806	- 15
.5 (Mid Section)	930	-616	748	-236	769	-128	810	-108
.6	929	-624	746	-264	760	-192	793	-197
.7	928	-632	741	-291	740	-251	759	-276
.8	927	-640	734	-317	713	-302	712	-339
.9	926	-648	726	-341	680	-345	658	-387
1.0 (Full Section)	925	-655	716	-364	643	-380	604	-419

End Section \ Frequency (Hz)	2750		3000		3500		4000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	586	+318	561	+364	499	+453	418	+543
.1	666	+270	654	+321	620	+431	566	+559
.2	739	+202	744	+251	753	+370	755	+530
.3	798	+112	819	+153	878	+255	966	+413
.4	833	+ 7	866	+ 31	963	+ 88	1134	+176
.5 (Mid Section)	839	-103	875	-100	980	-103	1167	-133
.6	817	-208	845	-223	923	-280	1044	-402
.7	771	-297	786	-325	818	-408	848	-553
.8	712	-366	710	-398	698	-482	663	-603
.9	646	-413	630	-443	586	-512	517	-596
1.0 (Full Section)	581	-442	555	-466	493	-515	412	-564