

SECONDARY CONSTANTS OF LOADED CABLE
22 GAUGE ASA, BSA, CSA, DSA, ESA
B88 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	.00753	.065	.00647	14412	12246	18912	40.4
50	.04344	.377	.05601	2171	1670	2739	37.6
100	.05438	.472	.08949	1732	1047	2024	31.2
200	.06264	.544	.1555	1506	603	1622	21.8
300	.06548	.569	.2234	1443	420	1503	16.2
500	.06744	.586	.3625	1409	259	1433	10.4
800	.06843	.594	.5753	1406	164	1415	6.7
1000	.06880	.598	.7189	1413	132	1419	5.4
1200	.06911	.600	.8640	1424	111	1429	4.5
1400	.06939	.603	1.011	1439	96	1442	3.8
1600	.06968	.605	1.159	1458	85	1460	3.3
1800	.06997	.608	1.310	1480	76	1482	3.0
2000	.07030	.611	1.463	1506	70	1508	2.7
2200	.07067	.614	1.619	1537	65	1539	2.4
2400	.07110	.618	1.779	1574	61	1575	2.2
2500	.07134	.620	1.860	1595	59	1596	2.1
2600	.07160	.622	1.943	1617	58	1618	2.1
2700	.07190	.624	2.026	1641	57	1642	2.0
2750	.07205	.626	2.069	1654	57	1655	2.0
2800	.07222	.627	2.111	1667	56	1668	1.9
3000	.07299	.634	2.285	1728	56	1728	1.9
3200	.07396	.642	2.466	1800	56	1801	1.8
3500	.07601	.660	2.754	1939	60	1940	1.8
4000	.08249	.717	3.294	2316	82	2317	2.0
4500	.1016	.882	3.984	3221	193	3227	3.4
4900	.2127	1.848	4.897	6925	2262	7285	18.1

* Temperature Variation Per Degree F.

Hz	dB	rad.	R	X
300	.0012	.00008	.074	-.774
1000	.0013	.00016	-.112	-.276
3000	.0009	.00051	0	-.131

Notes: Nominal Cutoff Frequency = 4950 Hz
Phase Delay = 114.42×10^{-6} Seconds/Mile at 1000 Hz
Velocity of Propagation = 8.74×10^3 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)	1442	-336	1360	+150	1268	+498	1198	+652
.1	1444	-352	1381	+97	1350	+412	1320	+565
.2	1445	-369	1396	+41	1418	+308	1432	+445
.3	1445	-386	1407	-16	1469	+191	1522	+296
.4	1445	-403	1413	-74	1501	+63	1579	+124
.5 (Mid Section)	1443	-420	1413	-132	1506	-70	1595	-59
.6	1442	-437	1409	-189	1492	-200	1569	-241
.7	1440	-453	1401	-245	1456	-322	1506	-405
.8	1439	-469	1389	-300	1403	-432	1413	-544
.9	1436	-485	1372	-352	1335	-528	1304	-652
1.0 (Full Section)	1434	-501	1352	-402	1259	-607	1188	-728

Frequency (Hz) End Section	2750		3000		3500		4000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	1155	+728	1106	+803	986	+953	827	+1104
.1	1303	+648	1279	+733	1207	+924	1091	+1148
.2	1443	+525	1450	+610	1456	+821	1435	+1115
.3	1560	+360	1599	+430	1700	+620	1839	+928
.4	1636	+160	1700	+200	1883	+312	2195	+512
.5 (Mid Section)	1654	-57	1728	-56	1939	-60	2316	-82
.6	1620	-270	1682	-308	1852	-424	2128	-650
.7	1536	-459	1572	-524	1655	-705	1754	-1007
.8	1418	-610	1421	-687	1413	-879	1367	-1149
.9	1283	-719	1256	-794	1177	-961	1051	-1159
1.0 (Full Section)	1144	-790	1095	-853	975	-980	815	-1106