SECONDARY CONSTANTS OF LOADED CABLE
19 GAUGE ANB, DNB, GNB
B88 LOADING

at 68° F*

Freq. Hertz	Propagation Constant per Mile			Mid-Section Impedance			
	Attenuation		Phase Shift				
	α Nepers	dB	β Radians	R Ohms	X Ohms (neg.)	Z Ohms	Angle Degrees (neg.)
1	.00494	.043	.00427	11781	9967	15431	40.2
50	.02572	.223	.04096	1968	1226	2319	31.9
100	.02988	.260	.07054	1694	713	1838	22.8
200	.03204	.278	.1318	1583	382	1629	13.6
300	.03264	.283	.1946	1560	259	1581	9.4
500	.03312	.288	.3215	1550	157	1558	5.8
800	.03356	.291	.5136	1555	98	1558	3.6
1000	.03384	.294	.6426	1564	79	1566	2.9
1200	.03413	.296	.7725	1575	66	1576	2.4
1400	.03444	.299	.9035	1589	57	1590	2.1
1600	.03478	.302	1.0357	1605	50	1606	1.8
1800	.03514	.305	1.1693	1625	45	1625	1.6
2000	.03553	.309	1.3048	1648	41	1648	1.4
2200	.03597	.312	1.4422	1674	38	1674	1.3
2400	.03645	.317	1.5819	1704	36	1705	1.2
2500	.03670	.319	1.6528	1721	35	1722	1.2
2600	.03698	.321	1.7244	1739	34	1740	1.1
2700	.03727	.324	1.7967	1759	33	1759	1.1
2750	.03742	.325	1.8332	1769	33	1770	1.1
2800	.03757	.326	1.8699	1780	33	1780	1.1
3000	.03825	.332	2.0190	1827	32	1827	1.0
3200	.03902	.339	2.1723	1881	32	1881	1.0
3500	.04042	.351	2.4115	1981	32	1981	0.9
4000	.04378	.380	2.8434	2218	38	2218	1.0
4500	.04973	.432	3.3397	2629	56	2629	1.2
5000	.06379	.554	3.9624	3552	133	3554	2.1

* Temperature variation per degree F.

Hz	dB	rad.	R	X
300	.0006	.00005	-.083	-.514
1000	.0006	.00013	-.143	-.181
3000	.0003	.00043	-.067	-.090

Notes: nominal cutoff frequency = 5500 Hz.
phase delay = 102.28 x 10^{-6} seconds/mile at 1000 Hz.
velocity of propagation = 9.8 x 10^{3} miles/second at 1000 Hz.

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END-SECTION IMPEDANCE

Frequency (Hz.) / End Section	300		1000		2000		2500	
	R	X	R	X	R	X	R	X
0 (Full Coil)	1559	-175	1517	+201	1438	+519	1377	+667
.1	1561	-192	1535	+147	1510	+430	1485	+572
.2	1561	-209	1548	+ 92	1569	+326	1582	+449
.3	1561	-226	1558	+ 35	1614	+210	1659	+303
.4	1561	-242	1563	- 22	1642	+ 87	1708	+140
.5 (Mid Section)	1560	-259	1564	-79	1648	- 41	1721	- 35
.6	1559	-276	1561	-136	1636	-167	1701	-206
.7	1558	-292	1554	-192	1606	-287	1649	-366
.8	1556	-308	1542	-247	1560	-399	1570	-506
.9	1554	-325	1527	-300	1500	-499	1473	-622
1.0 (Full Section)	1551	-341	1508	-352	1429	-585	1367	-713

Frequency (Hz.) / End Section	2750		3000		4000		5000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	1340	+740	1298	+812	1072	+1102	673	+1398
.1	1471	+647	1453	+725	1321	+1083	963	+1582
.2	1592	+518	1600	+592	1612	+ 983	1431	+1743
.3	1689	+357	1723	+415	1909	+ 765	2171	+1729
.4	1752	+170	1804	+203	2141	+ 411	3101	+1175
.5 (Mid Section)	1769	- 33	1827	- 32	2218	- 38	3552	- 133
.6	1743	-231	1793	-261	2115	- 476	2948	-1336
.7	1676	-412	1707	-467	1874	- 811	2026	-1755
.8	1577	-567	1583	-634	1580	-1010	1346	-1716
.9	1458	-688	1438	-759	1298	-1096	922	-1546
1.0 (Full Section)	1330	-778	1288	-844	1060	-1108	659	-1367