

Cable Impedance, Attenuation, Phase

19 ga. B-88-50

Star

Freq.	Mid-Coil Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	$\alpha$	db/mi	$\beta$	B
200	1615	565	1656	12.8	.0293	.255	.128	.0406
300	1680	250	1600	9.0	.0304	.264	.187	.0597
500	1660	156	1668	5.7	.0309	.269	.310	.0988
1000	1540	90	1543	3.3	.0316	.275	.622	.1980
1500	1500	75	1502	2.4	.0326	.283	.938	.2987
2000	1460	65	1461	2.6	.0334	.290	1.262	.4017
2200	1435	65	1436	2.6	.0339	.295	1.395	.4440
2400	1410	65	1411	2.6	.0344	.299	1.530	.4870
2600	1385	60	1386	2.6	.0348	.303	1.666	.5303
2750	1360	60	1361	2.6	.0352	.306	1.772	.5640
2900	1340	55	1341	2.4	.0359	.312	1.880	.5984
3200	1285	55	1286	2.4	.0373	.324	2.098	.6678
3400	1240	50	1241	2.3	.0381	.331	2.249	.7159

Phantom

Freq.	Mid-Coil Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	$\alpha$	db/mi	$\beta$	B
200	960	195	980	11.6	.0251	.218	.122	.0387
300	940	125	948	7.6	.0254	.221	.180	.0575
500	930	70	933	4.3	.0259	.225	.298	.0947
1000	920	40	921	2.5	.0265	.230	.696	.1898
1500	900	25	900	1.6	.0270	.235	.899	.2863
2000	880	20	880	1.3	.0276	.240	1.209	.3848
2200	865	20	865	1.3	.0279	.243	1.334	.4246
2400	860	15	860	1.0	.0282	.245	1.462	.4654
2600	840	10	840	0.7	.0288	.250	1.593	.5071
2750	830	8	830	0.6	.0291	.253	1.694	.5392
2900	820	5	820	0.4	.0293	.255	1.757	.5720
3200	795	5	795	0.4	.0304	.264	2.000	.6366
3400	775	5	775	0.4	.0311	.270	2.142	.6818

Notes: All reactances are negative; Angles are in degrees and negative.

$\beta$  = phase shift in radians per mile.

B = phase shift in cycles per circuit mile, out and back, =  $\frac{2\beta}{2\pi}$

IMPEDANCE OF 19 GA. B-88-50 AT VARIOUS END SECTIONS (INCLUDING HALF COIL)

SIDES

Frequency	1/2 Coil		0 (Full Coil)		.2		.3		.5		.7		.8		1.0 (Full Section)	
	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle	R + j X	Z Angle
200	1615 -j365	1656 /12.8	1615 -j310	1645 /10.9	1615 -j350	1653 /12.2	1615 -j380	1658 /13.2	1615 -j380	1658 /13.2	1615 -j390	1662 /13.6	1615 -j400	1663 /13.9	1615 -j415	1667 /14.4
300	1580 -j250	1600 /9.7	1580 -j170	1590 /6.2	1580 -j205	1593 /7.4	1580 -j230	1596 /8.3	1580 -j265	1602 /9.5	1580 -j300	1607 /10.7	1580 -j320	1612 /11.5	1580 -j350	1619 /12.5
500	1560 -j155	1568 /5.7	1560 -j 5	1560 /0.2	1560 -j 65	1562 /2.4	1560 -j 95	1563 /3.5	1560 -j160	1568 /5.8	1560 -j205	1574 /7.5	1560 -j240	1579 /8.7	1560 -j290	1587 /10.5
1000	1540 -j 90	1543 /3.3	1540 +j210	1564 /7.8	1560 +j 90	1563 /3.3	1570 +j 45	1570 /1.7	1580 -j 80	1582 /2.9	1570 -j180	1579 /6.5	1560 -j240	1579 /8.7	1540 -j340	1578 /12.5
1500	1500 -j 75	1502 /2.4	1500 +j390	1550 /14.6	1570 +j230	1586 /8.3	1590 +j150	1596 /5.4	1610 -j 60	1612 /2.1	1590 -j190	1601 /6.8	1570 -j290	1597 /10.5	1500 -j430	1561 /16.0
2000	1460 -j 65	1461 /2.6	1460 +j550	1561 /20.7	1680 +j355	1619 /12.7	1625 +j245	1643 /8.6	1675 -j 40	1676 /1.4	1625 -j250	1645 /8.7	1590 -j360	1621 /12.9	1460 -j555	1561 /20.8
2200	1435 -j 65	1436 /2.5	1435 +j610	1558 /23.0	1590 +j400	1639 /14.1	1645 +j280	1668 /9.7	1700 -j 40	1700 /1.3	1645 -j280	1668 /9.7	1590 -j400	1639 /14.1	1435 -j610	1558 /23.0
2400	1410 -j 65	1411 /2.5	1410 +j665	1558 /25.2	1595 +j450	1658 /15.8	1665 +j310	1694 /10.6	1730 -j 40	1700 /1.3	1665 -j310	1694 /10.6	1595 -j450	1658 /15.8	1410 -j665	1558 /25.2
2500	1400 -j 60	1401 /2.5	1400 +j690	1549 /26.2	1600 +j475	1668 /16.5	1680 +j325	1711 /10.9	1745 -j 35	1745 /1.2	1680 -j325	1711 /10.9	1600 -j475	1668 /16.5	1400 -j690	1549 /26.2
2750	1360 -j 60	1361 /2.5	1360 +j760	1558 /29.2	1600 +j550	1691 /19.0	1710 +j380	1752 /12.5	1795 -j 35	1795 /1.1	1710 -j380	1752 /12.5	1600 -j550	1691 /19.0	1360 -j760	1558 /29.2
2900	1340 -j 55	1341 /2.4	1340 +j805	1564 /31.0	1610 +j595	1716 /20.3	1730 +j415	1780 /13.5	1830 -j 35	1830 /1.1	1730 -j415	1780 /13.5	1610 -j595	1716 /20.3	1340 -j805	1564 /31.0
3200	1285 -j 55	1286 /2.4	1285 +j885	1561 /34.6	1615 +j695	1759 /23.3	1775 +j505	1845 /15.9	1915 -j 35	1915 /1.1	1775 -j505	1845 /15.9	1615 -j695	1759 /23.3	1285 -j885	1561 /34.6
3400	1240 -j 50	1241 /2.3	1240 +j940	1556 /37.2	1620 +j765	1792 /25.3	1800 +j570	1889 /17.6	1980 -j 35	1980 /1.0	1800 -j570	1889 /17.6	1620 -j765	1792 /25.3	1240 -j940	1556 /37.2

PHANTOMS

200	960 -j195	980 /11.5	960 -j180	977 /10.6	960 -j200	980 /11.8	960 -j210	983 /12.4	960 -j220	985 /12.9	960 -j230	988 /13.5	960 -j235	989 /13.8	960 -j240	990 /14.0
300	940 -j125	948 /7.5	940 -j110	947 /6.7	940 -j125	949 /7.5	940 -j140	950 /8.5	940 -j150	952 /9.1	940 -j180	957 /10.8	940 -j190	959 /11.4	940 -j210	963 /12.5
500	930 -j 70	933 /4.3	930 -j 20	930 /1.2	930 -j 50	931 /3.1	940 -j 70	943 /4.3	940 -j 80	944 /4.9	940 -j115	947 /7.0	930 -j150	942 /9.1	930 -j190	949 /11.6
1000	920 -j 40	921 /2.5	920 +j120	927 /7.4	935 +j 60	937 /3.7	950 +j 20	950 /1.2	955 -j 40	956 /2.4	960 -j 80	964 /4.8	935 -j120	943 /7.3	920 -j195	941 /12.0
1500	900 -j 25	900 /1.5	900 +j220	927 /13.8	935 +j140	945 /8.5	960 +j 85	964 /5.1	970 -j 20	970 /1.2	960 -j 95	965 /5.7	935 -j155	947 /9.4	900 -j240	932 /14.9
2000	880 -j 20	880 /1.3	880 +j310	933 /19.4	935 +j210	958 /12.7	970 +j135	979 /7.9	990 -j 20	990 /1.2	970 -j135	979 /7.9	935 -j205	957 /12.4	880 -j310	933 /19.4
2200	865 -j 20	865 /1.3	865 +j340	929 /21.4	940 +j235	969 /14.0	980 +j155	992 /9.0	1000 -j 20	1000 /1.1	980 -j155	992 /9.0	940 -j235	969 /14.0	865 -j340	929 /21.4
2400	860 -j 15	860 /1.0	860 +j375	939 /23.6	940 +j260	975 /15.5	990 +j175	1005 /10.0	1015 -j 20	1015 /1.1	990 -j175	1005 /10.0	940 -j260	975 /15.5	860 -j375	939 /23.6
2500	850 -j 13	850 /0.9	850 +j390	935 /24.7	945 +j275	984 /16.2	995 +j185	1012 /10.5	1025 -j 20	1025 /1.1	995 -j185	1012 /10.5	945 -j275	984 /16.2	850 -j390	935 /24.7
2750	830 -j 8	830 /0.6	830 +j430	935 /27.4	950 +j310	999 /18.1	1010 +j215	1033 /12.0	1050 -j 20	1050 /1.1	1010 -j215	1033 /12.0	950 -j310	999 /18.1	830 -j430	935 /27.4
2900	820 -j 5	820 /0.4	820 +j465	937 /29.0	955 +j335	1012 /19.3	1015 +j240	1043 /13.3	1065 -j 20	1065 /1.1	1015 -j240	1043 /13.3	955 -j335	1012 /19.3	820 -j465	937 /29.0
3200	795 -j 5	795 /0.4	795 +j500	939 /32.1	960 +j380	1032 /21.6	1040 +j280	1078 /15.1	1100 -j 25	1100 /1.3	1040 -j280	1078 /15.1	960 -j380	1032 /21.6	795 -j500	939 /32.1
3400	775 -j 5	775 /0.4	775 +j535	942 /34.6	965 +j415	1051 /23.3	1060 +j310	1104 /16.3	1135 -j 30	1135 /1.5	1060 -j310	1104 /16.3	965 -j415	1051 /23.3	775 -j535	942 /34.6