NEGATIVE IMPEDANCE PROVIDED

BY SERIES E-TYPE REPEATERS

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1. GENERAL

1.01 This practice gives, in tabular form, the negative impedances provided by Series E-type negative impedance repeaters for all of the strapping combinations given in Section 332-200-107. Information on the values of the various network elements is given in Section 852-305-105.

1.02 A knowledge of the actual negative impedance required in the repeater to give a desired transmission gain is not required for many of the circuit design problems ordinarily encountered. For certain specific problems, however, such as the use of these repeaters to improve the impedance characteristics of a line, or to determine the effect of the repeater on return loss, and in certain of the more complex special service line applications, data of this kind are useful.

2. SUMMARY OF DATA

2.01 Table 1 gives the negative impedance characteristic of the series element E-type repeater for the half-section termination of the 17 types of loaded line facilities listed in the strapping charts of Section 332-200-107. A separate impedance-frequency characteristic is tabulated for each nominal gain step which covers a range of nominal gain from 1.5 db to 8.0 db in 0.5-db steps. The frequency range is from 200 cps to about 1.1 times the cutoff frequency of the facility involved.

2.02 Table 2 lists the negative impedance of the repeater at 1000 cps with its network adjusted for various end sections of loaded cable ranging from 0.3 to 1.2 sections.

2.03 Table 3 lists similar data for certain sample conditions of facility and gain for various end sections and various frequencies.

2.04 Since these data represent values obtained from measurements on a single representative repeater, some variation is to be expected. It is not expected, however, that the values obtained with particular repeaters will vary more than ± 5 percent from the information given herein.

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 1X
19 CNB)
22 BSA)B88
24 DSM)

Gain		F	R	X	Gain		F	R	X
1.5db		200	− 409	− 133	3.5db		200	− 844	− 339
		500	− 429	− 24			500	− 898	− 89
		1000	− 441	+ 20			1000	− 911	+ 24
		1500	−				1500	−	
		2000	− 481	105			2000	− 963	165
		2800	− 545	185			2800	−1068	277
		3000	− 564	214			3000	−1108	310
		3500	− 638	335			3500	−1243	457
	.8 fc →	3900	− 672	512		.8 fc →	3900	−1396	701
		4000	− 641	609			4000	−1425	822
	fc →	4900	− 154	889		fc →	4900	−1727	614
		5000	− 69	866			5000	− 384	1787
		5200	− 8	803			5200	− 129	1606
	1.1 fc →	5400	+ 26	723		1.1 fc →	5400	− 5	1423
2.0db		200	− 544	− 193	4.0db		200	− 976	− 407
		500	− 572	− 44			500	−1035	− 102
		1000	− 585	+ 33			1000	−1036	+ 52
		1500	−				2000	−1048	213
		2000	− 626	136			2800	−1104	290
		2800	− 699	231			3000	−1135	303
		3000	− 723	263			3500	−1301	350
		3500	− 806	397		.8 fc →	3900	−1599	446
	.8 fc →	3900	− 874	590			4000	−1737	521
		4000	− 879	673		fc →	4900	− 432	2558
	fc →	4900	− 212	1146			5000	− 136	2222
		5000	− 149	1112			5200	+ 66	1860
		5200	− 39	985		1.1 fc →	5400	+ 90	1547
	1.1 fc →	5400	+ 19	906	4.5db		200	− 994	− 440
							500	−1082	− 136
							1000	−1110	+ 7
2.5db		200	− 641	− 232			1500	−	
		500	− 679	− 63			2000	−1187	127
		1000	− 690	+ 7			2800	−1342	239
		1500	−				3000	−1386	273
		2000	− 739	115			3500	−1572	428
		2800	− 819	205		.8 fc →	3900	−1780	634
		3000	− 846	234			4000	−1838	799
		3500	− 947	329		fc →	4900	−1176	2466
	.8 fc →	3900	−1053	464			5000	− 855	2606
		4000	−1081	514			5200	− 309	2415
	fc →	4900	− 884	1419		1.1 fc →	5400	− 7	2101
		5000	− 709	1553					
		5200	− 351	1584					
	1.1 fc →	5400	− 103	1416					
3.0db		200	− 788	− 314	5.0db		200	−1040	− 460
		500	− 838	− 83			500	−1129	− 150
		1000	− 850	+ 25			1000	−1150	− 9
		1500	−				2000	−1233	+ 113
		2000	− 894	148			2400	−1293	158
		2800	− 976	244			2800	−1361	214
		3000	−1011	273			3000	−1431	242
		3500	−1125	375			3500	−1646	367
	.8 fc →	3900	−1260	526		.8 fc →	3900	−1891	549
		4000	−1295	596			4000	−1976	630
	fc →	4900	− 944	1817		fc →	4900	−1835	2781
		5000	− 687	1915			5000	−1236	2922
		5200	− 338	1862			5200	− 486	2793
	1.1 fc →	5400	− 28	1635		1.1 fc →	5400	− 49	2413

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 1X (Cont'd)
19 CNB)
22 BSA)B88
24 DSM)

Gain	F	R	X
5.5db	200	-1200	- 563
	500	-1314	- 145
	1000	-1324	+ 56
	1500		-
	2000	-1360	258
	2800	-1492	386
	3000	-1560	440
	3500	-1793	658
.8 fc →	3900	-2065	1174
	4000	-2087	1410
fc →	4900	- 291	2230
	5000	- 141	2063
	5200	+ 37	1812
1.1 fc →	5400	+ 86	1646
6.0db	200	-1246	- 598
	500	-1357	- 156
	1000	-1378	+ 49
	2000	-1450	277
	2400	-1528	371
	2800	-1634	484
	3000	-1710	580
	3500	-1939	1025
.8 fc →	3900	-1911	1677
	4000	-1747	1929
fc →	4900	- 122	1956
	5000	- 17	1792
	5200	+ 87	1607
1.1 fc →	5400	+ 76	1448
6.5db	200	-1275	- 630
	500	-1425	- 159
	1000	-1439	+ 70
	1500		-
	2000	-1451	287
	2800	-1606	426
	3000	-1676	471
	3500	-1984	693
.8 fc →	3900	-2227	1286
	4000	-2214	1597
fc →	4900	- 202	2266
	5000	- 88	2116
	5200	+ 63	1892
1.1 fc →	5400	+ 152	1697
7.0db	200	-1415	- 736
	500	-1546	- 232
	1000	-1580	- 19
	2000	-1698	+ 200
	2400	-1780	292
	2800	-1902	393
	3000	-1985	463
	3500	-2209	775
.8 fc →	3900	-2378	1261
	4000	-2383	1403
fc →	4900	-1145	2760
	5000	- 904	2714
	5200	- 538	2640
1.1 fc →	5400	- 238	2446

Gain	F	R	X
7.5db	200	-1358	- 713
	300	-1495	- 451
	500	-1569	- 234
	1000	-1613	- 25
	1500	-1659	+ 79
	2000	-1732	171
	2400	-1817	252
	2800	-1949	344
	3000	-2031	431
	3500	-2334	719
.8 fc →	3900		-
	4000	-2534	1478
fc →	4900	- 585	3037
	5000	- 365	2875
	5200	+ 64	2571
1.1 fc →	5400		-
8.0db	200	-1490	- 812
	500	-1665	- 245
	1000	-1700	- 7
	2000	-1782	+ 223
	2400	-1847	300
	2800	-1955	381
	3000	-2026	430
	3500	-2311	607
.8 fc →	3900	-2688	950
	4000	-2799	1142
fc →	4900	-1135	3741
	5000	- 623	3523
	5200	- 136	3072
1.1 fc →	5400	+ 63	2588

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 2X
19 DNB)
24 CSM)B88

Gain	F	R	X
1.5db	200	- 453	- 152
	500	- 473	- 26
	1000	- 483	+ 36
	1500	- 489	79
	2000	- 502	117
	2400	- 523	148
	2800	- 548	184
	3000	- 570	201
	4000	- 733	424
.8 fc →	4300	- 775	586
	5000	- 347	1054
	5400	- 82	934
fc →	5500	- 30	880
	5600	- 11	844
1.1 fc →	6100	+ 69	721
2.0db	200	- 598	- 203
	500	- 629	- 32
	1000	- 633	+ 45
	1500	- 637	111
	2000	- 646	164
	2400	- 659	197
	2800	- 688	242
	3000	- 706	264
	4000	- 926	544
.8 fc →	4300	- 950	786
	5000	- 156	1228
	5400	+ 9	985
fc →	5500	+ 31	962
	5600	+ 72	900
1.1 fc →	6100	+ 78	727
2.5db	200	- 724	- 276
	500	- 769	- 81
	1000	- 780	0
	1500	- 796	+ 52
	2000	- 821	93
	2400	- 842	123
	2800	- 877	150
	3000	- 907	167
	4000	-1118	285
.8 fc →	4300	-1236	364
	5000	-1703	887
	5400	-1637	1865
fc →	5500	-1365	2075
	5600	-1078	2281
1.1 fc →	6100	+ 55	1734
3.0db	200	- 883	- 358
	500	- 934	- 81
	1000	- 935	+ 55
	1500	- 933	134
	2000	- 935	196
	2400	- 947	242
	2800	- 973	280
	3000	- 992	299
	3500	-1084	359
	4000	-1264	486
.8 fc →	4300	-1529	699
	4500	-1489	832
	5000	-1318	1682
	5400	- 591	1957
fc →	5500	- 396	1897
	5600	- 245	1828
1.1 fc →	6100	+ 65	1380

Gain	F	R	X
3.5db	200	- 965	- 407
	500	-1035	- 109
	1000	-1052	+ 23
	1500	-1062	101
	2000	-1083	170
	2400	-1116	220
	2800	-1166	271
	3000	-1196	295
	4000	-1481	599
.8 fc →	4300	-1598	810
	5000	-1421	1862
	5400	- 650	2163
fc →	5500	- 475	2120
	5600	- 282	2074
1.1 fc →	6100	+ 135	1567
4.0db	200	-1051	- 460
	500	-1137	- 117
	1000	-1138	+ 38
	1500	-1145	136
	2000	-1162	214
	2400	-1188	272
	2800	-1219	326
	3000	-1243	357
	4000	-1583	613
.8 fc →	4300	-1782	819
	5000	-1438	2575
	5400	- 125	2306
fc →	5500	+ 18	2129
	5600	+ 109	1909
1.1 fc →	6100	+ 142	1411
4.5db	200	-1124	- 518
	500	-1218	- 163
	1000	-1250	+ 15
	1500	-1289	69
	2000	-1346	144
	2400	-1400	215
	2800	-1489	298
	3000	-1532	352
	4000	-1764	833
.8 fc →	4300	-1822	1075
	5000	-1542	1921
	5400	-1001	2356
fc →	5500	- 832	2384
	5600	- 624	2380
1.1 fc →	6100	+ 114	1994
5.0db	200	-1190	- 571
	500	-1310	- 177
	1000	-1330	- 10
	1500	-1356	+ 83
	2000	-1396	159
	2400	-1438	215
	2800	-1505	282
	3000	-1542	317
	4000	-1859	619
.8 fc →	4300	-2002	796
	5000	-2288	1732
	5400	-1925	2707
fc →	5500	-1585	2866
	5600	-1258	3015
	6000	- 30	2662
1.1 fc →	6100	+ 56	2460

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 2X (Cont'd)
19 DNB)
24 CSM) B88

Gain	F	R	X	Gain	F	R	X
5.5db	200	-1317	- 665	7.5db	200	-1569	- 903
	500	-1454	- 200		500	-1799	- 250
	1000	-1479	+ 8		1000	-1803	+ 35
	1500	-1509	110		1500	-1803	200
	2000	-1551	201		2000	-1794	307
	2400	-1600	275		2400	-1811	366
	2800	-1672	362		2800	-1858	417
	3000	-1720	412		3000	-1896	442
	4000	-2106	892		4000	-2458	746
.8 fc →	4300	-2155	1222	.8 fc →	4300	-2771	1076
	5000	-1795	2481		5000	-2304	3277
	5400	- 849	2837		5400	- 858	3496
fc →	5500	- 608	2831	fc →	5500	- 555	3365
	5600	- 423	2737		5600	- 289	3208
1.1 fc →	6100	+ 167	2114	1.1 fc →	6100	+ 236	2351
6.0db	200	-1387	- 717				
	500	-1540	- 212	8.0db	200	-1652	- 998
	1000	-1559	+ 10		500	-1887	- 302
	1500	-1575	136		1000	-1910	+ 14
	2000	-1602	230		1500	-1921	142
	2400	-1648	296		2000	-1937	249
	2800	-1720	365		2400	-1976	313
	3000	-1771	410		2800	-2039	376
	4000	-2259	845		3000	-2085	404
.8 fc →	4300	-2413	1204		4000	-2624	706
	5000	-1854	2837	.8 fc →	4300	-2941	946
	5400	- 806	2829		5000	-3240	2799
fc →	5500	- 507	2868		5400	-1944	3867
	5600	- 360	2733	fc→	5500	-1502	3922
	6000	+ 113	2180		5600	-1081	3873
1.1 fc →	6100	+ 163	2070		6000	- 75	3178
				1.1 fc→	6100	+ 65	2997
6.5db	200	-1444	- 765				
	500	-1618	- 212				
	1000	-1628	+ 42				
	1500		-				
	2000	-1631	293				
	2400	-1652	360				
	2800	-1696	422				
	3000	-1745	454				
	4000	-2194	826				
.8 fc →	4300	-2410	1158				
	5000	-1906	2826				
	5400	- 598	2968				
fc →	5500	- 535	2949				
	5600	- 286	2758				
1.1 fc →	6100	+ 161	2119				
7.0db	200	-1527	- 839				
	300	-1650	- 512				
	500	-1711	- 233				
	1000	-1726	+ 35				
	1500	-1732	188				
	2000	-1753	302				
	2400	-1789	369				
	2800	-1856	451				
	3000	-1908	494				
	3500	-2589	670				
	4000	-2400	1039*				
.8 fc →	4300	-2519	1526				
	5000	-1510	3056				
	5400	- 513	2912				
fc →	5500	- 305	2791				
	5600	- 148	2660				
	6000	+ 161	2108				
1.1 fc →	6100	+ 223	2014				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 3X
19 CNB)
22 BSA)D88
24 DSM)

Gain	F	R	X	Gain	F	R	X
1.5db	200	− 342	− 116	3.5db	200	− 723	− 278
	300	− 354	− 70		300	− 750	− 168
	500	− 360	− 25		500	− 766	− 68
	1000	− 372	+ 24		1000	− 792	+ 35
	1500	− 393	64		1500	− 819	108
	2000	− 429	109		2000	− 871	182
	2500	− 473	165		2500	− 961	277
	3000	− 530	262		3000	−1099	441
.8 fc →	3200	− 560	330	.8 fc →	3200	−1180	563
	3500	− 583	468		3500	−1284	945
fc →	4000	− 382	788	fc →	4000	− 502	1636
1.1 fc →	4400	− 83	735	1.1 fc →	4400	+ 16	1228
	5000	+ 33	523		5000	+ 57	848
2.0db	200	− 454	− 154	4.0db	200	− 805	− 312
	300	− 470	− 93		300	− 836	− 182
	500	− 475	− 32		500	− 850	− 73
	1000	− 483	+ 36		1000	− 868	+ 46
	1500	− 497	83		1500	− 891	122
	2000	− 527	123		2000	− 932	190
	2500	− 575	169		2500	−1021	266
	3000	− 673	242		3000	−1204	407
.8 fc →	3200	− 732	308	.8 fc →	3200	−1318	529
	3500	− 829	470		3500	−1498	945
fc →	4000	− 597	1023	fc →	4000	− 556	1816
1.1 fc →	4400	− 147	981	1.1 fc →	4400	+ 13	1307
	5000	+ 36	699		5000	+ 55	915
2.5db	200	− 547	− 193	4.5db	200	− 895	− 364
	300	− 562	− 112		300	− 924	− 223
	500	− 571	− 37		500	− 939	− 100
	1000	− 590	+ 47		1000	− 962	+ 77
	1500	− 614	110		1500	− 992	156
	2000	− 660	176		2000	−1059	230
	2500	− 735	286		2500	−1204	365
	3000	− 823	503		3000	−1462	709
.8 fc →	3200	− 813	654	.8 fc →	3200	−1501	980
	3500	− 673	912		3500	−1211	1618
fc →	4000	− 195	971	fc →	4000	− 189	1575
1.1 fc →	4400	− 11	806	1.1 fc →	4400	+ 51	1208
	5000	+ 15	629		5000	+ 66	964
3.0db	200	− 644	− 231	5.0db	200	− 928	− 381
	300	− 664	− 132		300	− 976	− 228
	500	− 674	− 40		500	− 994	− 84
	1000	− 687	+ 59		1000	−1019	+ 47
	1500	− 701	129		1500	−1053	142
	2000	− 739	192		2000	−1113	227
	2500	− 815	270		2500	−1243	354
	3000	− 981	442		3000	−1478	645
.8 fc →	3200	−1057	603		3200	−1551	882
	3500	−1025	1065	.8 fc →	3500	−1441	1456
fc →	4000	− 166	1246	fc →	4000	− 333	1726
1.1 fc →	4400	+ 24	955	1.1 fc →	4400	− 6	1335
	5000	− 28	686		5000	+ 53	992

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 3X (Cont'd)
19 CNB)
22 BSA)D88
24 DSM)

Gain	F	R	X	Gain	F	R	X
5.5db	200	- 971	- 413	7.5db	200	-1175	- 551
	300	-1016	- 253		300	-1236	- 350
	500	-1046	- 111		500	-1275	- 175
	1000	-1076	+ 38		1000	-1320	- 6
	1500	-1134	135		1500	-1396	+ 108
	2000	-1237	243		2000	-1515	237
	2500	-1413	434		2500	-1677	420
	3000	-1625	927		3000	-1865	753
.8 fc →	3200	-1561	1306	.8 fc →	3200	-1951	958
	3500	-1117	1795		3500	-1949	1462
fc →	4000	- 216	1606	fc →	4000	-1055	2335
1.1 fc →	4400	+ 35	1272	1.1 fc →	4400	- 103	2013
	5000	+ 85	972		5000	+ 49	1408
6.0db	200	-1055	- 460				
	300	-1110	- 283	8.0db	200	-1249	- 599
	500	-1138	- 135		300	-1319	- 368
	1000	-1170	+ 6		500	-1361	- 173
	1500	-1226	111		1000	-1410	+ 10
	2000	-1303	202		1500	-1469	139
	2500	-1440	310		2000	-1574	261
	3000	-1712	520		2500	-1754	431
.8 fc →	3200	-1901	705		3000	-2036	777
	3500	-2172	1333	.8 fc →	3200	-2180	1038
fc →	4000	- 578	2480		3500	-2205	1858
1.1 fc →	4400	+ 40	1663	fc →	4000	- 577	2543
	5000	+ 49	1180	1.1 fc →	4400	+ 5	1893
					4500	+ 67	1732
					5000	+ 96	1315
6.5db	200	-1090	- 489				
	300	-1145	- 305				
	500	-1179	- 140				
	1000	-1204	+ 31				
	1500	-1234	135				
	2000	-1295	219				
	2500	-1417	310				
	3000	-1668	426				
.8 fc →	3200	-1872	528				
	3500	-2344	1029				
fc →	4000	- 856	2833				
1.1 fc →	4400	+ 31	1888				
	5000	+ 84	1268				
7.0db	200	-1136	- 502				
	300	-1200	- 311				
	500	-1229	- 141				
	1000	-1261	+ 17				
	1500	-1296	123				
	2000	-1358	215				
	2500	-1472	305				
	3000	-1693	444				
.8 fc →	3200	-1833	552				
	3500	-1873	906				
fc →	4000	-1216	2771				
1.1 fc →	4400	+ 187	2225				
	5000	+ 379	1379				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 4X
19 DNB)
24 CSM) D88

	Gain	F	R	X		Gain	F	R	X
	1.5db	200	− 396	− 126					
		300	− 413	− 80		3.5db	200	− 798	− 297
		500	− 421	− 24			300	− 828	− 173
		1000	− 430	+ 36			500	− 837	− 58
		1500	− 440	83			1000	− 845	+ 69
		2000	− 459	121			1500	− 850	152
		2500	− 487	166			2000	− 875	215
		3000	− 536	226			2500	− 934	285
		3200	− 571	260			3000	−1064	397
		3500	− 616	333			3200	−1147	485
.8 fc →		3600	− 635	364			3500	−1280	743
		4000	− 669	586		.8 fc →	3600	−1290	883
fc →		4500	− 421	901			4000	− 914	1510
1.1 fc →		5000	− 44	827		fc →	4500	− 105	1405
		5700	+ 12	615		1.1 fc →	5000	+ 76	1043
							5700	+ 88	827
	2.0db	200	− 496	− 177					
		300	− 511	− 109		4.0db	200	− 883	− 358
		500	− 517	− 44			300	− 926	− 221
		1000	− 526	+ 31			500	− 939	− 96
		1500	− 544	73			1000	− 960	+ 25
		2000	− 571	120			1500	− 982	106
		2500	− 617	151			2000	−1020	174
		3000	− 698	200			2500	−1077	252
		3200	− 755	236			3000	−1176	351
		3500	− 852	317			3200	−1230	400
.8 fc →		3600	− 883	361			3500	−1333	514
		4000	−1020	728		.8 fc →	3600	−1379	567
fc →		4500	− 489	1277			4000	−1578	961
1.1 fc →		5000	− 27	1007		fc →	4500	−1164	1980
		5700	+ 61	751		1.1 fc →	5000	− 50	1672
							5700	+ 96	1117
	2.5db	200	− 573	− 215		4.5db	200	− 951	− 399
		300	− 592	− 133			300	− 994	− 245
		500	− 604	− 60			500	−1017	− 117
		1000	− 619	+ 8			1000	−1040	0
		1500	− 642	55			1500	−1070	+ 75
		2000	− 678	97			2000	−1112	131
		2500	− 728	140			2500	−1205	195
		3000	− 805	201			3000	−1328	253
		3200	− 848	235			3200	−1429	310
		3500	− 925	301			3500	−1600	413
.8 fc →		3600	− 966	323		.8 fc →	3600	−1621	473
		4000	−1130	523			4000	−1181	695
fc →		4500	−1175	1193		fc →	4500	−1382	2548
1.1 fc →		5000	− 243	1567		1.1 fc →	5000	− 22	1912
		5700	+ 75	999			5700	+ 135	1272
	3.0db	200	− 682	− 255					
		300	− 703	− 154		5.0db	200	−1055	− 454
		500	− 717	− 67			300	−1105	− 270
		1000	− 724	+ 19			500	−1133	− 113
		1500	− 731	82			1000	−1152	+ 49
		2000	− 761	126			1500	−1171	149
		2500	− 825	153			2000	−1215	232
		3000	− 932	187			2500	−1297	317
		3200	− 996	199			3000	−1499	472
		3500	−1166	274			3200	−1620	589
.8 fc →		3600	−1217	298			3500	−1802	944
		4000	−1665	768		.8 fc →	3600	−1859	1094
fc →		4500	− 720	2031			4000	−1348	2067
1.1 fc →		5000	+ 132	1286		fc →	4500	− 191	1909
		5700	+ 93	933		1.1 fc →	5000	+ 100	1348
							5700	+ 84	1042

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 4X (Cont'd)

19 DNB)
24 CSM) D88

Gain		F	R	X
5.5db		200	-1090	- 496
		300	-1148	- 311
		500	-1259	- 95
		1000	-1210	0
		1500	-1254	+ 88
		2000	-1327	173
		2500	-1459	276
		3000	-1625	476
		3200	-1730	590
		3500	-1854	850
	.8 fc →	3600	-1859	1000
		4000	-1756	1674
	fc →	4500	- 826	2207
	1.1 fc →	5000	- 91	1909
		5700	+ 120	1325
6.0db		200	-1132	- 515
		300	-1189	- 322
		500	-1225	- 156
		1000	-1250	+ 10
		1500	-1286	102
		2000	-1349	180
		2500	-1459	270
		3000	-1643	418
		3200	-1743	502
		3500	-1900	722
	.8 fc →	3600	-1963	834
		4000	-2058	1561
	fc →	4500	-1138	2437
	1.1 fc →	5000	- 189	2017
		5700	+ 93	1415
6.5db		200	-1251	- 601
		300	-1320	- 369
		500	-1355	- 170
		1000	-1380	+ 21
		1500	-1418	126
		2000	-1479	232
		2500	-1587	317
		3000	-1774	468
		3200	-1889	566
		3500	-2094	837
	.8 fc →	3600	-2157	956
		4000	-2173	1816
	fc →	4500	-1006	2595
	1.1 fc →	5000	- 128	2098
		5700	+ 100	1442
7.0db		200	-1283	- 618
		300	-1365	- 385
		500	-1406	- 171
		1000	-1424	+ 10
		1500	-1441	124
		2000	-1487	197
		2500	-1583	263
		3000	-1793	356
		3200	-1923	407
		3500	-2191	607
	.8 fc →	3600	-2283	713
		4000	-2598	1611
	fc →	4500	-1300	2945
	1.1 fc →	5000	- 45	2309
		5700	+ 146	1534

Gain		F	R	X
7.5db		200	-1320	- 658
		300	-1406	- 405
		500	-1438	- 184
		1000	-1461	+ 17
		1500	-1482	122
		2000	-1516	184
		2500	-1601	239
		3000	-1799	289
		3200	-1924	329
		3500	-2180	442
	.8 fc →	3600	-2314	516
		4000	-2853	1201
	fc →	4500	-2118	3076
	1.1 fc →	5000	- 359	2817
		5700	+ 118	1800
8.0db		200	-1384	- 711
		300	-1489	- 433
		500	-1548	- 193
		1000	-1561	+ 40
		1500	-1571	165
		2000	-1607	243
		2500	-1727	306
		3000	-1972	409
		3200	-2144	508
		3500	-2444	759
	.8 fc →	3600	-2524	1018
		4000	-2578	2281
	fc →	4500	- 726	2923
	1.1 fc →	5000	+ 47	2056
		5700	+ 162	1480

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 5X
19 CNB)
22 BSA)H88
24 DSM)

Gain	F	R	X
1.5db	200	− 307	− 103
	500	− 323	− 16
	1000	− 333	+ 30
	1500	− 348	71
	2000	− 376	105
	2400	− 414	137
.8 fc →	2800	− 503	197
	3000	− 579	255
	3200	− 655	411
	3400	− 604	672
fc →	3500	− 463	796
	3600	− 306	827
1.1 fc →	3800	− 84	728
	3900	− 42	671
	4000	− 21	603
2.0db	200	− 385	− 127
	500	− 401	− 21
	1000	− 411	+ 25
	1500	− 437	66
	2000	− 477	100
	2400	− 538	135
.8 fc →	2800	− 657	206
	3000	− 753	291
	3200	− 836	464
	3400	− 793	773
fc →	3500	− 658	940
	3600	− 446	1019
1.1 fc →	3800	− 158	951
	3900	− 79	889
	4000	− 35	795
2.5db	200	− 443	− 155
	500	− 472	− 33
	1000	− 493	+ 33
	1500	− 523	94
	2000	− 565	161
	2400	− 603	241
	2500	− 626	267
.8 fc →	2800	− 662	369
	3000	− 671	453
	3200	− 670	572
	3400	− 606	696
fc →	3500	− 557	766
	3600	− 460	816
1.1 fc →	3800	− 323	867
	3900	− 226	891
	4000	− 144	841
3.0db	200	− 566	− 191
	300	− 585	− 118
	500	− 592	− 39
	1000	− 618	+ 41
	1500	− 650	110
	2000	− 713	181
	2400	− 797	280
	2500	− 823	317
.8 fc →	2800	− 923	497
	3000	− 929	703
	3200	− 787	973
	3400	− 520	1114
fc →	3500	− 362	1118
	3600	− 239	1061
1.1 fc →	3800	− 88	900
	3900	− 64	850
	4000	− 25	790

Gain	F	R	X
3.5db	200	− 650	− 236
	500	− 676	− 63
	1000	− 700	+ 28
	1500	− 738	98
	2000	− 803	159
	2400	− 891	231
	2500	− 929	258
.8 fc →	2800	−1063	380
	3000	−1196	547
	3200	−1262	879
	3400	−1035	1364
fc →	3500	− 740	1499
	3600	− 471	1496
1.1 fc →	3800	− 114	1327
	3900	− 63	1195
	4000	+ 12	1081
4.0db	200	− 692	− 256
	500	− 727	− 63
	1000	− 754	+ 26
	1500	− 793	94
	2000	− 868	157
	2400	− 977	227
	2500	−1023	256
.8 fc →	2800	−1204	403
	3000	−1354	613
	3200	−1400	1039
	3400	−1097	1534
fc →	3500	− 781	1648
	3600	− 514	1622
1.1 fc →	3800	− 144	1358
	3900	− 54	1226
	4000	+ 12	1115
4.5db	200	− 767	− 288
	500	− 818	− 70
	1000	− 832	+ 58
	1500	− 855	130
	2000	− 897	194
	2400	−1006	264
	2500	−1035	278
.8 fc →	2800	−1168	375
	3000	−1282	509
	3200	−1402	796
	3400	−1323	1300
fc →	3500	−1119	1526
	3600	− 833	1683
1.1 fc →	3800	− 310	1593
	3900		−
	4000	− 30	1318
5.0db	200	− 845	− 339
	500	− 902	− 91
	1000	− 931	+ 29
	1500	− 981	108
	2000	−1080	189
	2400	−1215	295
	2500	−1265	336
.8 fc →	2800	−1433	548
	3000	−1544	792
	3200	−1535	1195
	3400	−1241	1632
fc →	3500	− 986	1756
	3600	− 730	1768
1.1 fc →	3800	− 308	1660
	3900	− 191	1539
	4000	− 88	1416

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 5X (Cont'd)
19 CNB)
22 BSA)H88
24 DSM)

Gain	F	R	X
5.5db	200	- 864	- 342
	500	- 919	- 89
	1000	- 944	+ 43
	1500	- 983	120
	2000	-1087	217
	2400	-1206	289
	2500	-1253	324
.8 fc →	2800	-1428	512
	3000	-1540	764
	3200	-1554	1191
	3400	-1261	1663
fc →	3500	- 970	1808
	3600	- 688	1840
1.1 fc →	3800	- 271	1673
	3900	- 144	1556
	4000	- 40	1443
6.0db	200	- 941	- 383
	500	-1006	- 100
	1000	-1032	+ 15
	1500	-1088	97
	2000	-1202	181
	2400	-1379	284
	2500	-1444	329
.8 fc →	2800	-1692	592
	3000	-1833	945
	3200	-1736	1426
	3400	-1252	1839
fc →	3500	- 944	2004
	3600	- 649	2001
1.1 fc →	3800	- 263	1755
	3900	- 148	1640
	4000	- 66	1485
6.5db	200	- 964	- 408
	500	-1039	- 153
	1000	-1075	+ 9
	1500	-1157	120
	2000	-1277	221
	2400	-1426	344
	2500	-1485	394
.8 fc →	2800	-1673	629
	3000	-1837	948
	3200	-1792	1546
	3400	-1223	2188
fc →	3500	- 887	2275
	3600	- 503	2193
1.1 fc →	3800	- 69	1831
	3900	- 13	1640
	4000	+ 20	1473
7.0db	200	-1022	- 438
	500	-1100	- 128
	1000	-1140	+ 13
	1500	-1201	114
	2000	-1314	210
	2400	-1479	317
	2500	-1549	363
.8 fc →	2800	-1801	574
	3000	-2009	896
	3200	-2086	1525
	3400	-1593	2241
fc →	3500	-1074	2406
	3600	- 706	2363
1.1 fc →	3800	- 172	1970
	3900	- 63	1766
	4000	+ 8	1586

Gain	F	R	X
7.5db	200	-1051	- 451
	500	-1133	- 130
	1000	-1171	+ 24
	1500	-1220	112
	2000	-1317	188
	2400	-1512	265
	2500	-1569	285
.8 fc →	2800	-1903	458
	3000	-2218	776
	3200	-2434	1581
	3400	-1766	2568
fc →	3500	-1097	2711
	3600	- 628	2570
1.1 fc →	3800	- 93	2118
	3900	- 12	1900
	4000	+ 38	1741
8.0db	200	-1066	- 482
	300	-1138	- 303
	500	-1184	- 154
	1000	-1240	- 14
	1500	-1323	+ 75
	2000	-1433	178
	2400	-1609	264
	2500	-1665	291
.8 fc →	2800	-1915	436
	3000	-2255	655
	3200	-2600	1390
fc →	3500	-1272	3130
1.1 fc →	3800	+ 27	2212
	4000	+ 114	1696

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 6X
19 DNB)
24 CSM) H88

Gain	F	R	X	Gain	F	R	X
1.5db	200	− 346	− 115	3.5db	200	− 671	− 261
	500	− 360	− 12		500	− 718	− 76
	1000	− 371	+ 23		1000	− 750	+ 13
	1500	− 387	67		1500	− 798	86
	2000	− 413	104		2000	− 876	168
	2400	− 453	131		2400	= 953	268
	2800	− 491	183		2800	−1058	437
.8 fc →	3000	− 528	221	.8 fc →	3000	−1092	537
	3100	− 550	250		3100	−1102	629
	3500	− 604	450		3500	−1015	1063
	3800	− 534	690		3800	− 678	1365
fc →	3900	− 448	754	fc →	3900	− 500	1386
	4000	− 335	801		4000	− 354	1376
	4100	− 252	815		4100	− 253	1340
1.1 fc →	4300	− 96	759	1.1 fc →	4300	− 98	1202
	4400	− 54	713		4400	−	
2.0db	200	− 399	− 134	4.0db	200	− 818	− 308
	500	− 422	− 32		500	− 865	− 71
	1000	− 441	+ 9		1000	− 866	+ 43
	1500	− 473	48		1500	− 886	123
	2000	− 519	90		2000	− 938	192
	2400	− 573	141		2400	−1001	251
	2800	− 645	225		2800	−1119	340
.8 fc →	3000	− 688	291	.8 fc →	3000	−1207	430
	3100	− 706	332		3100	−1276	471
	3500	− 717	617		3500	−1518	989
	3800	− 589	682		3800	−1161	1705
fc →	3900	− 436	931	fc →	3900	− 839	1822
	4000	− 317	933		4000	− 496	1805
	4100	− 211	958		4100	− 303	1697
1.1 fc →	4300	− 66	863	1.1 fc →	4300	+ 23	1469
	4400		−				
				4.5db	200	− 847	− 329
					500	− 899	− 87
2.5db	200	− 496	− 180		1000	− 921	+ 20
	500	− 524	− 41		1500	− 968	95
	1000	− 550	+ 15		2000	−1029	170
	1500	− 589	80		2400	−1108	240
	2000	− 653	152		2800	−1227	354
	2400	− 718	250	.8 fc →	3000	−1304	439
	2800	− 773	431		3100	−1338	490
.8 fc →	3000	− 763	573		3500	−1504	915
	3100	− 739	654		3800	−1391	1485
	3500	− 449	917	fc →	3900	−1247	1663
	3800	− 190	899		4000	− 936	1823
fc →	3900	− 130	870		4100	− 756	1879
	4000	− 82	818	1.1 fc →	4300	− 307	1780
	4100	− 44	774		4400	−	
1.1 fc →	4300	− 9	694				
	4400		−				
3.0db	200	− 628	− 228	5.0db	200	− 937	− 390
	500	− 666	− 46		500	− 995	− 109
	1000	− 680	+ 40		1000	−1019	+ 16
	1500	− 695	104		1500	−1057	96
	2000	− 730	153		2000	−1133	164
	2400	− 788	198		2400	−1230	226
	2800	− 915	270		2800	−1397	335
.8 fc →	3000	−1004	339	.8 fc →	3000	−1519	433
	3100	−1052	399		3100	−1593	506
	3500	−1144	988		3500	−1850	1113
	3800	− 599	1438		3800	−1536	1863
fc →	3900	− 387	1434	fc →	3900	−1255	2070
	4000	− 192	1368		4000	− 910	2138
	4100	− 85	1259		4100	− 668	2115
1.1 fc →	4300	+ 30	1058	1.1 fc →	4300	− 243	1917
	4400		−		4400	− 107	1753

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 6X (Cont'd)
19 DNB)
24 CSM)H88

Gain	F	R	X	Gain	F	R	X
5.5db	200	− 956	− 414	7.5db	200	−1162	− 541
	500	−1027	− 109		500	−1263	− 148
	1000	−1043	+ 25		1000	−1284	+ 28
	1500	−1071	99		1500	−1313	134
	2000	−1124	155		2000	−1372	202
	2400	−1217	184		2400	−1482	242
	2800	−1401	237		2800	−1699	287
.8 fc →	3000	−1548	295	.8 fc →	3000	−1902	346
	3100	−1652	341		3100	−2036	401
	3500	−2027	677		3500	−2834	1350
	3800	−1862	2073		3800	−1871	3101
fc →	3900	−1522	2366	fc →	3900	−1153	3100
	4000	−1021	2432		4000	− 564	2903
	4100	− 644	2373		4100	− 274	2633
1.1 fc →	4300	− 195	2018	1.1 fc →	4300	+ 8	2067
	4400	−			4400	−	
6.0db	200	−1071	− 447	8.0db	200	−1238	− 593
	500	−1150	− 104		500	−1360	− 160
	1000	−1153	+ 79		1000	−1386	+ 37
	1500	−1172	182		1500	−1421	149
	2000	−1228	263		2000	−1496	220
	2400	−1325	332		2400	−1619	275
	2800	−1552	498		2800	−1893	375
.8 fc →	3000	−1687	671	.8 fc →	3000	−2157	500
	3100	−1755	801		3100	−2317	607
	3500	−1637	1727		3500	−2740	2065
	3800	− 855	2064		3800	−1153	3115
fc →	3900	− 579	2015	fc →	3900	− 652	2949
	4000	− 391	1909		4000	− 246	2543
	4100	− 247	1754		4100	− 76	2309
1.1 fc →	4300	− 75	1529	1.1 fc →	4300	+ 109	1903
	4400	−			4400	+ 107	1728
6.5db	200	−1085	− 494				
	500	−1178	− 137				
	1000	−1209	+ 25				
	1500	−1253	131				
	2000	−1335	227				
	2400	−1441	323				
	2800	−1609	500				
.8 fc →	3000	−1700	643				
	3100	−1746	738				
	3500	−1778	1396				
	3800	−1421	1929				
fc →	3900	−1141	2090				
	4000	− 900	2094				
	4100	− 698	2111				
1.1 fc →	4300	− 334	1966				
	4400	−					
7.0db	200	−1135	− 509				
	500	−1229	− 137				
	1000	−1257	+ 27				
	1500	−1296	147				
	2000	−1371	237				
	2400	−1477	314				
	2800	−1702	450				
.8 fc →	3000	−1852	567				
	3100	−1986	679				
	3500	−2254	1868				
	3800	−1015	2706				
fc →	3900	− 616	2549				
	4000	− 316	2361				
	4100	− 124	2158				
1.1 fc →	4300	+ 6	1807				
	4400	− 30	1539				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 7X
19 DNB M88

Gain	F	R	X	Gain	F	R	X
1.5db	200	- 266	- 87	3.5db	200	- 596	- 193
	300	- 275	- 48		300	- 622	- 112
	500	- 280	- 12		500	- 629	- 28
	1000	- 296	+ 22		1000	- 639	+ 70
	1500	- 320	59		1500	- 653	132
	2000	- 360	96		2000	- 702	183
	2400	- 424	143		2400	- 831	248
.8 fc→	2600	- 488	205	.8 fc→	2600	- 979	341
	2800	- 554	327		2800	-1134	607
	3000	- 491	573		3000	- 949	1122
fc→	3200	- 232	694	fc→	3200	- 380	1253
1.1 fc→	3500	- 24	532	1.1 fc→	3500	+ 59	966
2.0db	200	- 349	- 116	4.0db	200	- 650	- 232
	300	- 357	- 68		300	- 670	- 137
	500	- 366	- 21		500	- 683	- 46
	1000	- 379	+ 32		1000	- 702	+ 37
	1500	- 399	69		1500	- 737	96
	2000	- 446	107		2000	- 818	141
	2400	- 524	137		2400	- 982	189
.8 fc→	2600	- 605	172	.8 fc→	2600	-1136	263
	2800	- 727	273		2800	-1382	494
	3000	- 807	544		3000	-1466	1092
fc→	3200	- 563	918	fc→	3200	-1001	1644
1.1 fc→	3500	- 91	815	1.1 fc→	3500	- 152	1350
2.5db	200	- 452	- 146	4.5db	200	- 729	- 252
	300	- 466	- 83		300	- 746	- 141
	500	- 473	- 12		500	- 758	- 40
	1000	- 484	+ 62		1000	- 774	+ 82
	1500	- 503	119		1500	- 820	174
	2000	- 560	178		2000	- 936	284
	2400	- 685	274		2400	-1141	567
.8 fc→	2600	- 782	428	.8 fc→	2600	-1148	867
	2800	- 765	733		2800	- 942	1213
	3000	- 462	971		3000	- 553	1340
fc→	3200	- 132	899	fc→	3200	- 267	1209
1.1 fc→	3500	- 5	671	1.1 fc→	3500	- 65	959
3.0db	200	- 514	- 168	5.0db	200	- 810	- 304
	300	- 526	- 93		300	- 838	- 177
	500	- 534	- 13		500	- 848	- 64
	1000	- 548	+ 56		1000	- 859	+ 56
	1500	- 574	117		1500	- 887	135
	2000	- 646	168		2000	- 973	181
	2400	- 790	274		2400	-1156	249
.8 fc→	2600	- 934	437	.8 fc→	2600	-1347	348
	2800	- 948	791		2800	-1582	575
	3000	- 627	1112		3000	-1714	1149
fc→	3200	- 221	1042	fc→	3200	-1306	1793
1.1 fc→	3500			1.1 fc→	3500	- 338	1706

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 7X (Cont'd)
19 DMB M98

Gain	F	R	X	Gain	F	R	X
5.5db	200	- 790	- 305	7.5db	200	- 950	- 400
	300	- 829	- 183		300	-1006	- 248
	500	- 849	- 78		500	-1034	- 112
	1000	- 876	+ 31		1000	-1074	+ 31
	1500	- 927	95		1500	-1131	120
	2000	-1062	164		2000	-1264	198
	2400	-1260	281		2400	-1511	299
.8 fc →	2600	-1405	445	.8 fc →	2600	-1724	433
	2800	-1538	763		2800	-2069	788
	3000	-1442	1325		3000	-2080	1702
fc →	3200	- 927	1736	fc →	3200	-1129	2419
	3400	- 380	1659		3400	- 309	2130
1.1 fc →	3500	- 188	1509	1.1 fc →	3500	- 61	1865
	4000	+ 32	1000				
				8.0db	200	-1020	- 425
6.0db	200	- 901	- 350		300	-1070	- 258
	300	- 934	- 207		500	-1098	- 107
	500	- 954	- 83		1000	-1139	+ 75
	1000	- 975	+ 58		1500	-1200	193
	1500	-1023	146		2000	-1350	331
	2000	-1144	230		2400	-1593	560
	2400	-1349	373	.8 fc →	2600	-1764	832
.8 fc →	2600	-1516	556		2800	-1762	1400
	2800	-1625	862		3000	-1309	1987
	3000	-1593	1418	fc →	3200	- 944	2312
fc →	3200	-1171	1820		3400	- 164	1668
1.1 fc →	3500	- 390	1726	1.1 fc →	3500	- 62	1510
6.5db	200	- 898	- 360				
	300	- 938	- 216				
	500	- 967	- 92				
	1000	-1005	+ 42				
	1500	-1054	137				
	2000	-1168	223				
	2400	-1395	328				
.8 fc →	2600	-1599	486				
	2800	-1805	919				
	3000	-1610	1757				
fc →	3200	- 620	2085				
	3400	- 135	1680				
1.1 fc →	3500		-				
7.0db	200	- 943	- 381				
	300	- 986	- 238				
	500	-1004	- 114				
	1000	-1044	+ 22				
	1500	-1116	108				
	2000	-1251	185				
	2400	-1506	302				
.8 fc →	2600	-1734	444				
	2800	-2019	773				
	3000	-2145	1586				
fc →	3200	-1430	2400				
1.1 fc →	3500	- 265	2008				

TABLE 1

ACTIVE IMPEDANCE OF NETWORK 8X
19 CNB)
22 BSA) B135

Gain	R	B	X	Gain	R	B	X
1.0db	200	- 353	- 130	3.0db	200	- 926	- 359
	500	- 377	- 26		300	- 972	- 214
	1000	- 389	+ 25		500	- 995	- 71
	1500	- 406	61		1000	-1005	+ 54
	2000	- 436	100		1500	-1039	168
	2400	- 466	132		2000	-1097	257
	2800	- 518	182		2400	-1211	370
	3000	- 555	216		2600	-1289	456
.8 fc→	3200	- 587	264		2800	-1383	596
	3500	- 636	380		3000	-1476	792
fc→	4000	- 568	748	.8 fc→	3200	-1477	1147
1.1 fc→	4400	- 220	866		3500	-1114	1681
				fc→	4000	- 180	1565
				1.1 fc→	4400	- 10	1172
1.5db	200	- 502	- 179				
	500	- 527	- 50	3.5db	200	-1068	- 472
	1000	- 544	+ 16		500	-1149	- 145
	1500	- 576	60		1000	-1181	+ 28
	2000	- 628	110		1500	-1241	121
	2400	- 681	161		2000	-1336	217
	2800	- 746	241		2400	-1462	336
	3000	- 791	299		2800	-1631	547
.8 fc→	3200	- 830	373		3000	-1702	719
	3500	- 876	542	.8 fc→	3200	-1756	980
fc→	4000	- 267	561		3500	-1673	1474
1.1 fc→	4400	- 240	1127	fc→	4000	- 807	2025
				1.1 fc→	4400	- 202	1737
2.0db	200	- 643	- 240				
	500	- 683	- 77	4.0db	200	-1176	- 540
	1000	- 710	+ 7		300	-1245	- 334
	1500	- 757	49		500	-1279	- 156
	2000	- 832	105		1000	-1310	0
	2400	- 924	175		1500	-1364	+ 110
	2800	-1006	260		2000	-1472	199
	3000	-1101	390		2400	-1625	303
.8 fc→	3200	-1159	516		2800	-1877	519
	3500	-1187	822		3000	-2009	721
fc→	4000	- 738	1391	.8 fc→	3200	-2120	1045
1.1 fc→	4400	- 230	1321		3500	-2049	1782
				fc→	4000	- 775	2348
2.5db	200	- 799	- 316	1.1 fc→	4400	- 128	1922
	500	- 843	- 87				
	1000	- 863	+ 22	4.5db	200	-1233	- 590
	1500	- 890	86		500	-1355	- 161
	2000	- 939	136		1000	-1383	+ 32
	2400	-1020	175		1500	-1424	155
	2800	-1153	226		2000	-1506	241
	3000	-1270	272		2400	-1640	325
.8 fc→	3200	-1421	352		2800	-1896	493
	3500	-1777	706		3000	-2065	661
fc→	4000	- 836	2190	.8 fc→	3200	-2243	955
1.1 fc→	4400	- 9	1591		3500	-2201	1878
				fc→	4000	- 555	2526
				1.1 fc→	4400	+ 5	1858

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 8X (Cont'd)
19 CNB)
22 BSA) B135

Gain	F	R	X	Gain	F	R	X
5.0db	200	-1371	- 678	7.0db	200	-1674	- 953
	300	-1461	- 424		500	-1894	- 317
	500	-1511	- 205		1000	-1962	- 36
	1000	-1550	0		1500	-2043	+ 128
	1500	-1608	+ 130		2000	-2154	274
	2000	-1701	237		2400	-2301	411
	2400	-1848	351		2800	-2508	578
	2600	-1950	424		3000	-2691	694
	2800	-2066	520	.8 fc →	3200	-2931	883
	3000	-2215	666		3500	-3383	1400
.8 fc →	3200	-2383	89C	fc →	4000	-2787	4230
	3500	-2667	1565	1.1 fc →	4400	- 323	3677
fc →	4000	-1648	3065				
1.1 fc →	4400	- 281	2626				
5.5db	200	-1364	- 711				
	500	-1533	- 220				
	1000	-1591	+ 27				
	1500	-1651	101				
	2000	-1771	198				
	2400	-1940	302				
	2800	-2203	460				
	3000	-2400	644				
.8 fc →	3200	-2593	914				
	3500	-2718	1778				
fc →	4000	-1136	3103				
1.1 fc →	4400	- 89	2443				
6.0db	200	-1542	- 809				
	300	-1664	- 497				
	500	-1724	- 223				
	1000	-1767	- 12				
	1500	-1838	+ 118				
	2000	-1954	229				
	2400	-2113	331				
	2600	-2231	394				
	2800	-2384	473				
	3000	-2597	597				
.8 fc →	3200	-2886	812				
	3500	-3434	1645				
fc →	4000	-1830	4169				
1.1 fc →	4400	- 139	3017				
6.5db	200	-1538	- 875				
	500	-1760	- 277				
	1000	-1815	+ 10				
	1500	-1854	68				
	2000	-2030	256				
	2400	-2201	398				
	2800	-2508	653				
	3000	-2674	870				
.8 fc →	3200	-2843	1236				
	3500	-2808	2194				
fc →	4000	-1121	3215				
1.1 fc →	4400	- 112	2647				

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 9X
19DNB-B135

Gain	F	R	X	Gain	F	R	X
1.0db	200	- 409	- 134	3.0db	200	-1044	- 455
	500	- 429	- 24		500	-1127	- 124
	1000	- 432	+ 19		1000	-1149	+ 26
	1500	- 448	62		1500	-1171	113
	2000	- 466	94		2000	-1227	176
	2400	- 492	120		2400	-1319	235
	2800	- 531	153		2800	-1465	309
	3000	- 559	170		3000	-1570	387
.8 fc→	3600	- 695	274	.8 fc→	3600	-1952	1022
	4000	- 806	480		4000	-1585	1964
fc→	4500	- 644	999	fc→	4500	- 426	2081
	4600		-		4600	- 271	1959
1.1 fc→	4900	- 164	996	1.1 fc→	4900	- 35	1646
	5000	- 90	942		5000	+ 35	1545
	5600	+ 36	699				
				3.5db	200	-1161	- 522
					500	-1270	- 125
1.5db	200	- 590	- 202		1000	-1276	+ 73
	500	- 621	- 24		1500	-1284	181
	1000	- 626	+ 58		2000	-1313	260
	1500	- 629	124		2400	-1404	321
	2000	- 654	172		2800	-1555	405
	2400	- 697	221		3000	-1691	484
	2800	- 781	295	.8 fc→	3600	-2064	1293
	3000	- 855	354		4000	-1291	2287
.8 fc→	3600	- 915	931	fc→	4500	- 221	2022
	4000	- 346	1191		4600	- 78	1864
fc→	4500	+ 9	915	1.1 fc→	4900	+ 40	1537
	4600	- 11	834		5000	+ 87	1463
1.1 fc→	4900	+ 19	739				
	5000	+ 38	701	4.0db	200	-1332	- 642
					300	-1423	- 382
					500	-1451	- 138
2.0db	200	- 724	- 276		1000	-1446	+ 111
	500	- 769	- 66		1500	-1441	250
	1000	- 792	+ 29		2000	-1471	334
	1500	- 823	107		2400	-1553	393
	2000	- 871	178		2800	-1782	500
	2400	- 936	247		3000	-1962	636
	2800	-1029	342		3500	-2349	1782
	3000	-1109	423	.8 fc→	3600	-2186	2171
.8 fc→	3600	-1265	1074		4000	- 559	2593
	4000	- 519	1639		4600	+ 60	1630
fc→	4500	+ 61	1154	1.1 fc→	4900	+ 80	1413
	4600	+ 40	1054		5000	+ 96	1315
1.1 fc→	4900	+ 78	916				
	5000	+ 76	875	4.5db	200	-1359	- 687
					300	-1448	- 431
2.5db	200	- 872	- 364		500	-1501	- 207
	500	- 935	- 113		1000	-1530	0
	1000	- 970	+ 8		1500	-1576	+ 118
	1500	-1004	69		2000	-1661	212
	2000	-1073	134		2400	-1778	295
	2400	-1140	196		2800	-1970	425
	2800	-1241	285		3000	-2102	538
	3000	-1305	346		3500	-2563	1040
.8 fc→	3600	-1547	672	.8 fc→	3600	-2552	1314
	4000	-1598	1236		4000	-2072	2524
fc→	4500	- 815	2052		4600	- 247	2496
	4600	- 573	2053	1.1 fc→	4900	+ 51	2050
1.1 fc→	4900	- 53	1753		5000	+ 127	1912
	5000	+ 49	1601				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 9X (Cont'd)
19DNB-B135

Gain		F	R	X
5.0db		200	-1430	- 785
		300	-1552	- 498
		500	-1619	- 257
		1000	-1684	+ 50
		1500	-1772	70
		2000	-1902	201
		2400	-2066	334
		2800	-2244	570
		3000	-2344	717
	.8 fc →	3600	-2493	1611
		4000	-1985	2473
		4600	- 527	2677
	1.1 fc →	4900	- 101	2293
		5000	-	
5.5db		200	-1504	- 836
		500	-1744	- 298
		1000	-1804	- 73
		1500	-1878	+ 22
		2000	-2002	120
		2400	-2146	207
		2500	-2197	237
		2800	-2355	360
		3000	-2517	450
	.8 fc →	3600	-2979	1169
		4000	-	
		4600	-1091	3440
	1.1 fc →	4900	- 282	3001
		5000	- 43	2850
6.0 db		200	-1597	- 935
		500	-1876	- 295
		1000	-1921	+ 40
		1500	-1970	103
		2000	-2049	215
		2400	-2164	304
		2800	-2333	404
		3000	-2455	482
	.8 fc →	3600	-3125	962
		4000	-3395	2426
		4600	- 288	3712
	1.1 fc →	4900	+ 277	2778
		5000	+ 313	2490

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 10X
19CNB)
22BSA) D135

Gain		F	R	X	Gain		F	R	X
1.0db		200	− 286	− 97	3.0db		200	− 734	− 285
		300	− 296	− 58			300	− 759	− 178
		500	− 303	− 17			500	− 780	− 90
		1000	− 320	+ 16			1000	− 830	+ 6
		1500	− 346	56			1500	− 917	83
		2000	− 385	96			2000	−1063	199
		2500	− 454	163			2500	−1289	475
.8 fc→		2600	− 478	186	.8 fc→		2600	−1332	586
		2800	− 519	244			2800	−1389	903
		3000	− 561	345			3000	−1254	1327
fc→		3200	− 557	502	fc→		3200	− 768	1622
1.1 fc→		3600	− 196	733	1.1 fc→		3600	− 73	1285
		4000	− 7	545			4000	+ 30	949
1.5db		200	− 406	− 140	3.5db		200	− 848	− 340
		300	− 418	− 86			300	− 883	− 206
		500	− 429	− 24			500	− 905	− 95
		1000	− 450	+ 9			1000	− 954	+ 46
		1500	− 485	60			1500	−1029	153
		2000	− 546	111			2000	−1163	283
		2500	− 644	179			2500	−1500	621
.8 fc→		2600	− 681	219	.8 fc→		2600	−1585	802
		2800	− 758	290			2800	−1555	1389
		3000	− 853	448			3000	− 863	1879
fc→		3200	− 861	739	fc→		3200	− 217	1668
1.1 fc→		3600	− 209	1007	1.1 fc→		3600	− 10	1097
		4000	+ 7	707			4000	− 2	877
2.0db		200	− 545	− 184	4.0db		200	− 970	− 398
		300	− 567	− 108			300	−1016	− 237
		500	− 579	− 28			500	−1039	− 101
		1000	− 598	+ 41			1000	−1077	+ 43
		1500	− 642	102			1500	−1145	147
		2000	− 733	174			2000	−1263	244
		2500	− 923	390			2500	−1565	541
.8 fc→		2600	− 947	485	.8 fc→		2600	−1744	570
		2800	− 922	776			2800	−1968	961
		3000	− 671	1068			3000	−1919	1774
fc→		3200	− 313	1116	fc→		3200	−1127	2358
							3300	− 593	2229
1.1 fc→		3600	− 11	805	1.1 fc→		3600	− 113	1678
		4000	+ 39	653			4000	− 11	1263
2.5db		200	− 688	− 251					
		300	− 713	− 153					
		500	− 728	− 65	4.5db		200	−1047	− 453
		1000	− 757	+ 30			300	−1105	− 287
		1500	− 808	102			500	−1139	− 139
		2000	− 900	188			1000	−1195	+ 16
		2500	−1063	342			1500	−1284	126
.8 fc→		2600	−1111	403			2000	−1432	270
		2800	−1195	574			2500	−1705	535
		3000	−1222	856	.8 fc→		2600	−1772	634
fc→		3200	−1039	1247			2800	−1903	945
1.1 fc→		3600	− 237	1393			3000	−1894	1465
		4000	+ 18	967	fc→		3200	−1413	2090
					1.1 fc→		3600	− 252	1910
							4000	+ 38	1350

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 10X (Cont'd)
19CNB)
22BSA)D135

Gain	F	R	X	Gain	F	R	X
5.0db	200	-1261	- 335	7.0db	200	-1427	- 707
	300	-1207	- 314		300	-1373	- 569
	500	-1238	- 152		500	-1567	- 211
	1000	-1291	+ 15		1000	-1629	+ 19
	1500	-1383	123		1500	-1743	162
	2000	-1576	236		2000	-1964	311
	2500	-1999	554		2500	-2508	730
.8 fc →	2600	-2127	715	.8 fc →	2600	-2673	934
	2800	-2346	1193		2800	-2894	1596
	3000	-2197	1979		3000	-2635	2665
fc →	3200	-1487	2536	fc →	3200	-1679	3220
	3300	-1032	2558		3300	-1160	3187
1.1 fc →	3600	- 311	2135	1.1 fc →	3600	- 258	2469
	4000	- 64	1584		4000	- 115	1874
5.5db	200	-1188	- 566	7.5db	200	-1467	- 762
	300	-1275	- 358		300	-1585	- 461
	500	-1320	- 189		500	-1641	- 199
	1000	-1336	+ 25		1000	-1690	+ 70
	1500	-1510	108		1500	-1782	238
	2000	-1659	263		2000	-1983	411
	2500	-2043	567		2500	-2489	910
.8 fc →	2600	-2112	671	.8 fc →	2600	-2620	1190
	2800	-2302	1038		2800	-2621	1973
	3000	-2363	1683		3000	-1934	2791
fc →	3200	-1845	2550	fc →	3200	- 865	2875
1.1 fc →	3600	- 226	2304	1.1 fc →	3600	- 36	2000
	4000	+ 90	1552		4000	+ 29	1462
6.0db	200	-1271	- 597	8.0db	200	-1517	- 773
	300	-1333	- 375		300	-1637	- 490
	500	-1375	- 199		500	-1683	- 230
	1000	-1457	- 17		1000	-1721	+ 20
	1500	-1584	+ 110		1500	-1805	139
	2000	-1785	257		2000	-2018	207
	2500	-2176	569		2500	-2683	406
.8 fc →	2600	-2306	710	.8 fc →	2600	-2942	549
	2800	-2548	1090		2800	-3504	1180
	3000	-2695	1784		3000	-3621	2694
fc →	3200	-2225	2701	fc →	3200	-2473	3837
	3300	-1741	2958		3300	-1759	3914
1.1 fc →	3600	- 415	2605	1.1 fc →	3600	- 323	2973
	4000	- 116	1872		4000	- 109	2179
6.5db	200	-1409	- 692				
	300	-1481	- 391				
	500	-1529	- 153				
	1000	-1563	+ 124				
	1500	-1644	322				
	2000	-1821	571				
	2500	-2094	1252				
.8 fc →	2600	-2092	1517				
	2800	-1739	2186				
	3000	- 978	2404				
fc →	3200	- 385	2169				
1.1 fc →	3600	- 7	1509				
	4000	+ 10	1217				

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 11X
19DNB-D135

Gain	F	R	X
1.0db	200	- 317	- 108
	300	- 325	- 67
	500	- 332	- 25
	1000	- 348	+ 11
	1500	- 372	48
	2000	- 410	83
	2500	- 472	130
	2800	- 525	178
	2900	- 548	207
.8 fc→	3000	- 566	232
	3200	- 622	302
	3500	- 682	512
fc→	3600	- 657	618
1.1 fc→	4000	- 252	849
	4600	+ 20	604

Gain	F	R	X
1.5db	200	- 499	- 170
	300	- 515	- 99
	500	- 522	- 28
	1000	- 534	+ 45
	1500	- 557	100
	2000	- 606	153
	2500	- 719	252
	2800	- 822	400
	2900	- 850	477
.8 fc→	3000	- 856	576
	3200	- 792	834
	3500	- 400	1039
fc→	3600	- 263	1034
1.1 fc→	4000	- 6	791
	4600	+ 39	600

Gain	F	R	X
2.0db	200	- 640	- 234
	300	- 660	- 139
	500	- 675	- 56
	1000	- 700	+ 28
	1500	- 735	94
	2000	- 799	161
	2500	- 927	255
	2800	-1056	376
	2900	-1113	451
.8 fc→	3000	-1184	548
	3200	-1262	871
	3500	- 792	1517
fc→	3600	- 501	1535
1.1 fc→	4000	+ 2	1093
	4600	+ 16	760

Gain	F	R	X
2.5db	200	- 735	- 275
	300	- 762	- 166
	500	- 779	- 63
	1000	- 799	+ 43
	1500	- 839	115
	2000	- 922	193
	2500	-1097	348
	2800	-1236	592
	2900	-1243	705
.8 fc→	3000	-1255	856
	3200	-1126	1177
	3500	-	
fc→	3600	- 598	1436
1.1 fc→	4000	+ 5	1045
	4600	+ 15	818

Gain	F	R	X
3.0db	200	- 882	- 352
	300	- 923	- 212
	500	- 939	- 81
	1000	- 961	+ 24
	1500	- 992	102
	2000	-1064	163
	2500	-1227	237
	2800	-1429	334
	2900	-1521	407
.8 fc→	3000	-1629	505
	3200	-1842	880
	3500	-1523	1841
fc→	3600	-1187	2057
1.1 fc→	4000	- 97	1719
	4600	+ 94	1130

Gain	F	R	X
3.5db	200	- 975	- 407
	300	-1020	- 243
	500	-1036	- 96
	1000	-1060	+ 53
	1500	-1091	139
	2000	-1183	206
	2500	-1413	331
	2800	-1666	546
	2900	-1756	688
.8 fc→	3000	-1817	900
	3200	-1794	1466
	3500	- 999	2071
fc→	3600	- 695	2026
1.1 fc→	4000	- 30	1539
	4600	+ 49	1044

Gain	F	R	X
4.0db	200	-1065	- 461
	300	-1117	- 293
	500	-1145	- 148
	1000	-1192	+ 11
	1500	-1275	89
	2000	-1399	194
	2500	-1613	376
	2800	-1791	569
	2900	-1855	672
.8 fc→	3000	-1938	798
	3200	-2062	1128
	3500	-1882	1973
fc→	3600	-1630	2251
1.1 fc→	4000	- 415	2236
	4600	- 21	1511

Gain	F	R	X
4.5db	200	-1166	- 534
	300	-1241	- 343
	500	-1273	- 165
	1000	-1315	+ 13
	1500	-1395	108
	2000	-1523	227
	2500	-1746	407
	2800	-1936	586
	2900	-2019	695
.8 fc→	3000	-2144	822
	3200	-2308	1267
	3500	-2019	2329
fc→	3600	-1551	2596
1.1 fc→	4000	- 264	2216
	4600	+ 49	1408

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 11X (Cont'd)
19DNB-D135

Gain	F	R	X	Gain	F	R	X
5.0db	200	-1276	- 584	7.0db	200	-1540	- 810
	300	-1347	- 365		300	-1662	- 520
	500	-1375	- 173		500	-1726	- 265
	1000	-1407	+ 31		1000	-1793	- 15
	1500	-1459	136		1500	-1912	+ 151
	2000	-1561	209		2000	-2114	316
	2500	-1816	319		2500	-2465	633
	2800	-2104	462		2800	-2805	1083
	2900	-2246	566		2900	-2929	1289
.8 fc→	3000	-2391	705	.8 fc→	3000	-2997	1624
	3200	-2700	1203		3200	-2918	2370
	3500	-2508	2655		3500	-1949	3403
fc→	3600	-2084	2925	fc→	3600	-1431	3395
1.1 fc→	4000	- 415	2605	1.1 fc→	4000	- 313	2687
	4600	- 76	1800		4600	- 81	1932
5.5db	200	-1308	- 653	7.5db	200	-1595	- 875
	300	-1396	- 419		300	-1723	- 560
	500	-1459	- 225		500	-1807	- 273
	1000	-1537	- 50		1000	-1872	+ 9
	1500	-1651	+ 73		1500	-1959	169
	2000	-1831	224		2000	-2144	325
	2500	-2115	477		2500	-2505	601
	2800	-2293	760		2800	-2826	1005
	2900	-2389	916		2900	-3011	1257
.8 fc→	3000	-2471	1076	.8 fc→	3000	-3086	1551
	3200	-2522	1559		3200	-2910	2470
	3500	-2106	2577		3500	-1520	3451
fc→	3600	-1708	2831	fc→	3600	- 989	3344
1.1 fc→	4000	- 211	2489	1.1 fc→	4000	+ 7	2360
	4600	+ 80	1598		4600	+ 88	1627
6.0db	200	-1402	- 712	8.0db	200	-1701	- 923
	300	-1502	- 448		300	-1844	- 583
	500	-1553	- 234		500	-1906	- 274
	1000	-1606	- 21		1000	-1949	+ 32
	1500	-1694	+ 100		1500	-2000	196
	2000	-1824	204		2000	-2133	304
	2500	-2079	347		2500	-2488	451
	2800	-2345	486		2800	-2936	701
	2900	-2473	567		2900	-3121	851
.8 fc→	3000	-2600	668	.8 fc→	3000	-3365	1102
	3200	-3052	995		3200	-3730	1972
	3500	-3348	2397		3500	-2897	3845
fc→	3600	-3172	2969	fc→	3600	-2171	4090
1.1 fc→	4000	- 811	3506	1.1 fc→	4000	- 445	3276
	4600	- 153	2238		4600	- 105	2299
6.5db	200	-1447	- 760				
	300	-1569	- 470				
	500	-1638	- 217				
	1000	-1704	+ 38				
	1500	-1807	214				
	2000	-1983	411				
	2500	-2328	845				
	2800	-2504	1445				
	2900	-2506	1749				
.8 fc→	3000	-2338	2128				
	3200	-1750	2681				
	3500	- 503	2587				
fc→	3600	- 277	2345				
1.1 fc→	4000	+ 64	1742				
	4600	+ 72	1339				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 12X
$\begin{matrix} \text{19CNB)} \\ \text{22BSA)} \end{matrix}$H135

Gain	F	R	X
1.5db	200	− 369	− 114
	300	− 379	− 58
	500	− 390	− 5
	1000	− 398	+ 51
	1500	− 458	115
	2000	− 569	254
.8 fc→	2200	− 593	407
	2400	− 497	596
	2600	− 280	679
fc→	2800	− 105	604
	3000	− 36	519
1.1 fc→	3100	− 23	494
	3200	− 21	456
2.0db	200	− 461	− 155
	300	− 477	− 90
	500	− 490	− 26
	1000	− 526	+ 55
	1500	− 585	138
	2000	− 710	301
.8 fc→	2200	− 774	459
	2400	− 710	735
	2600	− 385	912
fc→	2800	− 108	803
	3000	− 5	671
1.1 fc→	3100	+ 3	622
	3200	− 30	560
2.5db	300	− 579	− 121
	500	− 594	− 56
	1000	− 641	+ 25
	1500	− 724	112
	2000	− 868	269
.8 fc →	2200	− 940	400
	2400	− 984	605
	2600	− 862	913
fc →	2800	− 577	1133
	3000	− 226	1057
1.1 fc →	3100	− 136	981
	3200	− 82	889
3.0db	300	− 717	− 139
	500	− 725	− 44
	1000	− 747	+ 73
	1500	− 812	146
	2000	−1011	277
.8 fc→	2200	−1143	432
	2400	−1237	785
	2600	− 980	1256
fc→	2800	− 453	1340
	3000	− 169	1137
1.1 fc→	3100	− 108	1011
	3200	− 82	938

Gain	F	R	X
3.5db	300	− 823	− 165
	500	− 827	− 50
	1000	− 841	+ 85
	1500	− 882	149
	2000	−1064	213
.8 fc→	2200	−1239	301
	2400	−1441	558
	2600	−1456	1171
fc→	2800	− 868	1644
	3000	− 314	1532
1.1 fc→	3100	− 161	1389
	3200	− 72	1259
4.0db	300	− 887	− 202
	500	− 910	− 90
	1000	− 961	+ 27
	1500	−1056	120
	2000	−1260	227
.8 fc→	2200	−1439	331
	2400	−1728	595
	2600	−1907	1319
fc→	2800	−1278	2099
	3000	− 445	1940
1.1 fc→	3100	− 245	1692
	3200	− 135	1528
4.5db	300	− 984	− 230
	500	−1013	− 104
	1000	−1067	+ 43
	1500	−1184	168
	2000	−1401	367
.8 fc→	2200	−1521	551
	2400	−1585	910
	2600	−1382	1530
fc→	2800	− 830	1768
	3000	− 317	1683
1.1 fc→	3100	− 156	1536
	3200	− 50	1365
5.0db	200	− 975	− 410
	300	−1022	− 252
	500	−1054	− 113
	1000	−1117	+ 27
	1500	−1241	147
	2000	−1523	358
.8 fc→	2200	−1687	555
	2400	−1848	992
	2600	−1640	1675
fc→	2800	− 930	2031
	3000	− 319	1834
1.1 fc→	3100	− 172	1662
	3200	− 48	1490

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 12X (Cont'd)
19CNB)H135
22BSA)

Gain	F	R	X	Gain	F	R	X
5.5db	300	-1105	- 276	7.5db	200	-1301	- 629
	500	-1147	- 135		300	-1389	- 382
	1000	-1211	+ 20		500	-1439	- 166
	1500	-1334	136		1000	-1514	+ 60
	2000	-1590	256		1500	-1662	246
.8 fc→	2200	-1789	365		2000	-1969	573
	2400	-2127	651	.8 fc→	2200	-2145	856
	2600	-2267	1565		2400	-2225	1401
fc→	2800	-1199	2531		2600	-1874	2109
	3000	- 224	2165	fc→	2800	-1063	2459
1.1 fc→	3100	- 78	1864		3000	- 408	2192
	3200	- 10	1646	1.1 fc→	3100	- 225	1993
					3200	- 76	1800
6.0db	200	-1134	- 513				
	300	-1195	- 318	8.0db	200	-1336	- 656
	500	-1232	- 139		300	-1426	- 406
	1000	-1273	+ 32		500	-1470	- 177
	1500	-1360	121		1000	-1533	+ 48
	2000	-1620	175		1500	-1661	188
.8 fc→	2200	-1869	222		2000	-1988	378
	2400	-2345	424	.8 fc→	2200	-2322	557
	2600	-2946	1399		2400	-2579	1016
fc→	2800	-1949	3010		2600	-2587	1977
	3000	- 470	2650	fc→	2800	-1628	2813
1.1 fc→	3100	- 192	2285		3000	- 581	2639
	3200	- 64	1967	1.1 fc→	3100	- 325	2409
					3200	- 106	2141
6.5db	300	-1268	- 320				
	500	-1321	- 121				
	1000	-1376	+ 84				
	1500	-1467	238				
	2000	-1832	468				
.8 fc→	2200	-2021	787				
	2400	-2079	1513				
	2600	-1339	2274				
fc→	2800	- 443	2157				
	3000	- 77	1714				
1.1 fc→	3100	- 25	1578				
	3200	+ 49	1408				
7.0db	200	-1261	- 604				
	300	-1332	- 368				
	500	-1381	- 166				
	1000	-1462	+ 46				
	1500	-1600	218				
	2000	-1885	497				
.8 fc→	2200	-2061	737				
	2400	-2212	1230				
	2600	-2049	1923				
fc→	2800	-1285	2472				
	3000	- 506	2286				
1.1 fc→	3100	- 325	2106				
	3200	- 141	1887				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 13X
19DNB-H135

Gain		F	R	X	Gain		F	R	X
1.0db		200	− 261	− 97	3.0db		200	− 737	− 288
		300	− 268	− 58			300	− 762	− 179
		500	− 275	− 29			500	− 778	− 90
		1000	− 300	0			1000	− 815	+ 3
		1500	− 333	+ 21			1500	− 886	51
		2000	− 400	51			2000	−1030	105
		2400	− 490	94			2400	−1264	213
	.8 fc→	2500	− 525	109		.8 fc→	2500	−1353	273
		2800	− 684	229			2800	−1657	672
		3000	− 790	477			3000	−1674	1280
	fc→	3200	− 581	877		fc→	3200	−1119	1841
	1.1 fc→	3500	− 70	751		1.1 fc→	3500	− 274	1626
		3600	− 5	665			3600	− 133	1472
1.5db		200	− 420	− 134	3.5db		200	− 845	− 337
		300	− 428	− 73			300	− 878	− 201
		500	− 438	− 16			500	− 895	− 89
		1000	− 452	+ 39			1000	− 922	+ 15
		1500	− 502	98			1500	− 983	75
		2000	− 592	171			2000	−1130	116
		2400	− 723	368			2400	−1438	216
	.8 fc→	2500	− 749	466		.8 fc→	2500	−1561	291
		2800	− 571	824			2800	−1967	890
		3000	− 304	851			3000	−1744	1712
	fc→	3200	− 133	773		fc→	3200	− 902	2073
	1.1 fc→	3500	− 47	625		1.1 fc→	3500	− 144	1625
		3600	− 40	609			3600	− 48	1490
2.0db		200	− 547	− 188	4.0db		200	− 943	− 381
		300	− 592	− 171			300	− 982	− 241
		500	− 580	− 34			500	−1006	− 119
		1000	− 610	+ 15			1000	−1066	+ 5
		1500	− 663	87			1500	−1177	109
		2000	− 754	162			2000	−1368	270
		2400	− 913	271			2400	−1581	591
	.8 fc→	2500	− 974	336		.8 fc→	2500	−1618	715
		2800	−1150	747			2800	−1606	1224
		3000	− 918	1214			3000	−1366	1633
	fc→	3200	− 362	1272		fc→	3200	− 926	1741
	1.1 fc→	3500	− 34	939		1.1 fc→	3500	− 425	1705
		3600	+ 13	845			3600	− 311	1600
.5db		200	− 701	− 234	4.5db		200	−1026	− 446
		300	− 724	− 123			300	−1071	− 276
		500	− 728	− 9			500	−1101	− 139
		1000	− 723	+ 114			1000	−1150	+ 4
		1500	− 740	182			1500	−1237	76
		2000	− 899	249			2000	−1429	141
		2400	−1229	698			2400	−1798	269
	.8 fc→	2500	−1178	1025		.8 fc→	2500	−1946	354
		2800	− 345	1274			2800	−2477	1174
		3000	− 69	1059			3000	−2161	2258
	fc→	3200	− 25	845		fc→	3200	− 934	2615
	1.1 fc→	3500	+ 29	697		1.1 fc→	3500	− 78	1864
		3600	+ 7	671			3600	+ 35	1635

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 13X (Cont'd)
19DNB-H135

Gain	F	R	X	Gain	F	R	X
5.0db	200	-1123	- 474	7.0db	200		-
	300	-1158	- 293		300	-1395	- 413
	500	-1196	- 134		500	-1463	- 234
	1000	-1230	+ 42		1000	-1566	- 80
	1500	-1305	134		1500	-1741	+ 23
	2000	-1505	201		2000	-2040	168
	2400	-1938	390		2400	-2475	456
.8 fc→	2500	-2124	541	.8 fc →	2500	-2613	619
	2800	-2216	1598		2600	-2734	860
	3000	-1766	2568		2800	-2815	1620
fc→	3200	- 800	2524		3000	-2316	2705
1.1 fc→	3500	- 199	1945	fc →	3200	-1220	3129
	3600	- 167	1755	1.1 fc→	3500	- 178	2526
					3600		-
5.5db	200	-1173	- 543				
	300	-1236	- 337				
	500	-1270	- 155	7.5db	200	-1402	- 738
	1000	-1321	+ 19		300	-1501	- 464
	1500	-1402	116		500	-1558	- 239
	2000	-1590	191		1000	-1646	- 31
	2400	-1983	276		1500	-1796	+ 111
.8 fc →	2500	-2186	352		2000	-2071	295
	2800	-3021	1316		2400	-2501	638
	3000	-2391	2993	.8 fc→	2500	-2656	831
fc →	3200	- 693	2994		2800	-2865	1897
1.1 fc →	3500	+ 2	1997		3000	-2289	2854
	3600	+ 36	1778	fc→	3200	-1153	3115
				1.1 fc→	3500	- 250	2476
					3600	- 45	2227
6.0db	200		-				
	300	-1311	- 363	8.0db	200	-1504	- 777
	500	-1364	- 178		300	-1615	- 493
	1000	-1421	- 27		500	-1674	- 242
	1500	-1515	+ 43		1000	-1740	0
	2000	-1755	87		1500	-1863	+ 122
	2400	-2214	194		2000	-2170	236
.8 fc →	2500	-2382	281		2400	-2740	535
	2600	-2594	421	.8 fc→	2500	-2956	758
	2800	-3002	1092		2800	-3487	2057
	3000	-2758	2283		3000	-2874	3367
fc →	3200	-1512	3121	fc→	3200	-1604	3690
1.1 fc →	3500	- 183	2503	1.1 fc→	3500	- 495	2994
	3600	- 78	2222		3600	- 368	2807
6.5db	200	-1330	- 641				
	300	-1416	- 387				
	500	-1465	- 156				
	1000	-1499	+ 85				
	1500	-1576	217				
	2000	-1834	344				
	2400	-2413	747				
.8 fc →	2500	-2580	1049				
	2800	-1984	2716				
	3000	- 808	2805				
fc→	3200	- 166	2249				
1.1 fc→	3500	+ 30	1693				
	3600	+ 35	1545				

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 14X
19DNB-E175

Gain		F	R	X	Gain		F	R	X
1.0db		200	− 454	− 154	3.0db		200	−1200	− 563
		500	− 473	− 40			500	−1312	− 146
		1000	− 482	+ 13			1000	−1336	+ 44
		1500	− 506	54			1500	−1368	150
		2000	− 537	82			2000	−1451	243
		2500		−			2500	−1638	369
		3000	− 705	145			3000	−1973	701
.8 fc →		3100	− 741	156	.8 fc →		3100	−2034	824
fc →		3900	−1192	917			3500	−2007	1721
		4000	−1043	1167	fc →		3900	− 969	2373
1.1 fc →		4300	− 317	1334			4000	− 704	2325
		4600	− 11	1041	1.1 fc →		4300	− 225	1993
							4600	+ 29	1643
1.5db		200	− 631	− 240					
		500	− 671	− 76	3.5db		200	−1341	− 647
		1000	− 702	0			500	−1458	− 210
		1500	− 755	52			1000	−1504	0
		2000	− 822	111			1500	−1579	+ 117
		2500	− 906	161			2000	−1705	234
		3000	−1086	396			2500	−1925	416
.8 fc →		3100	−1134	470			3000	−2250	804
fc →		3900	− 973	1290	.8 fc →		3100	−2350	912
		4000	− 774	1438			3500	−2482	1807
1.1 fc →		4300	− 375	1429	fc →		3900	−1719	2878
		4600	− 139	1264			4000	−1295	2953
					1.1 fc →		4300	− 384	2616
2.0db		200	− 840	− 330			4600	− 96	2228
		500	− 891	− 76					
		1000	− 922	+ 49	4.0db		200	−1404	− 696
		1500	− 968	142			500	−1546	− 207
		2000	−1056	250			1000	−1591	+ 22
		2500	−1205	438			1500	−1652	168
		3000	−1347	908			2000	−1769	304
.8 fc →		3100	−1293	1088			2500	−1972	490
fc →		3900	− 106	1324			3000	−2326	894
		4000	− 35	1227	.8 fc →		3100	−2366	1019
1.1 fc →		4300	+ 37	1018			3500	−2504	1989
		4600	+ 50	883	fc →		3900	−1582	2947
					1.1 fc →		4300	− 458	2633
2.5db		200	− 998	− 431			4600	− 171	2194
		500	−1082	− 135					
		1000	−1120	+ 10	4.5db		200	−1472	− 814
		1500	−1182	94			500	−1697	− 245
		2000	−1262	187			1000	−1790	+ 7
		2500	−1413	325			1500	−1873	148
		3000	−1581	601			2000	−2094	314
.8 fc →		3100	−1627	695			2500	−2423	634
fc →		3900	−1282	1824			3000	−2705	1704
		4000	−1067	1942	.8 fc →		3100	−2612	2013
1.1 fc →		4300	− 544	1957			3500	−1273	2955
		4600	− 103	1697	fc →		3900	− 183	2410
							4000	− 23	2173
					1.1 fc →		4300	+ 107	1798
							4600	+ 85	1536

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 14X (Cont'd)
19DNB-B175

Gain	F	R	X
5.0db	200	-1581	- 919
	500	-1881	- 282
	1000	-1940	+ 20
	1500	-2000	172
	2000	-2120	297
	2500	-2381	458
	3000	-2893	917
.8 fc →	3100	-3039	1125
	3500	-2814	2864
fc →	3900	- 671	3388
	4000	- 350	3117
1.1 fc →	4300	+ 88	2360
	4600		-
5.5db	200	-1385	-1004
	500	-1591	- 367
	1000	-2043	- 110
	1500	-2184	+ 50
	2000	-2390	225
	2500	-2684	516
	3000	-3040	1151
.8 fc →	3100	-3072	1333
	3500	-2577	2537
fc →	3900	-1388	3514
	4000	- 914	3560
1.1 fc →	4300	- 318	3182
	4600	+ 359	2682
6.0db	200	-1764	-1071
	500	-2111	- 382
	1000	-2221	- 77
	1500	-2330	+ 98
	2000	-2510	255
	2500	-2817	490
	3000	-3209	1031
.8 fc →	3100	-3300	1212
	3500	-3175	2466
fc →	3900	-1927	3710
	4000	-1395	3791
1.1 fc →	4300	- 269	3359
	4600	+ 175	2660

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 15X
19DNB-D175

Gain		F	R	X
1.0db		200	- 366	- 120
		300	- 377	- 67
		500	- 387	- 20
		1000	- 405	+ 37
		1500	- 433	87
		2000	- 497	146
		2200	- 534	187
		2500	- 618	299
	.8 fc →	2600	- 645	374
		2800	- 629	582
		3000	- 408	791
	fc →	3200	- 168	749
	1.1 fc →	3500	- 6	597
		4000	+ 5	447
1.5db		200	- 452	- 189
		300	- 525	- 128
		500	- 570	- 39
		1000	- 590	+ 42
		1500	- 582	101
		2000	- 682	176
		2200	- 792	230
		2500	- 923	391
	.8 fc →	2600	- 963	490
		2800	- 929	767
		3000	- 675	1083
	fc →	3200	- 310	1127
	1.1 fc →	3500	- 27	885
		4000	+ 32	644
2.0db		200	- 721	- 255
		300	- 756	- 138
		500	- 769	- 24
		1000	- 767	+ 102
		1500	- 784	178
		2000	- 883	242
		2200	- 983	306
		2500	-1209	580
	.8fc →	2600	-1221	805
		2800	- 942	1292
		3000	- 452	1321
	fc →	3200	- 93	1157
	1.1 fc →	3500	+ 4	860
		4000	+ 45	681
2.5db		200	- 874	- 338
		300	- 918	- 190
		500	- 938	- 56
		1000	- 943	+ 83
		1500	- 960	160
		2000	-1075	210
		2200	-1175	250
		2500	-1425	417
	.8 fc →	2600	-1530	555
		2800	-1609	1083
		3000	-1205	1699
	fc →	3200	- 538	1802
	1.1 fc →	3500	- 43	1373
		4000	+ 68	960

Gain		F	R	X
3.0db		200	- 955	- 394
		300	-1010	- 237
		500	-1039	- 100
		1000	-1076	+ 38
		1500	-1134	131
		2000	-1257	229
		2200	-1340	276
		2500	-1579	415
	.8 fc →	2600	-1681	516
		2800	-1932	935
	fc →	3000	-1787	1773
		3200	- 843	2310
	.1.1 fc →	3500	- 32	1768
		4000	+ 101	1107
3.5db		200	-1116	- 483
		300	-1188	- 275
		500	-1219	- 81
		1000	-1223	+ 124
		1500	-1245	247
		2000	-1386	347
		2200	-1512	434
		2500	-1806	776
	.8 fc →	2600	-1888	1020
		2800	-1650	1785
		3000	- 914	2176
	fo →	3200	- 242	1899
	1.1 fc →	3500	+ 14	1391
		4000	+ 84	1037
4.0db		200	-1181	- 531
		300	-1241	- 341
		500	-1279	- 172
		1000	-1366	+ 12
		1500	-1518	186
		2000	-1689	420
		2200	-1800	586
		2500	-1922	926
	.8 fc →	2600	-1966	1079
		2800	-1950	1459
		3000	-1743	1942
	fc →	3200	-1231	2293
	1.1 fc →	3500	- 344	2120
		4000	- 67	1456
4.5db		200	-1313	- 615
		300	-1387	- 361
		500	-1433	- 163
		1000	-1479	+ 99
		1500	-1543	272
		2000	-1831	521
		2200	-1931	721
		2500	-2232	1415
	.8 fc →	2600	-2053	1874
		2800	-1207	2468
		3000	- 419	2244
	fc →	3200	- 16	1829
	1.1 fc →	3500	- 9	1395
		4000	+ 82	1122

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 15X (Cont'd)
19DNB-D175

Gain		F	R	X	Gain		F	R	X
5.0db		200	-1419	- 695	7.0db		200	-1736	-1052
		300	-1506	- 437			300	-1913	- 652
		500	-1553	- 210			500	-1995	- 299
		1000	-1616	+ 37			1000	-2072	+ 37
		1500	-1735	200			1500	-2202	252
		2000	-1959	379			2000	-2489	493
		2200	-2102	490			2200	-2682	646
		2500	-2404	925			2500	-3121	1209
	.8 fc→	2600	-2562	1096		.8 fc→	2600	-3255	1528
		2800	-2706	1756			2800	-3245	2550
		3000	-2342	2639			3000	-2290	3505
	fc→	3200	-1366	3073		fc→	3200	-1043	3524
	1.1 fc→	3500	- 374	2536		1.1 fc→	3500	- 158	2690
		4000	- 117	1802			4000	+ 31	1862
5.5db		200	-1508	- 792	7.5db		200	-1746	-1064
		300	-1622	- 493			300	-1944	- 669
		500	-1690	- 232			500	-2032	- 308
		1000	-1752	+ 55			1000	-2100	+ 43
		1500	-1859	240			1500	-2212	237
		2000	-2056	448			2000	-2481	419
		2200	-2167	575			2200	-2683	537
		2500	-2409	928			2500	-3188	951
	.8 fc→	2600	-2494	1074		.8 fc→	2600	-3386	1258
		2800	-2877	1833			2800	-3584	2326
		3000	-2345	2320			3000	-2810	3625
	fc→	3200	-1520	2853		fc→	3200	-	
	1.1 fc→	3500	- 418	2555		1.1 fc→	3500	- 139	2941
		4000	+ 50	1719			4000	+ 120	1914
6.0db		200	-1575	- 853	8.0db		200	-1821	-1108
		300	-1703	- 547			300	-2026	- 702
		500	-1769	- 277			500	-2125	- 338
		1000	-1850	- 16			1000	-2218	+ 27
		1500	-1983	+ 157			1500	-2371	248
		2000	-2217	320			2000	-2766	514
		2200	-2379	417			2200	-3085	746
		2500	-2793	707			2500	-3614	1567
	.8 fc→	2600	-2972	861		.8 fc→	2600	-3702	2136
		2800	-3349	1432			2800	-3310	3270
		3000	-3439	2641			3000	-2131	3943
	fc→	3200	-2544	3698		fc→	3200	-1121	3753
	1.1 fc→	3500	- 672	3371		1.1 fc→	3500	- 363	2897
		4000	- 118	2281			4000	- 154	2263
6.5db		200	-1370	- 893					
		300	-1697	- 628					
		500	-1840	- 307					
		1000	-1940	+ 23					
		1500	-2101	202					
		2000	-2381	470					
		2200	-2563	632					
		2500	-2880	1142					
	.8 fc→	2600	-2959	1410					
		2800	-2944	2232					
		3000	-2256	3110					
	fc→	3200	-1194	3293					
	1.1 fc→	3500	- 199	2597					
		4000	+ 68	1763					

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 16X
19DNB-H175

Gain		F	R	X	Gain		F	R	X
1.0db		200	- 307	- 105	3.5db		200	- 967	- 383
		500	- 325	- 31			500	-1044	- 74
		1000	- 350	+ 10			1000	-1075	+ 91
		1500	- 389	45			1500	-1153	190
		2000	- 467	88			2000	-1458	358
	.8 fc→	2200	- 514	115		.8 fc→	2200	-1682	599
		2400	- 582	162			2400	-1804	1235
	fc→	2800	- 718	508		fc→	2800	- 410	1798
	1.1 fc→	3000	- 521	813		1.1 fc→	3000	- 96	1461
		3200	- 176	807			3200	- 30	1207
1.5db		200	- 457	- 158	4.0db		200	-1103	- 475
		500	- 487	- 45			500	-1192	- 113
		1000	- 520	+ 13			1000	-1249	+ 94
		1500	- 580	62			1500	-1350	265
		2000	- 694	136			2000	-1578	507
	.8 fc→	2200	- 768	190		.8 fc→	2200	-1737	703
		2400	- 857	298			2400	-1896	1185
	fc→	2800	- 873	857		fc→	2800	- 846	2218
	1.1 fc→	3000	- 524	1068		1.1 fc→	3000	- 275	1850
		3200	- 182	1010			3200	- 85	1496
2.0db		200	- 606	- 214	4.5db		200	-1185	- 545
		500	- 645	- 50			300	-1282	- 323
		1000	- 692	+ 64			500	-1326	- 113
		1500	- 795	182			1000	-1371	+ 116
		2000	- 926	408			1500	-1457	287
	.8 fc→	2200	- 956	621			2000	-1791	565
		2400	- 845	902		.8 fc→	2200	-1960	919
	fc→	2800	- 293	1099			2400	-1903	1653
	1.1 fc→	3000	- 79	871		fc→	2800	- 408	2064
		3200	- 30	739		1.1 fc→	3000	- 80	1673
							3200	+ 14	1391
2.5db		200	- 736	- 273	5.0db		200	-1294	- 607
		500	- 784	- 62			500	-1411	- 160
		1000	- 830	+ 59			1000	-1458	+ 61
		1500	- 912	146			1500	-1559	184
		2000	-1127	344			2000	-1870	316
	.8 fc→	2200	-1235	541		.8 fc →	2200	-2151	459
		2400	-1236	878			2400	-2574	894
	fc→	2800	- 486	1376		fc →	2800	-1878	2922
	1.1 fc→	3000	- 179	1201		1.1 fc →	3000	- 722	2813
		3200	- 83	1023			3200	- 183	2201
3.0db		200	- 842	- 334	5.5db		200	-1347	- 671
		500	- 907	- 101			300	-1456	- 407
		1000	- 952	+ 33			500	-1506	- 171
		1500	-1042	106			1000	-1548	+ 76
		2000	-1253	200			1500	-1634	211
	.8 fc →	2200	-1453	291			2000	-1921	353
		2400	-1738	526		.8 fc →	2200	-2158	490
	fc →	2800	-1090	2025			2400	-2193	873
	1.1 fc →	3000	- 327	1858		fc →	2800	-1598	2814
		3200	- 50	1417		1.1 fc →	3000	- 397	2769
							3200	- 206	2272

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 16X (Cont'd)
19DNB-H175

Gain		F	R	X
6.0db		200	-1411	- 707
		300	-1511	- 440
		500	-1554	- 203
		1000	-1602	+ 35
		1500	-1733	142
		2000	-2132	242
	.8 fc →	2200	-2493	400
		2400	-3024	902
	fc →	2800	-2133	3384
	1.1 fc →	3000	- 818	3140
		3200	- 269	2524
6.5db		200	-1470	- 751
		300	-1575	- 448
		500	-1641	- 185
		1000	-1684	+ 100
		1500	-1813	249
		2000	-2266	537
	.8 fc →	2200	-2581	919
		2400	-2689	1740
	fc →	2800	- 870	2743
	1.1 fc →	3000	- 304	2322
		3200	- 89	1891
7.0db		200	-1733	- 943
		300	-1719	- 505
		500	-1778	- 190
		1000	-1821	+ 126
		1500	-1936	303
		2000	-2393	593
	.8 fc →	2200	-2722	978
		2400	-2891	1874
	fc →	2800	- 823	2973
	1.1 fc →	3000	- 220	2392
		3200	- 8	1951
7.5db		200	-1591	- 918
		300	-1728	- 552
		500	-1813	- 249
		1000	-1877	+ 47
		1500	-2001	194
		2000	-2414	325
	.8 fc →	2200	-2780	493
		2400	-3318	1034
	fc →	2800	-1964	3801
	1.1 fc →	3000	-567	3280
		3200	- 148	2660
8.0db		200	-1640	- 942
		300	-1818	- 575
		500	-1916	- 235
		1000	-1989	+ 110
		1500	-2137	321
		2000	-2645	692
	.8 fc →	2200	-2900	1153
		2400	-2852	2186
	fc →	2800	- 704	2999
	1.1 fc →	3000	- 226	2467
		3200	- 19	2010

TABLE 1
NEGATIVE IMPEDANCE OF NETWORK 17X
19CNB-H44

Gain		F	R	X	Gain		F	R	X
2.5db		200	- 345	- 115	4.0db		200	- 496	- 176
		300	- 355	- 61			300	- 509	- 106
		500	- 358	- 6			500	- 514	- 40
		1000	- 362	+ 12			1000	- 523	+ 14
		1500	- 369	+ 70			1500	- 539	+ 65
		2000	- 381	+ 117			2000	- 563	+ 105
		2500	- 392	+ 150			2500	- 593	+ 140
		2800	- 401	+ 173			2800	- 622	+ 166
		3000	- 411	+ 188			3000	- 644	+ 185
		3200	- 422	+ 202			3200	- 671	+ 206
		3400	- 437	+ 219			3400	- 702	+ 230
		3600	- 456	+ 232			3600	- 744	+ 262
		3800	- 486	+ 246			3800	- 783	+ 299
	0.8 fc	4000	- 530	+ 262		0.8 fc	4000	- 842	+ 354
		4200	- 602	+ 292			4200	- 922	+ 443
		4500	- 781	+ 415			4500	-1019	+ 639
		4800	- 936	+ 910			4800	-1089	+ 901
	fc	5000	- 378	+1276		fc	5000	- 819	+1280
		5200	+ 34	+1017			5200	- 483	+1400
	1.1 fc	5500	+ 86	+ 818		1.1 fc	5500	- 95	+1265
3.0db		200	- 406	- 137	4.5db		200	- 555	- 202
		300	- 418	- 76			300	- 565	- 115
		500	- 421	- 15			500	- 572	- 44
		1000	- 428	+ 38			1000	- 582	+ 29
		1500	- 436	+ 91			1500	- 602	+ 76
		2000	- 453	+ 137			2000	- 631	+ 123
		2500	- 472	+ 178			2500	- 672	+ 169
		2800	- 497	+ 210			2800	- 704	+ 206
		3000	- 521	+ 238			3000	- 737	+ 236
		3200	- 543	+ 261			3200	- 772	+ 270
		3400	- 578	+ 302			3400	- 811	+ 315
		3600	- 629	+ 363			3600	- 856	+ 374
		3800	- 681	+ 447			3800	- 919	+ 458
	0.8 fc	4000	- 700	+ 565		0.8 fc	4000	- 979	+ 588
		4200	- 664	+ 793			4200	- 993	+ 781
		4500	- 392	+1011			4500	- 974	+ 989
		4800	- 122	+ 958			4800	- 661	+1244
	fc	5000	- 6	+ 827		fc	5000	- 411	+1253
		5200	+ 2	+ 727			5200	- 214	+1158
	1.1 fc	5500	+ 21	+ 649		1.1 fc	5500	- 91	+ 987
3.5db		200	- 460	- 162	5.0db		200	- 587	- 211
		300	- 476	- 93			300	- 602	- 129
		500	- 481	- 27			500	- 612	- 41
		1000	- 486	+ 30			1000	- 624	+ 20
		1500	- 494	+ 77			1500	- 643	+ 63
		2000	- 504	+ 116			2000	- 671	+ 113
		2500	- 523	+ 148			2500	- 710	+ 161
		2800	- 542	+ 170			2800	- 742	+ 194
		3000	- 557	+ 183			3000	- 771	+ 222
		3200	- 581	+ 199			3200	- 802	+ 253
		3400	- 605	+ 214			3400	- 832	+ 290
		3600	- 646	+ 235			3600	- 876	+ 340
		3800	- 681	+ 249			3800	- 929	+ 404
	0.8 fc	4000	- 725	+ 265		0.8 fc	4000	- 968	+ 462
		4200	- 844	+ 359			4200	-1020	+ 615
		4500	- 977	+ 567			4500	-1059	+ 830
		4800	-1014	+1021			4800	-1004	+1115
	fc	5000	- 604	+1446		fc	5000	- 772	+1369
		5200	- 163	+1384			5200	- 468	+1474
	1.1 fc	5500	+ 80	+1177		1.1 fc	5500	- 197	+1397

TABLE 1

NEGATIVE IMPEDANCE OF NETWORK 17X (Cont'd)
19CNB-H44

Gain	F	R	X
5.5db	200	− 627	− 233
	300	− 656	− 139
	500	− 664	− 53
	1000	− 686	0
	1500	− 700	+ 53
	2000	− 733	+ 108
	2500	− 772	+ 154
	2800	− 809	+ 191
	3000	− 831	+ 217
	3200	− 863	+ 247
	3400	− 902	+ 284
	3600	− 943	+ 325
	3800	−1000	+ 342
0.8 fc	4000	−1055	+ 445
	4200	−1130	+ 548
	4500	−1236	+ 766
	4800	−1297	+1152
fc	5000	−1136	+1578
	5200	− 646	+1831
1.1 fc	5500	− 86	+1685

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (1X AND 2X)
(USING STRAPPING CHARTS)

Set No.	Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
1X 19 CNB-B88	.3			- 440	0	- 583	- 12	- 700	- 28	- 881	- 43
	.4			- 440	0	- 588	+ 12	- 688	- 4	- 852	+ 3
	.6			- 442	45	- 585	61	- 686	+ 39	- 855	68
	.7			- 438	66	- 583	80	- 687	67	- 852	87
	.8			- 434	87	- 577	109	- 681	93	- 843	127
	.9			- 429	99	- 566	134	- 673	119	- 833	167
	1.0			- 422	112	- 562	151	- 666	141	- 832	187
	1.1			- 413	131	- 548	172	- 656	164	- 807	217
	1.2			- 403	145	- 537	184	- 641	188	- 799	236

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	- 920	- 19	-1167	-278	-1121	- 59	-1202	-115	-1360	- 23
.4	- 915	+ 7	-1039	+ 18	-1108	- 45	-1153	- 43	-1320	0
.6	- 908	69	-1035	90	-1111	+ 27	-1150	+ 18	-1314	117
.7	- 909	97	-1026	147	-1109	83	-1150	77	-1310	159
.8	- 898	146	-1016	178	-1102	122	-1148	113	-1285	239
.9	- 883	190	- 998	232	-1094	164	-1142	154	-1268	286
1.0	- 872	209	- 981	254	-1085	198	-1124	208	-1241	331
1.1	- 854	247	- 969	280	-1073	245	-1106	246	-1212	382
1.2	- 841	265	- 940	333	-1059	276	-1085	280	-1181	411

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1384	- 64	-1491	- 79	-1599	-132	-1705	-152	-1855	-150
.4	-1377	- 13	-1465	- 6	-1580	- 72	-1615	- 93	-1695	- 80
.6	-1369	+124	-1459	+127	-1584	+ 58	-1621	+ 39	-1699	+ 60
.7	-1357	190	-1445	199	-1578	118	-1612	114	-1692	135
.8	-1339	241	-1429	266	-1565	193	-1609	161	-1680	189
.9	-1298	330	-1402	320	-1545	245	-1587	246	-1667	255
1.0	-1287	369	-1372	377	-1524	302	-1572	296	-1646	322
1.1	-1237	421	-1339	423	-1495	355	-1543	364	-1619	383
1.2	-1206	470	-1301	475	-1460	416	-1506	423	-1581	438

Set No.	Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
2X 19 DNB-B88	.3			- 490	0	- 645	0	- 800	- 21	- 990	- 28
	.4			- 487	11	- 633	19	- 778	- 8	- 933	+ 26
	.6			- 484	53	- 630	67	- 779	+ 32	- 928	103
	.7			- 482	72	- 624	102	- 777	52	- 922	126
	.8			- 477	90	- 620	124	- 779	72	- 913	149
	.9			- 473	106	- 608	154	- 772	102	- 897	194
	1.0			- 464	121	- 595	172	- 768	119	- 888	212
	1.1			- 457	139	- 583	190	- 758	150	- 864	256
	1.2			- 446	150	- 566	210	- 751	167	- 853	277

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5 db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1050	- 25	-1140	0	-1223	- 89	-1352	- 92	-1494	-111
.4	-1045	+ 22	-1138	38	-1246	- 63	-1329	- 55	-1475	- 69
.6	-1042	86	-1129	115	-1251	+ 23	-1330	+ 36	-1475	+ 43
.7	-1042	86	-1129	115	-1248	63	-1328	80	-1474	97
.8	-1034	149	-1114	184	-1241	116	-1321	133	-1467	148
.9	-1011	206	-1114	184	-1234	153	-1314	172	-1455	195
1.0	-1011	206	-1086	247	-1223	202	-1301	211	-1434	261
1.1	- 988	257	-1050	313	-1211	235	-1285	257	-1409	311
1.2	- 988	257	-1050	313	-1193	276	-1265	299	-1388	371

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1552	- 68	-1632	- 67	-1724	- 57	-1805	- 18	-1904	-106
.4	-1558	- 49	-1630	- 13	-1731	- 44	-1820	- 17	-1918	0
.6	-1557	+ 68	-1625	+107	-1727	+115	-1815	+121	-1912	97
.7	-1552	131	-1620	165	-1721	160	-1804	192	-1912	97
.8	-1541	177	-1610	208	-1705	228	-1790	231	-1893	207
.9	-1529	232	-1588	286	-1687	288	-1767	310	-1893	207
1.0	-1509	281	-1564	335	-1666	349	-1736	380	-1865	302
1.1	-1485	337	-1540	386	-1622	428	-1722	412	-1825	399
1.2	-1458	391	-1501	447	-1606	444	-1666	495	-1825	399

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (3X AND 4X)
(USING STRAPPING CHARTS)

Net No. 3X — 19 CNB-D88

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3			- 387	- 5	- 500	0	- 600	-12	- 700	- 5
.4			- 378	+ 4	- 492	11	- 594	+ 3	- 694	+13
.6			- 378	44	- 489	61	- 591	65	- 683	97
.7			- 376	62	- 487	86	- 587	102	- 674	131
.8			- 372	79	- 476	110	- 571	136	- 658	169
.9			- 367	94	- 470	125	- 566	154	- 638	201
1.0			- 358	111	- 456	144	- 544	182	- 616	226
1.1			- 350	125	- 443	164	- 524	209	- 594	254
1.2			- 341	137	- 434	178	- 512	221	- 566	277

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	- 800	- 31	- 900	-30	- 970	-19	-1011	-45	-1102	-06
.4	- 793	- 17	- 866	- 17	- 958	0	-1020	0	-1077	-43
.6	- 791	+ 71	- 862	86	- 944	114	-1010	110	-1075	+97
.7	- 787	107	- 849	151	- 929	179	- 996	161	-1068	147
.8	- 777	140	- 833	186	- 906	225	- 971	223	-1050	203
.9	- 756	186	- 814	223	- 868	286	- 944	270	-1004	290
1.0	- 741	215	- 792	256	- 843	321	- 913	317	-1004	290
1.1	- 724	243	- 768	288	- 811	351	- 881	354	- 969	340
1.2	- 706	267	- 730	322	- 776	381	- 845	387	- 933	388

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1202	-115	-1211	-44	-1310	-45	-1326	-111	-1412	-93
.4	-1168	- 45	-1210	+ 5	-1256	-17	-1323	- 69	-1413	-40
.6	-1170	+ 82	-1206	94	-1247	+114	-1323	+ 93	-1401	+139
.7	-1157	153	-1195	161	-1238	156	-1316	143	-1389	194
.8	-1143	206	-1177	214	-1225	200	-1302	198	-1374	249
.9	-1119	257	-1151	276	-1196	282	-1273	265	-1328	346
1.0	-1094	308	-1124	321	-1173	316	-1247	325	-1303	395
1.1	-1051	367	-1078	383	-1125	388	-1206	379	-1235	468
1.2	-1033	392	-1051	404	-1096	416	-1122	479	-1191	509

Net No. 4X — 19 DMB-D88

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3			- 447	- 5	- 552	- 13	- 681	- 46	- 800	- 28
.4			- 439	+ 9	- 537	+ 11	- 633	- 14	- 728	- 6
.6			- 435	54	- 537	52	- 636	+ 33	- 727	+ 51
.7			- 430	75	- 535	74	- 635	55	- 729	82
.8			- 429	88	- 528	96	- 631	88	- 721	110
.9			- 423	106	- 522	115	- 625	108	- 716	138
1.0			- 415	124	- 516	131	- 621	127	- 705	163
1.1			- 403	140	- 506	149	- 610	149	- 693	188
1.2			- 400	145	- 490	170	- 602	169	- 677	215

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	- 870	- 14	- 991	-42	-1102	-101	-1201	- 49	-1222	-107
.4	- 856	+ 24	- 956	-25	-1041	- 37	-1150	- 4	-1212	- 50
.6	- 848	111	- 955	+80	-1040	+ 58	-1142	+103	-1215	+ 53
.7	- 839	148	- 951	105	-1038	89	-1125	162	-1208	107
.8	- 824	185	- 943	155	-1029	143	-1104	219	-1193	180
.9	- 806	218	- 933	177	-1020	174	-1088	266	-1182	214
1.0	- 791	251	- 909	226	-1002	211	-1056	321	-1158	269
1.1	- 766	276	- 884	261	- 986	251	-1025	365	-1141	305
1.2	- 741	303	- 878	290	- 959	287	- 976	410	-1104	352

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1274	-121	-1401	-61	-1410	- 45	-1485	- 35	-1550	- 41
.4	-1248	- 49	-1391	-25	-1422	- 29	-1466	- 33	-1560	- 5
.6	-1250	+ 63	-1386	+89	-1421	+ 85	-1466	+ 83	-1553	+118
.7	-1242	132	-1373	151	-1411	145	-1456	142	-1542	191
.8	-1233	176	-1346	243	-1389	218	-1443	188	-1521	247
.9	-1218	220	-1328	291	-1372	270	-1427	254	-1478	354
1.0	-1204	269	-1307	333	-1346	319	-1405	310	-1472	366
1.1	-1175	320	-1280	381	-1327	360	-1377	359	-1417	453
1.2	-1154	356	-1248	427	-1295	412	-1348	398	-1384	496

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (5X AND 6X)
(USING STRAPPING CHARTS)

5X
19 CNB-H88

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3			− 361	− 39	− 420	− 21	− 608	− 21	− 632	− 61
.4			− 338	− 11	− 415	0	− 505	+ 3	− 616	+ 20
.6			− 337	+ 48	− 415	43	− 502	64	− 614	92
.7			− 333	68	− 417	73	− 492	94	− 605	128
.8			− 328	83	− 409	86	− 486	115	− 590	163
.9			− 318	101	− 401	109	− 471	143	− 571	190
1.0			− 311	113	− 393	124	− 458	164	− 557	212
1.1			− 299	126	− 386	136	− 440	183	− 539	234
1.2			− 290	136	− 368	158	− 423	201	− 509	254

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	− 710	− 33	− 750	− 14	− 851	− 60	− 941	− 52	− 951	− 58
.4	− 702	− 3	− 754	− 9	− 837	0	− 931	− 16	− 941	− 10
.6	− 702	+ 72	− 752	+ 78	− 828	102	− 931	+ 77	− 937	+ 97
.7	− 692	112	− 743	123	− 818	156	− 919	126	− 925	147
.8	− 677	150	− 732	154	− 801	192	− 898	196	− 902	205
.9	− 664	185	− 709	195	− 783	224	− 877	236	− 880	250
1.0	− 640	219	− 685	230	− 744	284	− 848	280	− 855	289
1.1	− 618	245	− 664	262	− 724	306	− 822	312	− 831	323
1.2	− 593	272	− 631	288	− 697	332	− 795	340	− 797	348

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	−1022	− 86	−1103	−142	−1155	−129	−1203	−150	−1304	−219
.4	−1031	− 33	−1073	− 61	−1138	− 79	−1181	− 37	−1253	− 82
.6	−1027	+ 83	−1076	+ 76	−1142	+ 99	−1167	+ 93	−1247	+ 61
.7	−1021	154	−1066	139	−1126	168	−1149	157	−1227	142
.8	−1001	207	−1047	203	−1120	202	−1133	216	−1216	199
.9	− 974	256	−1019	264	−1082	271	−1097	291	−1194	257
1.0	− 948	304	− 990	314	−1051	321	−1062	350	−1166	322
1.1	− 914	345	− 957	361	−1017	377	−1018	396	−1122	389
1.2	− 873	377	− 915	399	− 966	421	− 969	446	−1097	417

6X
19 DNB-H88

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3			− 371	− 2	− 454	− 4	− 551	− 31	− 700	− 21
.4			− 379	0	− 454	− 2	− 557	0	− 695	0
.6			− 380	45	− 456	+ 33	− 555	60	− 687	86
.7			− 376	64	− 454	55	− 549	93	− 680	122
.8			− 370	82	− 452	79	− 539	126	− 670	147
.9			− 362	91	− 446	99	− 529	154	− 651	182
1.0			− 354	110	− 435	117	− 507	176	− 631	210
1.1			− 341	125	− 428	133	− 486	199	− 610	239
1.2			− 335	137	− 416	150	− 468	211	− 586	264

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	− 762	− 59	− 901	− 65	− 955	−143	−1053	−128	−1105	−162
.4	− 752	− 33	− 870	+ 8	− 922	− 33	−1017	− 29	−1052	−'52
.6	− 759	+ 68	− 869	88	− 925	+ 63	−1016	+ 78	−1050	+ 83
.7	− 757	98	− 860	133	− 917	110	−1011	126	−1045	119
.8	− 743	145	− 838	191	− 916	151	− 998	170	−1032	171
.9	− 730	171	− 820	224	− 891	210	− 977	223	−1019	211
1.0	− 709	212	− 797	257	− 867	250	− 953	276	−1000	251
1.1	− 689	236	− 766	290	− 867	250	− 923	316	− 960	313
1.2	− 663	267	− 752	310	− 845	290	− 889	358	− 960	313

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	−1182	− 95	−1206	− 45	−1282	− 95	−1471	−458	−1418	−236
.4	−1160	+ 18	−1210	+ 10	−1261	− 23	−1306	−142	−1385	− 45
.6	−1147	148	−1216	98	−1249	+131	−1287	+ 87	−1375	+136
.7	−1132	204	−1202	164	−1241	176	−1273	168	−1360	189
.8	−1106	256	−1181	225	−1224	248	−1262	214	−1338	246
.9	−1069	325	−1162	282	−1197	302	−1243	266	−1309	317
1.0	−1034	378	−1137	336	−1164	359	−1220	313	−1274	383
1.1	− 987	423	−1118	356	−1155	389	−1186	362	−1236	439
1.2	− 937	464	−1068	417	−1095	443	−1163	402	−1199	472

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (7X AND 8X)
(USING STRAPPING CHARTS)

Net No. 7X — 19 DMB-M88

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3			- 301	- 35	- 400	- 28	- 500	0	- 580	- 20
.4			- 295	+ 7	- 380	+ 8	- 495	22	- 551	+ 24
.6			- 294	42	- 380	51	- 483	100	- 538	107
.7			- 291	60	- 375	72	- 466	135	- 530	139
.8			- 285	77	- 369	92	- 448	163	- 507	178
.9			- 279	91	- 359	112	- 434	179	- 488	199
1.0			- 273	106	- 350	127	- 409	204	- 472	218
1.1			- 262	116	- 336	142	- 384	221	- 440	243
1.2			-		- 323	159	- 363	236	- 407	262

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	- 701	- 50	- 700	- 12	- 780	- 3	- 890	- 18	- 901	- 59
.4	- 641	+ 27	- 719	+ 24	- 776	+ 20	- 865	+ 12	- 872	- 23
.6	- 631	119	- 698	78	- 752	146	- 851	125	- 874	+ 85
.7	- 616	158	- 687	120	- 733	194	- 839	164	- 861	139
.8	- 595	198	- 667	168	- 701	247	- 813	219	- 843	201
.9	- 570	227	- 652	201	- 671	276	- 790	255	- 810	252
1.0	- 537	249	- 633	228	- 628	312	- 759	298	- 791	283
1.1	- 513	271	- 606	256	- 582	341	- 718	336	- 752	327
1.2	- 481	294	- 580	281	- 551	364	- 695	357	- 724	356

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1001	- 56	-1102	-129	-1102	-119	-1185	-189	-1192	- 89
.4	- 977	- 8	-1005	- 14	-1053	- 39	-1075	- 37	-1136	- 23
.6	- 968	+123	- 998	+105	-1033	+122	-1074	+ 99	-1124	+148
.7	- 957	167	- 977	193	-1016	184	-1058	175	-1105	210
.8	- 916	260	- 954	242	- 996	243	-1034	238	-1065	290
.9	- 893	301	- 913	313	- 965	291	-1004	296	-1027	349
1.0	- 856	338	- 880	355	- 932	336	- 970	342	- 982	394
1.1	- 826	374	- 846	386	- 901	375	- 910	407	- 922	463
1.2	- 788	405	- 788	427	- 864	411	- 868	441	- 870	489

Net No. 8X — 19 CMB-B135

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3	- 390	- 2	- 552	- 26	- 711	- 46	- 912	-108	-1012	- 23
.4	- 390	+ 6	- 545	- 11	- 709	- 27	- 864	- 21	-1013	0
.6	- 388	42	- 547	+ 40	- 713	+ 40	- 865	+ 66	-1004	126
.7	- 385	61	- 545	66	- 711	71	- 857	110	- 985	166
.8	- 383	76	- 539	95	- 700	113	- 850	150	- 962	242
.9	- 378	95	- 533	119	- 693	140	- 836	189	- 940	288
1.0	- 371	109	- 520	140	- 683	164	- 818	226	- 907	329
1.1	- 366	120	- 514	159	- 663	199	- 799	262	- 925	308
1.2	- 356	138	- 500	180	- 650	223	- 783	299	- 838	398

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1175	- 90	-1303	- 61	-1400	- 37	-1561	- 77	-1601	- 84
.4	-1180	- 14	-1307	- 31	-1390	- 18	-1544	- 50	-1592	- 65
.6	-1174	+ 97	-1298	+114	-1376	+131	-1544	+ 79	-1591	+ 63
.7	-1167	138	-1288	166	-1364	200	-1535	163	-1583	141
.8	-1149	211	-1257	252	-1336	281	-1496	277	-1563	230
.9	-1133	252	-1241	298	-1304	347	-1474	335	-1533	308
1.0	-1095	318	-1192	375	-1264	397	-1450	384	-1486	407
1.1	-1055	379	-1163	416	-1228	453	-1411	443	-1458	449
1.2	-1028	402	-1129	451	-1171	501	-1370	502	-1412	505

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1803	-163	-1803	-132	-2003	-175				
.4	-1768	-114	-1806	-119	-1952	-127				
.6	-1766	+ 72	-1813	+ 72	-1962	+ 71				
.7	-1755	164	-1802	166	-1948	167				
.8	-1730	260	-1775	268	-1919	281				
.9	-1697	343	-1743	354	-1893	367				
1.0	-1666	424	-1706	435	-1854	454				
1.1	-1622	502	-1663	509	-1816	534				
1.2	-1568	563	-1609	580	-1746	615				

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (9X AND 10X)
(USING STRAPPING CHARTS)

Net No. 9X — 19 DNB-B135

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3	-450	-10	-640	0	-810	-31	-991	-46	-1156	-29
.4	-438	+7	-630	10	-795	0	-971	-24	-1150	-9
.6	-434	37	-623	85	-792	72	-973	+54	-1142	+107
.7	-433	48	-616	126	-782	123	-970	84	-1136	142
.8	-430	75	-603	145	-770	157	-956	135	-1114	215
.9	-426	94	-586	181	-753	204	-951	159	-1103	249
1.0	-420	108	-562	213	-734	230	-932	209	-1088	281
1.1	-415	121	-549	228	-714	258	-911	256	-1054	346
1.2	-401	136	-544	254	-664	314	-898	277	-1021	367

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1302	-84	-1542	-114	-1511	-78	-1703	-173	-1809	-178
.4	-1294	-42	-1455	+52	-1534	-70	-1691	-116	-1807	-147
.6	-1279	+117	-1422	241	-1532	+51	-1699	+26	-1830	+6
.7	-1254	209	-1403	297	-1528	144	-1696	100	-1826	85
.8	-1241	253	-1384	351	-1511	218	-1680	177	-1816	149
.9	-1220	293	-1320	448	-1486	279	-1654	280	-1803	230
1.0	-1179	370	-1288	487	-1457	339	-1626	355	-1782	309
1.1	-1151	408	-1207	563	-1422	412	-1590	424	-1752	381
1.2	-1124	444	-1165	595	-1381	458	-1553	471	-1710	452

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-2002	-119								
.4	-1940	-119								
.6	-1945	+58								
.7	-1938	142								
.8	-1919	241								
.9	-1898	321								
1.0	-1864	397								
1.1	-1827	467								
1.2	-1774	563								

Net No. 10X — 19 CNB-D135

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3	-322	-13	-570	-6	-610	-9	-780	-5	-831	-30
.4	-320	+6	-453	0	-604	0	-759	-8	-823	-31
.6	-324	38	-454	35	-598	81	-756	+79	-829	+83
.7	-322	57	-450	67	-588	118	-745	124	-821	123
.8	-319	74	-446	92	-566	162	-728	168	-798	195
.9	-317	81	-438	110	-546	193	-707	209	-779	229
1.0	-305	104	-422	135	-525	219	-681	245	-734	285
1.1	-295	117	-410	154	-499	242	-648	277	-708	305
1.2	-284	127	-398	177	-473	264	-617	302	-688	335

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-950	-28	-1100	-8	-1211	-80	-1302	-94	-1404	-150
.4	-952	0	-1077	-22	-1199	-50	-1285	-66	-1393	-100
.6	-931	145	-1071	+110	-1195	+112	-1282	+101	-1399	+86
.7	-914	193	-1043	208	-1180	185	-1264	193	-1380	186
.8	-869	278	-1013	272	-1145	277	-1241	264	-1353	267
.9	-840	318	-983	322	-1109	343	-1199	335	-1326	335
1.0	-779	379	-945	368	-1065	403	-1157	409	-1277	408
1.1	-745	403	-904	408	-1016	448	-1098	471	-1214	478
1.2	-698	429	-838	455	-964	496	-1035	520	-1144	547

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1504	-157	-1602	-113	-1686	-201	-1706	-160	-1700	-6
.4	-1446	-116	-1572	-24	-1623	-91	-1700	+10	-1720	-2
.6	-1455	+113	-1552	+199	-1627	+143	-1682	189	-1711	+118
.7	-1441	171	-1507	333	-1602	230	-1640	333	-1680	232
.8	-1415	266	-1445	450	-1563	342	-1599	419	-1632	368
.9	-1380	343	-1396	496	-1510	442	-1538	513	-1593	424
1.0	-1331	425	-1351	548	-1459	519	-1465	598	-1524	524
1.1	-1278	494	-1261	627	-1381	597	-1357	702	-1476	578
1.2	-1202	563	-1179	697	-1293	678	-1298	727	-1411	654

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (11X AND 12X)
(USING STRAPPING CHARTS)

Net No.	Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
11X 19 DMB-H135	.3	- 370	0	- 552	- 13	- 700	- 23	- 800	- 13	-1012	- 87
	.4	- 355	2	- 541	+ 14	- 705	- 3	- 802	- 3	- 971	- 23
	.6	- 356	30	- 537	79	- 701	+ 95	- 797	+ 82	- 962	+ 92
	.7	- 353	44	- 526	109	- 690	124	- 786	134	- 958	149
	.8	- 353	61	- 511	145	- 673	165	- 768	182	- 938	192
	.9	- 348	76	- 495	169	- 658	196	- 747	212	- 916	235
	1.0	- 343	92	- 479	188	- 634	227	- 722	255	- 895	278
	1.1	- 335	105	- 461	213	- 612	255	- 693	286	- 865	316
	1.2	- 329	121	- 440	231	- 588	279	- 673	314	- 831	353

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1102	- 83	-1203	-104	-1324	-125	-1422	- 90	-1516	-174
.4	-1060	- 12	-1188	- 53	-1318	- 73	-1402	- 52	-1530	-137
.6	-1051	+118	-1191	+ 77	-1314	+110	-1394	+133	-1541	+ 32
.7	-1038	177	-1187	115	-1303	167	-1380	185	-1531	131
.8	-1015	236	-1167	194	-1286	238	-1361	246	-1513	207
.9	- 987	291	-1140	269	-1254	309	-1337	327	-1477	307
1.0	- 953	340	-1122	308	-1218	374	-1297	389	-1449	371
1.1	- 918	382	-1079	370	-1175	428	-1260	448	-1410	430
1.2	- 874	418	-1054	398	-1118	489	-1190	519	-1358	504

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1683	-151	-		-1807	-193	-1907	-202	-2000	- 24
.4	-1601	- 92	-1703	-127	-1788	-110	-1873	- 82	-1945	- 58
.6	-1604	+ 59	-1699	+134	-1792	+120	-1877	+134	-1938	+165
.7	-1598	153	-1682	215	-1777	194	-1846	246	-1910	280
.8	-1565	273	-1628	372	-1732	349	-1791	410	-1855	402
.9	-1540	339	-1593	445	-1695	423	-1750	490	-1814	504
1.0	-1515	399	-1549	509	-1643	519	-1704	556	-1764	582
1.1	-1476	464	-1503	562	-1581	598	-1635	632	-1711	654
1.2	-1430	517	-1453	618	-1516	654	-1571	701	-1628	715

Net No.	Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
12X 19 CMB-H135	.3			- 416	- 3	- 531	- 34	- 635	- 60	- 790	- 34
	.4			- 416	+ 10	- 530	0	- 637	- 25	- 755	+ 9
	.6			- 403	94	- 517	97	- 639	+ 90	- 741	136
	.7			- 389	124	- 498	143	- 627	129	- 716	192
	.8			- 371	146	- 477	177	- 604	177	- 682	240
	.9			- 349	170	- 446	211	- 580	212	- 646	281
	1.0			- 324	187	- 420	231	- 565	229	- 611	315
	1.1			- 298	202	- 389	248	- 508	267	- 567	339
	1.2			-		- 369	259	- 485	292	- 525	358

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	- 901	- 59	-1003	-122	-1093	- 91	-1100	- 27	-1280	- 20
.4	- 873	+ 30	- 966	- 38	-1076	- 30	-1113	- 48	-1221	- 41
.6	- 840	145	- 944	+112	-1063	+132	-1110	+134	-1204	+122
.7	- 820	203	- 926	181	-1017	252	-1081	221	-1182	208
.8	- 790	255	- 902	227	- 989	307	-1049	280	-1135	304
.9	- 755	297	- 863	289	- 953	352	- 972	384	-1092	369
1.0	- 717	337	- 828	345	- 875	431	- 924	422	-1049	425
1.1	- 681	367	- 773	386	- 837	465	- 894	470	- 996	478
1.2	- 637	389	- 737	413	- 793	485	- 804	528	- 936	510

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1303	-181	-1402	- 91	-1507	-188	-1526	-173	-1605	-183
.4	-1301	- 53	-1395	- 12	-1460	-105	-1518	- 76	-1544	- 64
.6	-1275	+130	-1350	+241	-1461	+122	-1512	+192	-1536	+186
.7	-1246	225	-1303	355	-1434	227	-1471	303	-1496	291
.8	-1211	305	-1244	435	-1346	408	-1385	451	-1447	396
.9	-1162	382	-1146	535	-1282	498	-1313	537	-1370	489
1.0	-1109	442	-1076	592	-1208	566	-1228	615	-1305	578
1.1	-1058	500	-1009	631	-1126	627	-1148	670	-1210	639
1.2	- 997	543	- 932	659	-1048	675	-1062	704	-1109	705

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (13X AND 14X)
(USING STRAPPING CHARTS)

Net No.	Sec.	1.0db GAIN R	1.0db GAIN X	1.5db GAIN R	1.5db GAIN X	2.0db GAIN R	2.0db GAIN X	2.5db GAIN R	2.5db GAIN X	3.0db GAIN R	3.0db GAIN X
13X	.3	- 341	- 54	- 462	- 15	- 626	- 58	- 790	26	- 813	- 83
19 DNB-H135	.4	- 321	- 34	- 458	+ 8	- 612	- 10	- 736	56	- 822	- 40
	.6	- 309	+ 13	- 448	72	- 612	+ 72	- 706	170	- 822	+ 61
	.7	- 309	32	- 443	109	- 604	115	- 677	220	- 818	96
	.8	- 310	47	- 427	136	- 587	153	- 648	261	- 804	152
	.9	- 308	62	- 412	161	- 572	182	- 613	300	- 791	187
	1.0	- 303	78	- 393	185	- 551	215	- 579	323	- 767	233
	1.1	- 294	92	- 375	201	- 524	240	- 538	348	- 737	275
	1.2	- 290	103	- 350	213	- 497	260	- 497	359	- 714	296

Sec.	3.5db GAIN R	3.5db GAIN X	4.0db GAIN R	4.0db GAIN X	4.5db GAIN R	4.5db GAIN X	5.0db GAIN R	5.0db GAIN X	5.5db GAIN R	5.5db GAIN X
.3	-1002	-105	-1102	- 98	-1215	-177	-1308	-216	-1462	-352
.4	- 953	- 73	-1063	- 55	-1170	- 81	-1254	- 65	-1313	- 83
.6	- 925	+ 84	-1072	+ 74	-1154	+ 88	-1219	+137	-1322	+120
.7	- 915	133	-1057	140	-1142	152	-1202	213	-1305	202
.8	- 900	176	-1029	236	-1122	216	-1165	300	-1279	278
.9	- 875	236	- 998	287	-1086	296	-1119	367	-1233	365
1.0	- 848	278	- 967	339	-1046	354	-1076	424	-1182	438
1.1	- 823	310	- 925	382	-1005	409	-1030	478	-1118	497
1.2	- 779	353	- 882	420	- 963	450	- 973	512	-1053	548

Sec.	6.0db GAIN R	6.0db GAIN X	6.5db GAIN R	6.5db GAIN X	7.0db GAIN R	7.0db GAIN X	7.5db GAIN R	7.5db GAIN X	8.0db GAIN R	8.0db GAIN X
.3	-1487	-220	-1628	-243	-1590	-253	-1652	-110	-1793	-142
.4	-1456	-135	-1509	+ 37	-1569	-176	-1651	-150	-1725	-112
.6	-1428	+ 68	-1488	205	-1576	+ 47	-1647	+101	-1735	+121
.7	-1416	168	-1457	323	-1570	144	-1626	201	-1703	271
.8	-1396	240	-1403	409	-1537	249	-1585	315	-1674	342
.9	-1359	335	-1341	494	-1515	319	-1553	388	-1625	437
1.0	-1323	394	-1261	572	-1476	410	-1494	493	-1564	539
1.1	-1299	446	-1261	572	-1412	488	-1429	561	-1511	600
1.2	-1232	520	-1186	639	-1403	514	-1411	582	-1424	680

Net No.	Sec.	1.0db GAIN R	1.0db GAIN X	1.5db GAIN R	1.5db GAIN X	2.0db GAIN R	2.0db GAIN X	2.5db GAIN R	2.5db GAIN X	3.0db GAIN R	3.0db GAIN X
14X	.3	- 510	- 6	- 701	- 49	- 921	- 47	-1129	-126	-1412	-220
19 DNB-B175	.4	- 490	0	- 693	- 42	- 920	0	-1114	- 74	-1332	- 18
	.6	- 485	37	- 703	+ 22	- 915	107	-1123	+ 90	-1323	+154
	.7	- 486	56	- 695	54	- 903	156	-1117	126	-1315	208
	.8	- 483	82	- 696	99	- 873	221	-1100	193	-1303	252
	.9	- 477	100	- 689	125	- 849	265	-1091	225	-1266	342
	1.0	- 469	117	- 681	152	- 827	302	-1060	290	-1237	390
	1.1	- 463	131	- 663	187	- 783	350	-1045	320	-1191	458
	1.2	- 448	154	- 646	206	- 750	378	-1012	375	-1160	494

Sec.	3.5db GAIN R	3.5db GAIN X	4.0db GAIN R	4.0db GAIN X	4.5db GAIN R	4.5db GAIN X	5.0db GAIN R	5.0db GAIN X	5.5db GAIN R	5.5db GAIN X
.3	-1502	- 79	-1603	- 98	-1807	-188	-2009	-244	-2088	-296
.4	-1504	0	-1591	+ 22	-1781	-116	-1944	-102	-2065	-208
.6	-1496	126	-1573	174	-1784	+116	-1945	+136	-2080	+ 15
.7	-1496	126	-1573	174	-1750	259	-1923	245	-2075	140
.8	-1464	258	-1532	309	-1723	342	-1890	354	-2052	243
.9	-1411	370	-1532	309	-1686	433	-1850	455	-2020	368
1.0	-1411	370	-1480	435	-1624	518	-1805	550	-1985	455
1.1	-1344	473	-1480	435	-1566	609	-1738	624	-1928	556
1.2	-1344	473	-1390	547	-1504	668	-1675	699	-1868	655

Sec.	6.0db GAIN R	6.0db GAIN X	6.5db GAIN R	6.5db GAIN X	7.0db GAIN R	7.0db GAIN X	7.5db GAIN R	7.5db GAIN X	8.0db GAIN R	8.0db GAIN X
.3	-2218	-257								
.4	-2209	-177								
.6	-2226	+ 58								
.7	-2216	192								
.8	-2196	290								
.9	-2167	408								
1.0	-2115	511								
1.1	-2059	607								
1.2	-1991	706								

TABLE 2
NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS (15X AND 16X)
(USING STRAPPING CHARTS)

Net No. 15X — 19 DNB-D175

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3	-420	-31	-611	-35	-821	-52	-993	-105	-1101	-84
.4	-403	+7	-590	+4	-771	+57	-945	+37	-1071	-27
.6	-401	68	-593	83	-752	172	-926	165	-1068	+107
.7	-395	94	-581	122	-728	213	-905	210	-1052	173
.8	-375	129	-562	165	-693	265	-871	276	-1030	235
.9	-368	144	-546	197	-651	307	-829	331	-1004	290
1.0	-354	162	-525	224	-615	336	-799	361	-971	340
1.1	-336	176	-499	246	-572	364	-753	403	-930	385
1.2	-314	191	-475	268	-540	373	-714	419	-887	424

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1271	-60	-1386	-183	-1505	-166	-1626	-166	-1745	-129
.4	-1235	+41	-1358	-102	-1483	-38	-1612	-78	-1743	-41
.6	-1205	217	-1365	+65	-1460	+212	-1605	+146	-1740	+150
.7	-1171	295	-1349	173	-1429	301	-1564	279	-1697	330
.8	-1131	371	-1317	272	-1375	416	-1537	365	-1661	404
.9	-1084	432	-1268	371	-1343	457	-1486	459	-1624	481
1.0	-1033	487	-1243	411	-1270	540	-1412	547	-1532	599
1.1	-973	527	-1179	484	-1192	605	-1324	638	-1476	659
1.2	-911	558	-1144	518	-1107	663	-1265	669	-1406	708

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1911	-321	-1922	-320	-2055	-136	-2118	-236	-2286	-296
.4	-1864	-143	-1933	-168	-2060	-106	-2089	-74	-2213	-104
.6	-1845	+110	-1922	+129	-1959	+235	-2081	+198	-2198	+196
.7	-1816	262	-1897	261	-1990	370	-2041	337	-2161	357
.8	-1783	350	-1859	377	-1938	485	-1955	530	-2062	571
.9	-1740	450	-1790	519	-1866	608	-1891	635	-1970	683
1.0	-1681	541	-1732	603	-1787	701	-1832	704	-1922	767
1.1	-1602	642	-1657	703	-1678	805	-1781	765	-1817	862
1.2	-1554	700	-1571	774	-1594	875	-1653	878	-1714	920

Net No. 16X — 19 DNB-H175

Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
.3	-363	-82	-521	-38	-688	-64	-824	-89	-983	-132
.4	-343	-15	-511	-23	-689	-7	-825	-6	-977	-87
.6	-352	+34	-517	+52	-673	+126	-809	+129	-941	+107
.7	-348	57	-511	91	-651	184	-791	187	-920	178
.8	-342	75	-501	116	-624	228	-753	247	-904	229
.9	-339	91	-483	156	-588	266	-709	300	-865	286
1.0	-326	113	-471	178	-535	309	-676	336	-822	342
1.1	-313	126	-451	201	-496	325	-624	369	-773	385
1.2	-303	138	-424	218	-451	348	-588	391	-722	416

Sec.	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-1101	-66	-1303	-118	-1398	-110	-1502	-92	-1604	-156
.4	-1080	-15	-1253	0	-1390	+21	-1492	+79	-1570	-52
.6	-1049	+189	-1231	184	-1337	260	-1440	187	-1528	+216
.7	-1009	280	-1180	315	-1262	399	-1401	306	-1499	298
.8	-972	328	-1140	386	-1202	477	-1371	363	-1447	408
.9	-918	395	-1053	477	-1137	539	-1313	461	-1389	497
1.0	-850	440	-994	520	-1028	608	-1244	544	-1273	606
1.1	-792	486	-939	556	-954	639	-1146	615	-1175	667
1.2	-727	516	-841	600	-896	671	-1076	648	-1175	667

Sec.	6.0db GAIN R	X	6.5db GAIN R	X	7.0db GAIN R	X	7.5db GAIN R	X	8.0db GAIN R	X
.3	-1664	-168	-1705	-171	-1908	-298	-1903	-178	-2010	-218
.4	-1625	-102	-1701	+42	-1813	-79	-1891	-48	-2002	-31
.6	-1586	+188	-1657	259	-1805	220	-1856	+226	-1943	+357
.7	-1559	297	-1619	365	-1774	311	-1831	325	-1889	464
.8	-1515	400	-1541	467	-1695	479	-1750	480	-1780	631
.9	-1441	503	-1465	574	-1645	547	-1690	560	-1701	714
1.0	-1400	559	-1332	692	-1536	676	-1619	660	-1617	758
1.1	-1305	636	-1332	692	-1390	767	-1522	751	-1546	828
1.2	-1185	709	-1216	757	-1365	798	-1409	807	-1365	903

TABLE 2

NEGATIVE IMPEDANCE AT 1 KC FOR OTHER SECTIONS
(USING STRAPPING CHART 17X)

Net No. 17X	End Sec.	1.0db GAIN R	X	1.5db GAIN R	X	2.0db GAIN R	X	2.5db GAIN R	X	3.0db GAIN R	X
19 CNB-H44	.3							-320	+ 29	-429	+ 9
	.4							-363	+ 12	-428	+ 38
	.5							-362	+ 12	-428	+ 38
	.6							-374	+ 52	-427	+ 68
	.7							-371	+ 58	-421	+ 85
	.8							-365	+ 71	-414	+104
	.9							-361	+ 91	-404	+122
	1.0							-354	+106	-392	+137
	1.1							-347	+121	-383	+155
	1.2							-340	+131	-370	+168

	3.5db GAIN R	X	4.0db GAIN R	X	4.5db GAIN R	X	5.0db GAIN R	X	5.5db GAIN R	X
.3	-420	0	-530	0	-550	0	-971	+ 36	-650	0
.4	-492	+ 11	-522	0	-582	0	-755	+ 39	-678	- 11
.5	-486	+ 30	-523	+ 14	-582	+ 29	-624	+ 20	-686	0
.6	-474	+ 8	-524	+ 34	-580	+ 51	-620	+ 40	-680	+ 34
.7	-472	+ 74	-518	+ 63	-580	+ 76	-626	+ 73	-675	+ 69
.8	-469	+ 84	-519	+ 75	-572	+102	-614	+ 75	-668	+ 95
.9	-469	+120	-520	+ 91	-565	+120	-614	+111	-652	+127
1.0	-453	+115	-506	+119	-551	+144	-595	+151	-653	+155
1.1	-445	+136	-500	+133	-546	+159	-586	+176	-644	+182
1.2	-450	+172	-494	+149	-529	+190	-574	+194	-631	+196

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 1X
FOR 3 db GAIN AND VARIOUS END SECTIONS
19CNB)
22BSA) B88
24DSM)

	.3 END SECTION		.4 END SECTION		.5 END SECTION		.6 END SECTION		.7 END SECTION	
	Measured		Measured		Measured		Measured		Measured	
F	R	X	R	X	R	X	R	X	R	X
200	-799	-j361	-793	-j332	-793	-j331	-799	-j332	-797	-j319
300	-820	-j226	-822	-j205	-819	-j201	-819	-j187	-826	-j180
500	-831	-j98	-831	-j98	-832	-j89	-834	-j70	-838	-j59
1000	-849	+j0	-849	+j0	-844	+j16	-842	+j62	-840	+j82
1500	-850	+j22	-854	+j59	-863	+j85	-851	+j149	-839	+j178
2000	-890	+j32	-888	+j101	-888	+j141	-861	+j231	-844	+j269
2500	-902	+j63	-935	+j146	-926	+j197	-882	+j318	-862	+j369
2800	-990	+j21	-982	+j159	-965	+j234	-907	+j378	-861	+j433
3000	-1000	+j31	-1020	+j174	-1000	+j261	-923	+j416	-873	+j485
3500	-1111	+j42	-1151	+j233	-1117	+j358	-970	+j570	-884	+j647
3800	-1253	+j73	-1278	+j288	-1219	+j461	-1005	+j703	-872	+j773
*3900	-1300	+j78	-1328	+j316	-1263	+j496	-1007	+j764	-865	+j830
4000	-1356	+j108	-1401	+j352	-1300	+j555	-1014	+j840	-843	+j891
4500	-1862	+j219	-1836	+j773	-1509	+j1083	-855	+j1243	-640	+j1173
4900	-3020	+j125	-1876	+j1826	-1176	+j1826	-461	+j1419	-328	+j1245
5000	-3619	+j172	-1572	+j2157	-907	+j1944	-309	+j1436	-211	+j1257
5200	-4634	+j1679	-863	+j2459	-481	+j1951	-153	+j1340	-89	+j1151
5400	-3180	+j4481	-306	+j2286	-123	+j1783	-23	+j1227	-11	+j1071

	.8 END SECTION		.9 END SECTION		FULL SECTION		1.1 END SECTION		1.2 END SECTION	
	Measured		Measured		Measured		Measured		Measured	
F	R	X	R	X	R	X	R	X	R	X
200	-796	-j309	-807	-j304	-805	-j296	-808	-j291	-817	-j289
300	-830	-j170	-832	-j157	-832	-j151	-832	-j141	-866	-j201
500	-835	-j38	-835	-j12	-836	-j3	-832	+j12	-832	+j25
1000	-830	+j123	-820	+j180	-813	+j181	-793	+j214	-791	+j231
1500	-819	+j240	-788	+j291	-771	+j316	-726	+j357	-716	+j371
2000	-801	+j341	-739	+j403	-715	+j423	-655	+j466	-628	+j480
2500	-777	+j453	-691	+j509	-653	+j528	-571	+j557	-530	+j562
2800	-763	+j521	-654	+j571	-606	+j594	-512	+j598	-475	+j598
3000	-754	+j571	-633	+j619	-571	+j629	-471	+j625	-438	+j617
3500	-701	+j713	-543	+j730	-493	+j707	-376	+j682	-339	+j685
3800	-646	+j821	-477	+j803	-422	+j778				
*3900	-648	+j834	-450	+j804	-409	+j764	-270	+j726	-237	+j699
4000	-590	+j904	-436	+j819	-349	+j802	-251	+j734	-229	+j705
4500	-382	+j1010	-234	+j870	-197	+j827	-122	+j727	-104	+j698
4900	-166	+j1016	-94	+j852	-68	+j807	-69	+j680	-60	+j645
5000	-105	+j1010	-67	+j823	-39	+j783	-31	+j675	-40	+j630
5200	-43	+j954	-26	+j780						
5400	+14	+j882	0	+j741	+12	+j700	+24	+j637	+17	+j607

* .8 of cut-off frequency of facility

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 2X
FOR 3 db GAIN AND VARIOUS END SECTIONS
19DNB)
24CSM) B88

F	.3 END SECTION Measured R	X	.4 END SECTION Measured R	X	.5 END SECTION Measured R	X	.6 END SECTION Measured R	X	.7 END SECTION Measured R	X
200	-869	-j416	-880	-j381	-887	-j369	-897	-j362	-891	-j368
300	-921	-j266	-910	-j230	-923	-j219	-921	-j203	-918	-j202
500	-909	-j118	-923	-j101	-931	-j88	-928	-j57	-927	-j48
1000	-951	-j58	-929	+j19	-932	+j50	-927	+j105	-914	+j124
1500	-950	+j0	-929	+j96	-931	+j132	-911	+j206	-891	+j237
2000	-950	+j29	-935	+j141	-930	+j195	-898	+j292	-868	+j332
2400	-990	+j28	-953	+j170	-941	+j236	-889	+j352	-852	+j400
2800	-991	+j56	-984	+j195	-966	+j274	-900	+j413	-848	+j467
3000	-1002	+j84	-1005	+j206	-988	+j291	-915	+j447	-846	+j497
3500	-1092	+j79	-1098	+j228	-1077	+j350	-951	+j546	-861	+j612
4000	-1214	+j104	-1288	+j270	-1237	+j460	-1019	+j728	-867	+j804
4200	-1308	+j157	-1404	+j313	-1333	+j544	-1032	+j834	-864	+j899
*4300	-1404	+j196	-1477	+j341	-1393	+j606	-1038	+j913	-844	+j957
4500	-1527	+j272	-1667	+j442	-1506	+j776	-1006	+j1060	-793	+j1088
5000	-2330	+j492	-2140	+j1343	-1463	+j1632	-670	+j1383	-495	+j1289
5400	-4101	+j38	-1505	+j2402	-690	+j2014	-309	+j1405	-222	+j1262
5500	-4705	+j495	-1157	+j2525	-512	+j1982	-241	+j1355	-189	+j1234
5600	-5229	+j1507	-910	+j2544	-327	+j1943	-183	+j1308	-105	+j1195
6000	-1722	+j4979	-345	+j2352	+13	+j1594	-39	+j1155	-5	+j1086
6100	-960	+j4528	-49	+j2057	+54	+j1527	-17	+j1115	+23	+j1052

F	.8 END SECTION Measured R	X	.9 END SECTION Measured R	X	FULL SECTION Measured R	X	1.1 END SECTION Measured R	X	1.2 END SECTION Measured R	X
200	-898	-j354	-901	-j343	-905	-j340	-914	-j335	-910	-j328
300	-924	-j190	-930	-j175	-929	-j170	-932	-j155	-932	-j146
500	-932	-j83	-930	-j9	-930	+j5	-929	+j28	-923	+j39
1000	-914	+j149	-896	+j193	-887	+j215	-869	+j259	-846	+j278
1500	-878	+j270	-839	+j331	-823	+j358	-779	+j406	-754	+j431
2000	-844	+j368	-782	+j433	-748	+j468	-691	+j509	-652	+j520
2400	-822	+j443	-737	+j505	-696	+j531	-616	+j563	-573	+j574
2800	-803	+j508	-701	+j574	-653	+j597	-554	+j619	-509	+j622
3000	-796	+j547	-680	+j608	-626	+j627	-529	+j644	-477	+j639
3500	-787	+j661	-627	+j707	-563	+j707	-478	+j692	-402	+j682
4000	-755	+j837	-567	+j825	-485	+j823	-374	+j757	-319	+j739
4200	-724	+j902	-526	+j869	-451	+j832				
*4300	-684	+j971	-465	+j923	-400	+j888	-308	+j803	-260	+j761
4500	-618	+j1050	-416	+j935	-367	+j878	-252	+j815	-207	+j776
5000	-365	+j1149	-210	+j990	-192	+j898	-146	+j794	-120	+j742
5400	-158	+j1079								
5500	-132	+j1068	-96	+j894	-75	+j833	-54	+j750	-57	+j700
5600										
6000	-18	+j923	-23	+j794						
6100	-10	+j913	-23	+j794	-15	+j746	-5	+j690	-15	+j646

* .8 of cut-off frequency of facility

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 5X
FOR 2 db GAIN AND VARIOUS END SECTIONS
19CNB)
22BSA) H88
24DSM)

F	.3 END SECTION Measured R	X	.4 END SECTION Measured R	X	.5 END SECTION Measured R	X	.6 END SECTION Measured R	X	.7 END SECTION Measured R	X
200	-390	-j136	-380	-j138	-385	-j127	-383	-j128	-383	-j128
300	-403	-j77	-387	-j86	-386	-j80	-387	-j66	-387	-j66
500	-400	-j0	-394	-j40	-401	-j21	-400	-j3	-400	-j3
1000	-400	-j0	-410	+j0	-411	+j25	-406	+j63	-406	+j63
1500	-410	-j0	-431	+j21	-437	+j66	-414	+j136	-414	+j136
2000	-460	-j0	-473	+j39	-477	+j100	-431	+j209	-431	+j209
2400	-500	+j17	-527	+j43	-538	+j135	-443	+j286	-443	+j286
2600	-550	+j25	-573	+j41			-447	+j335	-447	+j335
*2800	-582	+j64	-641	+j38	-657	+j206	-445	+j410	-445	+j410
3000	-655	+j116	-749	+j41	-753	+j291	-418	+j494	-418	+j494
3200	-785	+j203	-938	+j66	-836	+j464	-341	+j579	-341	+j579
3400	-1055	+j301	-1250	+j237	-793	+j773	-230	+j631	-230	+j631
3500	-1288	+j346	-1430	+j495	-658	+j940	-162	+j630	-162	+j630
3600	-1655	+j354	-1470	+j922	-446	+j1019	-120	+j610	-120	+j610
3700	-2321	+j80	-1122	+j1362			-76	+j566	-76	+j566
3800	-2880	+j755	-773	+j1543	-158	+j951	-61	+j545	-61	+j545
3900	-2396	+j2208	-375	+j1471	-79	+j889	-43	+j515	-43	+j515
4000	-958	+j2490	-168	+j1286	-35	+j795	-25	+j485	-25	+j485

F	.8 END SECTION Measured R	X	.9 END SECTION Measured R	X	FULL SECTION Measured R	X	1.1 END SECTION Measured R	X	1.2 END SECTION Measured R	X
200	-384	-j126	-384	-j125	-381	-j117	-381	-j117	-385	-j111
300	-394	-j61	-390	-j55	-392	-j49	-391	-j46	-390	-j33
500	-398	+j0	-395	+j0	-392	+j5	-389	+j16	-387	+j33
1000	-399	+j82	-395	+j102	-381	+j119	-375	+j131	-353	+j155
1500	-399	+j159	-380	+j185	-354	+j205	-340	+j216	-304	+j233
2000	-397	+j238	-360	+j266	-313	+j283	-295	+j294	-238	+j289
2400	-393	+j318	-336	+j338	-261	+j331	-245	+j343	-193	+j330
2600	-380	+j371	-308	+j379	-229	+j355	-216	+j371	-165	+j347
*2800	-360	+j432	-276	+j424	-193	+j382	-186	+j394	-137	+j359
3000	-318	+j489	-231	+j453	-168	+j423	-145	+j403	-105	+j365
3200	-246	+j541	-169	+j478	-125	+j433	-105	+j409	-75	+j361
3400	-160	+j549	-109	+j478	-75	+j429	-65	+j400	-47	+j347
3500	-120	+j551	-77	+j469						
3600	-80	+j529	-57	+j459	-40	+j412	-33	+j385	-27	+j343
3700	-52	+j506	-38	+j446						
3800	-29	+j488	-24	+j424	-14	+j380	-13	+j365	-17	+j333
3900	-12	+j464	-14	+j412						
4000	-6	+j451	-7	+j400	-10	+j367	-7	+j353	-6	+j309

* .8 of cut-off frequency of facility.

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 6X
FOR 2 db GAIN AND VARIOUS END SECTIONS
19DNB) H88
24CSM)

F	.3 END SECTION Measured R	X	.4 END SECTION Measured R	X	.5 END SECTION Measured R	X	.6 END SECTION Measured R	X	.7 END SECTION Measured R	X
200	-406	-j169	-409	-j155	-413	-j151	-411	-j148	-415	-j145
300	-418	-j110	-418	-j103	-423	-j92	-420	-j88	-423	-j81
500	-422	-j54	-426	-j68	-432	-j42	-429	-j30	-431	-j19
1000	-440	-j13	-448	-j7	-449	+j11	-446	+j33	-444	+j57
1500	-465	+j13	-470	+j12	-477	+j48	-475	+j87	-463	+j124
2000	-500	+j18	-523	+j34	-526	+j95	-509	+j155	-483	+j204
2400	-550	+j23	-580	+j55	-583	+j147	-548	+j225	-494	+j292
2800	-626	+j45	-677	+j89	-657	+j229	-576	+j340	-483	+j408
*3000	-684	+j63	-740	+j114	-698	+j233	-585	+j416	-468	+j476
3100	-717	+j72	-780	+j134	-722	+j336	-584	+j465	-448	+j511
3500	-957	+j123	-1017	+j298	-771	+j606	-478	+j664	-319	+j622
3800	-1348	+j114	-1183	+j690	-616	+j875	-328	+j781		
3900	-1595	+j102	-1173	+j912	-553	+j917	-271	+j791	-159	+j656
4000	-1894	+j108	-1049	+j1148	-420	+j946	-193	+j795	-118	+j647
4100	-2209	+j451	-853	+j1289	-303	+j977	-143	+j767		
4300	-2105	+j1897	-383	+j1350	-137	+j863	-63	+j707	-33	+j590
4400	-1455	+j2316	-251	+j1253	-86	+j853	-28	+j672	-18	+j572

F	.8 END SECTION Measured R	X	.9 END SECTION Measured R	X	FULL SECTION Measured R	X	1.1 END SECTION Measured R	X	1.2 END SECTION Measured R	X
200	-418	-j140	-415	-j136	-414	-j135	-417	-j131	-418	-j124
300	-425	-j74	-424	-j71	-421	-j65	-425	-j59	-427	-j51
500	-430	-j6	-430	+j0	-428	-j6	-426	+j18	-425	+j31
1000	-438	+j79	-434	+j96	-425	+j116	-413	+j134	-404	+j150
1500	-447	+j158	-433	+j186	-409	+j208	-385	+j234	-361	+j249
2000	-451	+j249	-410	+j282	-371	+j303	-331	+j320	-304	+j328
2400	-433	+j342	-372	+j365	-322	+j376	-280	+j374	-243	+j364
2800	-391	+j439	-315	+j439						
*3000	-358	+j485	-278	+j477	-221	+j452	-176	+j424	-146	+j395
3100	-333	+j513								
3500	-219	+j565	-157	+j509	-118	+j465	-94	+j424	-81	+j391
3800										
3900	-98	+j557	-68	+j488	-54	+j450	-42	+j406	-43	+j376
4000	-78	+j550			-41	+j437				
4100										
4300	-32	+j511	-21	+j453	-14	+j410	-13	+j381	-21	+j358
4400	-15	+j491								

* .8 of cut-off frequency of facility.

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 8X
FOR 3.5 db GAIN AND VARIOUS END SECTIONS
19CNB)
22BSA) B135

F	.3 END SECTION Measured R	X	.4 END SECTION Measured R	X	.5 END SECTION Measured R	X	.6 END SECTION Measured R	X	.7 END SECTION Measured R	X
200	-1047	-j528	-1053	-j496	-1063	-j490	-1076	-j481	-1075	-j473
300	-1104	-j344	-1101	-j309	-1119	-j307	-1120	-j280	-1119	-j271
500	-1123	-j202	-1131	-j157	-1141	-j144	-1148	-j102	-1143	-j83
1000	-1158	-j118	-1171	-j24	-1171	+j8	-1170	+j98	-1162	+j132
1500	-1213	+j93	-1235	+j47	-1229	+j107	-1200	+j240	-1172	+j303
2000	-1312	+j104	-1341	+j116	-1320	+j214	-1249	+j405	-1191	+j487
2400	-1444	+j120	-1485	+j189	-1439	+j333	-1290	+j583	-1194	+j675
2800	-1660	+j160	-1702	+j330	-1599	+j539	-1301	+j854	-1153	+j917
3000	-1829	+j185	-1859	+j457	-1677	+j709	-1284	+j1018	-1074	+j1079
3100	-1936	+j187	-1934	+j543	-1737	+j808	-1247	+j1111	-1006	+j1156
*3200	-2071	+j191	-2017	+j667	-1765	+j941	-1192	+j1197	-947	+j1227
3500	-2633	+j89	-2192	+j1197	-1712	+j1418	-939	+j1430	-729	+j1342
3800	-3513	+j430	-1912	+j2054	-1321	+j1929	-583	+j1537		
4000	-4137	+j1455	-1361	+j2367	-873	+j2083	-362	+j1486	-233	+j1320
4200	-3845	+j3081	-841	+j2380	-529	+j1992	-171	+j1425		
4400	-2100	+j4157	-398	+j2223	-225	+j1841	-50	+j1299	-55	+j1123

F	.8 END SECTION Measured R	X	.9 END SECTION Measured R	X	FULL SECTION Measured R	X	1.1 END SECTION Measured R	X	1.2 END SECTION Measured R	X
200	-1079	-j459	-1088	-j453	-1100	-j437	-1107	-j418	-1110	-j414
300	-1125	-j248	-1134	-j240	-1136	-j214	-1142	-j189	-1144	-j179
500	-1143	-j41	-1146	-j18	-1142	+j9	-1138	+j56	-1139	+j75
1000	-1133	+j210	-1125	+j248	-1088	+j312	-1051	+j374	-1026	+j404
1500	-1105	+j406	-1077	+j458	-986	+j530	-908	+j586	-861	+j609
2000	-1058	+j611	-998	+j657	-856	+j717	-738	+j736	-696	+j727
2400	-985	+j788	-894	+j816	-733	+j824	-629	+j798	-527	+j809
2800	-858	+j956	-740	+j978	-583	+j892	-429	+j865	-390	+j818
3000	-769	+j1064	-642	+j1044	-474	+j926	-392	+j837	-322	+j812
3100										
*3200	-626	+j1141	-529	+j1083	-363	+j940	-292	+j856	-253	+j803
3500	-454	+j1146	-358	+j1079	-218	+j923	-173	+j828	-162	+j774
3800										
4000	-144	+j1058	-131	+j974	-77	+j827	-79	+j732	-69	+j693
4200										
4400	-32	+j905	-35	+j853	-5	+j742	-38	+j664	-36	+j636

* .8 of cut-off frequency of facility.

TABLE 3
REPEATER IMPEDANCE WITH NETWORK 9X
FOR 3.5 db GAIN AND VARIOUS END SECTIONS
19DNB B135

	.3 END SECTION		.4 END SECTION		.5 END SECTION		.6 END SECTION		.7 END SECTION	
	Measured		Measured		Measured		Measured		Measured	
F	R	X	R	X	R	X	R	X	R	X
200	-1177	-j629	-1173	-j579	-1185	-j560	-1174	-j545	-1200	-j534
300	-1224	-j348	-1233	-j366	-1241	-j334	-1244	-j319	-1255	-j297
500	-1253	-j128	-1264	-j190	-1267	-j136	-1270	-j109	-1273	-j62
1000	-1290	+j0	-1270	-j25	-1273	+j64	-1263	+j111	-1246	+j204
1500	-1300	+j21	-1290	+j6	-1277	+j179	-1254	+j247	-1200	+j375
2000	-1300	+j21	-1341	+j29	-1309	+j259	-1268	+j356	-1151	+j511
2400	-1400	+j40	-1411	+j30	-1381	+j325	-1325	+j438	-1168	+j636
2800	-1503	+j120	-1565	+j14	-1521	+j404	-1439	+j555	-1159	+j806
3000	-1600	+j212	-1680	+j18	-1630	+j479	-1521	+j662	-1202	+j903
3500	-2093	+j601	-2282	+j64	-2024	+j961	-1632	+j1230	-1039	j1352
*3600	-2221	+j684	-2521	+j36	-2099	+j1164	-1595	+j1394	-967	j1456
3800	-2721	+j822			-2084	+j1691				
3920			-3629	+j553						
4000	-3646	+j911	-3925	+j927	-1711	+j2296	-963	+j1982	-514	+j1725
4200	-5016	+j638	-4208	+j2382	-1181	+j2529	-592	+j2036	-337	+j1586
4350	-6638	+j773								
4500	-6884	+j4075	-1850	+j4240	-442	+j2338	-218	+j1895	-182	+j1502
4600	-5256	+j5938	-1145	+j3999	-402	+j2298	-114	+j1725		
4900	-826	+j5234	-185	+j3078	-111	+j1881	-2	+j1485	-47	+j1402
5000	-318	+j4466	-5	+j2809	-79	+j1801	-2	+j1485	-1	+j1267

	.8 END SECTION		.9 END SECTION		FULL SECTION		1.1 END SECTION		1.2 END SECTION	
	Measured		Measured		Measured		Measured		Measured	
F	R	X	R	X	R	X	R	X	R	X
200	-1201	-j524	-1210	-j516	-1218	-j501	-1220	-j493	-1225	-j481
300	-1259	-j282	-1264	-j267	-1271	-j237	-1270	-j225	-1273	-j402
500	-1271	-j39	-1271	-j14	-1263	+j29	-1262	+j59	-1258	+j82
1000	-1224	+j243	-1207	+j286	-1172	+j365	-1134	+j394	-1109	+j431
1500	-1161	+j430	-1121	+j483	-1045	+j568	-984	+j595	-931	+j623
2000	-1105	+j579	-1046	+j633	-907	+j704	-834	+j725	-776	+j743
2400	-1083	+j736	-986	+j754	-832	+j811	-739	+j816	-664	+j817
2800	-1073	+j951	-928	+j887	-742	+j906	-629	+j919	-544	+j856
3000	-1081	+j1050	-889	+j974	-672	+j966	-557	+j936	-481	+j919
3500	-803	+j1362								
*3600	-719	+j1416	-583	+j1258	-377	+j1097	-268	+j984	-251	+j964
3800										
3920										
4000	-389	+j1450	-254	+j1229	-174	+j1028	-114	+j935	-130	+j889
4200	-251	+j1408								
4350										
4500	-109	+j1302	-79	+j1070	-74	+j895	-29	+j824	-23	+j795
4600										
4900	-44	+j1154	-32	+j958	-29	+j824	13	+j751	-1	+j713
5000	-25	+j1104	-16	+j934	-14	+j800				

* .8 of cut-off frequency of facility.