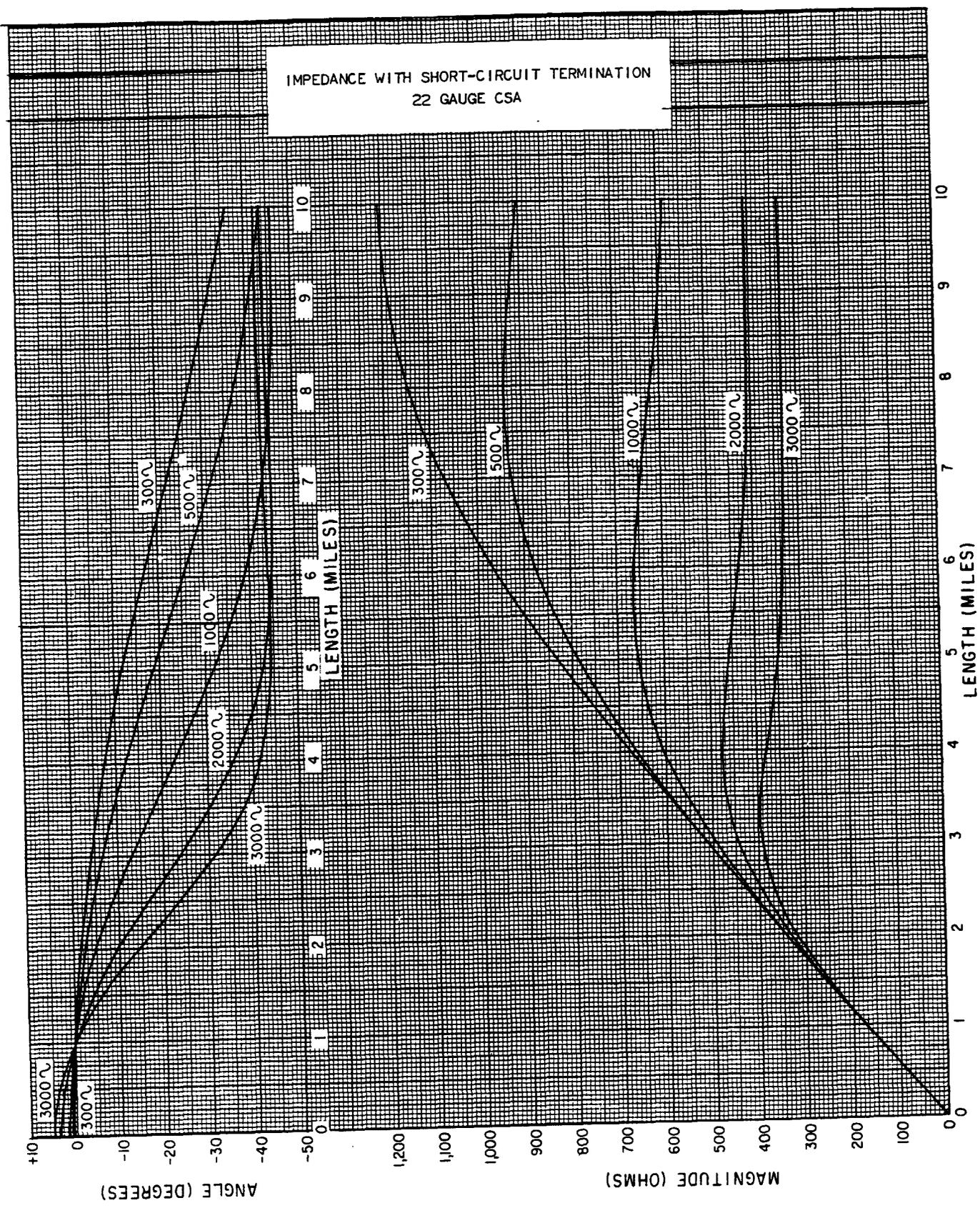
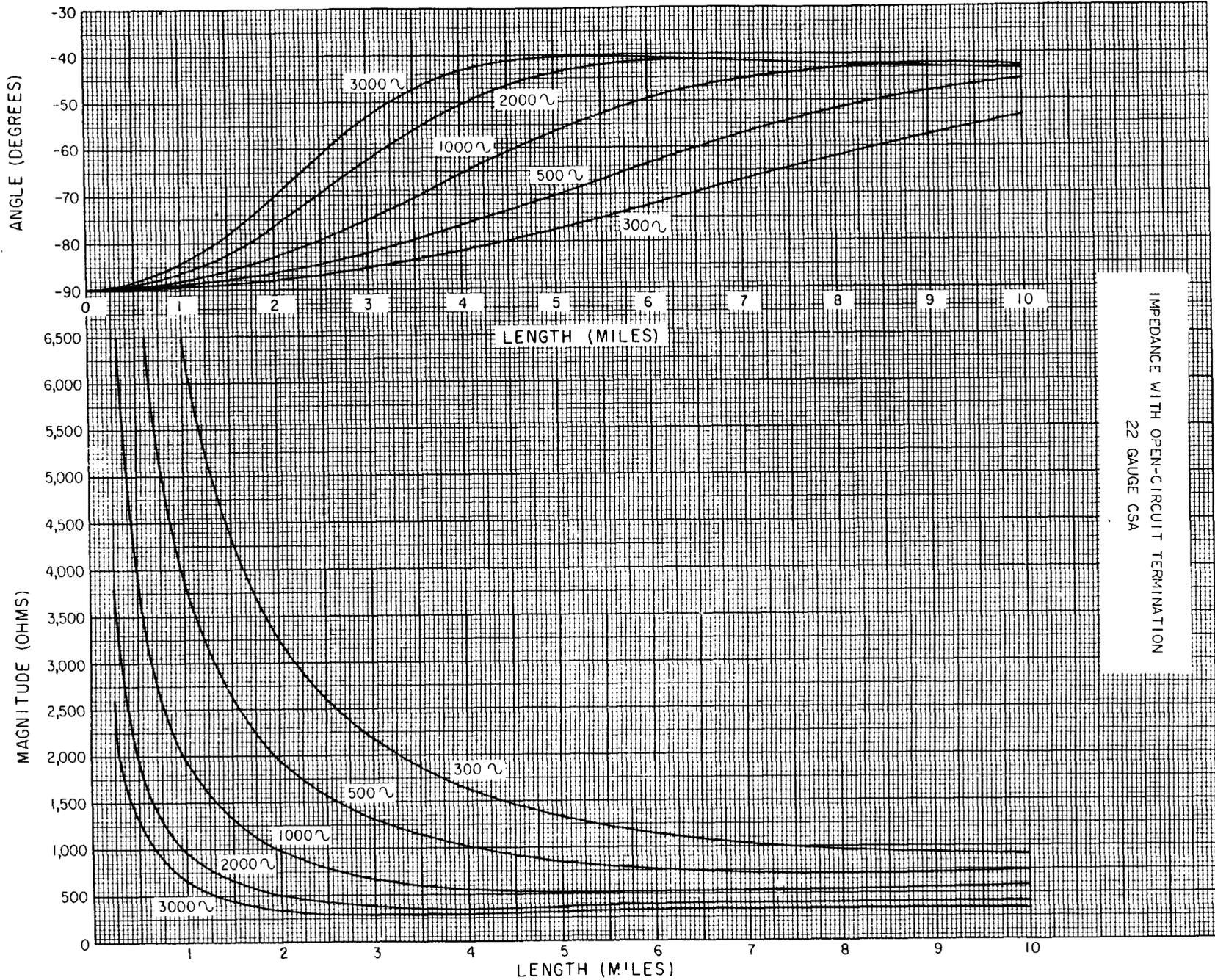


**INPUT IMPEDANCE OF NON-LOADED CABLE
WITH SHORT-CIRCUIT AND OPEN-CIRCUIT TERMINATION
22 GAUGE CSA**

Length miles	Frequency - Cycles per Second				
	300	500	1000	2000	3000
Characteristic Impedance ($Z_0 = \sqrt{Z_{sc} Z_{oc}}$)					
	748 -j 740 1052 / 44.7°	581 -j 571 815 / 44.5°	414 -j 401 576 / 44.1°	297 -j 279 408 / 43.2°	246 -j 225 334 / 42.4°
Impedance with Short-Circuit Termination (Z_{sc})					
1	171 -j 0 171 / 0.1°	171 -j 0 171 / 0.1°	171 +j 0 171 / 0°	172 +j 0 172 / 0°	172 +j 0 172 / 0°
2	342 -j 8 342 / 1.4°	341 -j 15 341 / 2.5°	339 -j 30 340 / 5.0°	330 -j 58 335 / 9.9°	315 -j 82 326 / 14.6°
3	510 -j 36 511 / 4.0°	506 -j 59 509 / 6.6°	480 -j 111 493 / 13.0°	408 -j 180 446 / 23.8°	333 -j 205 391 / 31.7°
4	670 -j 88 676 / 7.5°	647 -j 140 662 / 12.2°	558 -j 233 605 / 22.7°	385 -j 279 475 / 35.9°	281 -j 251 377 / 41.7°
5	813 -j 168 830 / 11.7°	746 -j 254 788 / 18.8°	558 -j 346 657 / 31.8°	336 -j 309 456 / 42.6°	250 -j 245 350 / 44.5°
6	923 -j 277 964 / 16.7°	791 -j 379 877 / 25.6°	516 -j 415 662 / 38.8°	305 -j 305 431 / 45.0°	241 -j 234 336 / 44.1°
7	992 -j 401 1070 / 22.0°	784 -j 488 923 / 31.9°	469 -j 439 642 / 43.1°	293 -j 293 414 / 45.0°	242 -j 226 331 / 43.1°
8	1019 -j 524 1146 / 27.2°	746 -j 564 935 / 37.1°	435 -j 439 618 / 45.2°	291 -j 284 407 / 44.3°	245 -j 224 332 / 42.5°
9	1007 -j 630 1188 / 32.0°	699 -j 606 925 / 40.9°	417 -j 429 598 / 45.8°	293 -j 280 405 / 43.7°	246 -j 224 333 / 42.3°
10	974 -j 710 1205 / 36.1°	655 -j 623 904 / 43.6°	408 -j 418 584 / 45.7°	295 -j 278 406 / 43.3°	247 -j 224 334 / 42.2°
Impedance with Open-Circuit Termination (Z_{oc})					
1	79 -j 6482 6482 / 89.3°	75 -j 3880 3881 / 88.9°	61 -j 1938 1939 / 88.2°	61 -j 967 969 / 86.4°	59 -j 644 647 / 84.8°
2	113 -j 3230 3232 / 88.0°	119 -j 1946 1950 / 86.5°	116 -j 969 976 / 83.2°	116 -j 484 498 / 76.5°	116 -j 323 343 / 70.2°
3	174 -j 2158 2165 / 85.4°	173 -j 1295 1306 / 82.4°	172 -j 651 673 / 75.2°	172 -j 331 373 / 62.6°	171 -j 228 285 / 53.1°
4	231 -j 1620 1636 / 81.9°	229 -j 977 1004 / 76.8°	228 -j 500 549 / 65.5°	223 -j 271 351 / 50.5°	216 -j 202 296 / 43.1°
5	284 -j 1302 1333 / 77.7°	285 -j 793 843 / 70.2°	279 -j 421 505 / 56.4°	263 -j 253 365 / 43.8°	243 -j 206 318 / 40.3°
6	341 -j 1096 1148 / 72.7°	339 -j 677 757 / 63.4°	326 -j 380 501 / 49.4°	290 -j 256 387 / 41.4°	252 -j 216 332 / 40.7°
7	397 -j 955 1034 / 67.4°	391 -j 604 719 / 57.1°	365 -j 366 517 / 45.1°	302 -j 266 402 / 41.4°	252 -j 224 337 / 41.7°
8	451 -j 855 966 / 62.2°	439 -j 560 711 / 51.9°	393 -j 366 537 / 43.0°	303 -j 274 409 / 42.1°	249 -j 226 336 / 42.3°
9	502 -j 784 931 / 57.4°	480 -j 534 718 / 48.1°	410 -j 374 555 / 42.4°	302 -j 279 411 / 42.7°	247 -j 226 335 / 42.5°
10	549 -j 737 919 / 53.3°	516 -j 523 735 / 45.4°	419 -j 384 568 / 42.5°	299 -j 280 410 / 43.1°	246 -j 226 334 / 42.6°





IMPEDANCE WITH OPEN-CIRCUIT TERMINATION
22 GAUGE CSA