TABLE OF HYPERBOLIC FUNCTIONS OF PROPAGATION CONSTANTS

NON-LOADED 19 GAUGE CNB, ENB CABLE AT 1000 CPS

(Propagation Constant, $\gamma$ = .1457 + j .1540 Per Mile)

| Miles ($\ell$) | Sinh $\gamma\ell$ | Cosh $\gamma\ell$ | Tanh $\gamma\ell$ | Coth $\gamma\ell$ |
|---|---|---|---|---|
| 0 | 0 + j 0 | 1 + j 0 | 0 + j 0 | $\infty$ - j $\infty$ |
| 1 | .1445 + j .1559<br>.2125 $\underline{/47.2°}$ | .9987 + j .0224<br>.9989 $\underline{/1.3°}$ | .1481 + j .1527<br>.2127 $\underline{/45.9°}$ | 3.2723 - j3.3747<br>4.7007 $\underline{/45.9°}$ |
| 2 | .2816 + j .3161<br>.4234 $\underline{/48.3°}$ | .9937 + j .0896<br>.9977 $\underline{/5.2°}$ | .3096 + j .2903<br>.4244 $\underline{/43.1°}$ | 1.7192 - j1.6116<br>2.3564 $\underline{/43.1°}$ |
| 3 | .4039 + j .4890<br>.6342 $\underline{/50.5°}$ | .9820 + j .2011<br>1.0024 $\underline{/11.6°}$ | .4925 + j .3972<br>.6327 $\underline{/38.9°}$ | 1.2304 - j .9922<br>1.5806 $\underline{/38.9°}$ |
| 4 | .5031 + j .6787<br>.8448 $\underline{/53.5°}$ | .9588 + j .3561<br>1.0228 $\underline{/20.4°}$ | .6922 + j .4507<br>.8260 $\underline{/33.1°}$ | 1.0146 - j .6606<br>1.2107 $\underline{/33.1°}$ |
| 5 | .5705 + j .8892<br>1.0565 $\underline{/57.3°}$ | .9170 + j .5532<br>1.0709 $\underline{/31.1°}$ | .8851 + j .4359<br>.9866 $\underline{/26.2°}$ | .9093 - j .4478<br>1.0136 $\underline{/26.2°}$ |
| 6 | .5965 + j1.1229<br>1.2715 $\underline{/62.0°}$ | .8480 + j .7899<br>1.1589 $\underline{/43.0°}$ | 1.0371 + j .3581<br>1.0972 $\underline{/19.0°}$ | .8615 - j .2975<br>.9114 $\underline{/19.0°}$ |
| 7 | .5706 + j1.3803<br>1.4936 $\underline{/67.5°}$ | .7412 + j1.0626<br>1.2956 $\underline{/55.1°}$ | 1.1258 + j .2482<br>1.1528 $\underline{/12.4°}$ | .8471 - j .1868<br>.8674 $\underline{/12.4°}$ |
| 8 | .4813 + j1.6598<br>1.7281 $\underline{/73.8°}$ | .5849 + j1.3658<br>1.4857 $\underline{/66.8°}$ | 1.1545 + j .1421<br>1.1632 $\underline{/7.0°}$ | .8533 - j .1050<br>.8597 $\underline{/7.0°}$ |
| 9 | .3162 + j1.9564<br>1.9817 $\underline{/80.8°}$ | .3657 + j1.6915<br>1.7306 $\underline{/77.8°}$ | 1.1435 + j .0603<br>1.1451 $\underline{/3.0°}$ | .8721 - j .0460<br>.8733 $\underline{/3.0°}$ |
| 10 | .0625 + j2.2619<br>2.2628 $\underline{/88.4°}$ | .0697 + j2.0291<br>2.0303 $\underline{/88.0°}$ | 1.1145 + j .0075<br>1.1145 $\underline{/0.4°}$ | .8973 - j .0060<br>.8973 $\underline{/0.4°}$ |

Note: The data in this table are furnished for use with formulae such as those on Page 35 of Section AB92.075, "Introduction to Telephone Transmission Theory."