## Cable Impedance, Attenuation, Phase

## 19 ga. and 16 ga. H-44-25

### 19-Gauge H-44-25 Side

| Freq. | Mid-Section Impedance | | | | Attenuation | | Phase Shift | |
|---|---|---|---|---|---|---|---|---|
| | R | X | Z | Angle | α | db/mi | β | B |
| 200 | 975 | 550 | 1119 | 29.4 | .0447 | .388 | .0779 | .0248 |
| 300 | 885 | 415 | 977 | 25.1 | .0484 | .420 | .1073 | .0342 |
| 500 | 830 | 258 | 868 | 17.3 | .0518 | .450 | .1663 | .0536 |
| 1000 | 810 | 135 | 821 | 9.4 | .0541 | .470 | .3255 | .1037 |
| 1500 | 820 | 90 | 925 | 6.3 | .0549 | .477 | .4850 | .1545 |
| 2000 | 847 | 70 | 850 | 4.7 | .0553 | .480 | .6549 | .2086 |
| 2200 | 860 | 65 | 863 | 4.3 | .0555 | .482 | .7250 | .2309 |
| 2400 | 873 | 60 | 875 | 3.9 | .0557 | .484 | .7930 | .2525 |
| 2600 | 890 | 59 | 892 | 3.8 | .0558 | .485 | .8640 | .2752 |
| 2750 | 905 | 56 | 907 | 3.6 | .0561 | .487 | .9170 | .2920 |
| 2900 | 920 | 53 | 921 | 3.3 | .0562 | .488 | .9740 | .3102 |
| 3200 | 960 | 50 | 960 | 3.0 | .0566 | .492 | 1.0830 | .3449 |
| 3400 | 993 | 50 | 994 | 2.9 | .0570 | .495 | 1.1650 | .3704 |

### 19-Gauge H-44-25 Phantom

| Freq. | Mid-Section Impedance | | | | Attenuation | | Phase Shift | |
|---|---|---|---|---|---|---|---|---|
| | R | X | Z | Angle | α | db/mi | β | B |
| 200 | 565 | 310 | 645 | 29.8 | .0386 | .335 | .0712 | .0227 |
| 300 | 522 | 219 | 566 | 22.8 | .0424 | .368 | .0990 | .0315 |
| 500 | 496 | 141 | 515 | 15.9 | .0433 | .376 | .1568 | .0499 |
| 1000 | 489 | 70 | 494 | 8.2 | .0449 | .390 | .3066 | .0978 |
| 1500 | 496 | 50 | 498 | 5.8 | .0454 | .394 | .4570 | .1455 |
| 2000 | 509 | 40 | 511 | 4.5 | .0459 | .399 | .6154 | .1960 |
| 2200 | 513 | 37 | 514 | 4.1 | .0462 | .401 | .6800 | .2166 |
| 2400 | 520 | 32 | 521 | 3.5 | .0464 | .403 | .7450 | .2373 |
| 2600 | 530 | 31 | 531 | 3.4 | .0466 | .405 | .8100 | .2580 |
| 2750 | 539 | 30 | 540 | 3.2 | .0467 | .406 | .8650 | .2755 |
| 2900 | 546 | 29 | 547 | 3.0 | .0469 | .407 | .9150 | .2914 |
| 3200 | 558 | 26 | 569 | 2.8 | .0474 | .412 | 1.0170 | .3239 |
| 3400 | 581 | 25 | 582 | 2.5 | .0478 | .415 | 1.0920 | .3478 |

### 16-Gauge H-44-25 Side

| Freq. | Mid-Section Impedance | | | | Attenuation | | Phase Shift | |
|---|---|---|---|---|---|---|---|---|
| | R | X | Z | Angle | α | db/mi | β | B |
| 200 | 862 | 328 | 922 | 20.8 | .0262 | .228 | .069 | .0220 |
| 300 | 831 | 232 | 862 | 15.6 | .0273 | .237 | .100 | .0319 |
| 500 | 820 | 143 | 832 | 9.9 | .0279 | .243 | .163 | .0517 |
| 1000 | 810 | 71 | 813 | 5.0 | .0286 | .249 | .320 | .1019 |
| 1500 | 827 | 45 | 822 | 3.4 | .0291 | .253 | .485 | .1544 |
| 2000 | 848 | 35 | 849 | 2.4 | .0296 | .257 | .656 | .2087 |
| 2200 | 860 | 35 | 860 | 2.3 | .0297 | .258 | .721 | .2296 |
| 2400 | 875 | 32 | 875 | 2.1 | .0300 | .261 | .795 | .2530 |
| 2600 | 890 | 30 | 890 | 1.9 | .0305 | .265 | .868 | .2762 |
| 2750 | 910 | 29 | 910 | 1.8 | .0306 | .266 | .916 | .2916 |
| 2900 | 925 | 27 | 925 | 1.5 | .0308 | .268 | .971 | .3091 |
| 3200 | 957 | 29 | 957 | 1.7 | .0317 | .275 | 1.089 | .3466 |
| 3400 | 986 | 29 | 986 | 1.7 | .0321 | .279 | 1.170 | .3724 |

### 16-Gauge H-44-25 Phantom

| Freq. | Mid-Section Impedance | | | | Attenuation | | Phase Shift | |
|---|---|---|---|---|---|---|---|---|
| | R | X | Z | Angle | α | db/mi | β | B |
| 200 | 505 | 180 | 584 | 18.0 | .0220 | .191 | .064 | .0204 |
| 300 | 486 | 122 | 503 | 14.0 | .0227 | .197 | .094 | .0299 |
| 500 | 482 | 72 | 487 | 8.5 | .0232 | .202 | .153 | .0487 |
| 1000 | 482 | 37 | 483 | 4.4 | .0238 | .207 | .304 | .0967 |
| 1500 | 491 | 24 | 492 | 2.8 | .0242 | .210 | .455 | .1449 |
| 2000 | 505 | 19 | 505 | 2.2 | .0247 | .215 | .616 | .1960 |
| 2200 | 511 | 17 | 511 | 1.9 | .0248 | .216 | .680 | .2165 |
| 2400 | 520 | 15 | 520 | 1.7 | .0252 | .219 | .747 | .2373 |
| 2600 | 529 | 15 | 529 | 1.4 | .0254 | .221 | .810 | .2578 |
| 2750 | 537 | 15 | 537 | 1.6 | .0255 | .222 | .862 | .2744 |
| 2900 | 546 | 14 | 546 | 1.5 | .0259 | .225 | .911 | .2900 |
| 3200 | 564 | 14 | 564 | 1.4 | .0265 | .230 | 1.018 | .3240 |
| 3400 | 580 | 14 | 580 | 1.4 | .0268 | .233 | 1.090 | .3470 |

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

$\beta$ = Phase shift in radians per circuit mile.

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