

Table 3.3.3
CHARACTERISTICS OF MULTILAYER ALUMINUM-CONDUCTOR-STEEL-REINFORCED (ACSR)

| Code | Cross Section | | | Stranding | | Diameter | | Lay er s | wt lbs per 1000 ft | STRG (Klps) | DC 25 C | Resistance (Ohms/Mile) AC at 60 HZ | | | | | Reactance 1 ft Rad. 60 HZ | | |
|--|----------------------------|------------------|-------------------|-----------|----------|---------------|---------------|----------------|--------------------------------|----------------|------------|--|-------|-------|-------------|----------------------------------|-------------------------------------|-------|-------|
| | (kmil ²) Al | (sq mm) Al | (sq mm) Tot | Aluminum | Steel | Cond (in.) | Core (in.) | | | | | 50 C | 75 C | 100 C | GMR (ft) | X _a (Ohm /Mile) | X _b (Megohm -Mile) | | |
| Joree Thrasher Kiwi Bluebird Chukar | 2776. | 1407. | 1521. | 84x.1818 | 19x.1091 | 2.000 | .546 | 4 | 3219 | 81.6 | .0338 | .0395 | .0421 | .0452 | .0482 | .0516 | .0621 | .327 | .0736 |
| | 2515. | 1274. | 1344. | 76x.1819 | 19x.0849 | 1.880 | .425 | 4 | 2749 | 61.7 | .0365 | .0418 | .0450 | .0482 | .0518 | .0554 | .0595 | .342 | .0755 |
| | 2312. | 1171. | 1235. | 76x.1744 | 19x.0814 | 1.802 | .407 | 4 | 2526 | 57.3 | .0397 | .0446 | .0482 | .0518 | .0554 | .0595 | .347 | .0767 | |
| | 2167. | 1098. | 1146. | 72x.1735 | 7x.1157 | 1.735 | .347 | 4 | 2303 | 49.8 | .0424 | .0473 | .0511 | .0550 | .0589 | .0570 | .348 | .0778 | |
| | 2156. | 1092. | 1181. | 84x.1602 | 19x.0961 | 1.762 | .480 | 4 | 2511 | 60.3 | .0426 | .0466 | .0505 | .0544 | .0584 | .0588 | .344 | .0774 | |
| 1781. | 902. | 976. | 84x.1456 | 19x.0874 | 1.602 | .437 | 4 | 2074 | 51.0 | .0516 | .0549 | .0598 | .0646 | .0685 | .0534 | .355 | .0802 | | |
| Falcon Lapwing Parrot Nuthatch Plover | 1590. | 806. | 908. | 54x.1716 | 19x.1030 | 1.545 | .515 | 3 | 2044 | 54.5 | .0578 | .0602 | .0657 | .0712 | .0767 | .0521 | .358 | .0813 | |
| | 1590. | 806. | 862. | 45x.1880 | 7x.1253 | 1.504 | .376 | 3 | 1792 | 42.2 | .0590 | .0622 | .0678 | .0734 | .0790 | .0497 | .364 | .0821 | |
| | 1510. | 765. | 862. | 54x.1672 | 19x.1003 | 1.505 | .502 | 3 | 1942 | 51.7 | .0608 | .0631 | .0689 | .0748 | .0806 | .0508 | .362 | .0821 | |
| | 1510. | 765. | 818. | 45x.1832 | 7x.1221 | 1.465 | .366 | 3 | 1702 | 40.1 | .0622 | .0652 | .0711 | .0770 | .0830 | .0485 | .367 | .0828 | |
| | 1431. | 725. | 817. | 54x.1628 | 19x.0977 | 1.465 | .489 | 3 | 1840 | 49.1 | .0642 | .0663 | .0725 | .0787 | .0849 | .0484 | .365 | .0828 | |
| Bobolink Martin Dipper Pheasant Bittern | 1431. | 725. | 775. | 45x.1783 | 7x.1189 | 1.427 | .357 | 3 | 1613 | 38.3 | .0656 | .0685 | .0747 | .0810 | .0873 | .0472 | .371 | .0836 | |
| | 1351. | 685. | 772. | 54x.1582 | 19x.0949 | 1.424 | .475 | 3 | 1737 | 46.3 | .0680 | .0700 | .0765 | .0831 | .0897 | .0480 | .368 | .0837 | |
| | 1351. | 685. | 732. | 45x.1733 | 7x.1155 | 1.386 | .347 | 3 | 1522 | 36.2 | .0695 | .0722 | .0788 | .0855 | .0922 | .0459 | .374 | .0845 | |
| | 1272. | 645. | 726. | 54x.1535 | 19x.0921 | 1.382 | .461 | 3 | 1635 | 43.6 | .0722 | .0741 | .0811 | .0881 | .0951 | .0466 | .372 | .0846 | |
| | 1272. | 644. | 689. | 45x.1681 | 7x.1121 | 1.345 | .336 | 3 | 1434 | 34.1 | .0738 | .0764 | .0835 | .0906 | .0977 | .0445 | .378 | .0854 | |
| Grackle Bunting Finch Bluejay Curlew | 1192. | 604. | 681. | 54x.1486 | 19x.0892 | 1.338 | .446 | 3 | 1533 | 41.9 | .0770 | .0788 | .0869 | .0938 | .1018 | .0451 | .376 | .0855 | |
| | 1193. | 604. | 646. | 45x.1628 | 7x.1085 | 1.302 | .326 | 3 | 1344 | 32.0 | .0787 | .0811 | .0887 | .0963 | .1039 | .0431 | .382 | .0863 | |
| | 1114. | 564. | 636. | 54x.1436 | 19x.0862 | 1.293 | .431 | 3 | 1431 | 39.1 | .0825 | .0842 | .0922 | .1002 | .1082 | .0436 | .380 | .0866 | |
| | 1113. | 564. | 603. | 45x.1573 | 7x.1049 | 1.258 | .315 | 3 | 1255 | 29.8 | .0843 | .0866 | .0947 | .1029 | .1111 | .0416 | .386 | .0873 | |
| | 1033. | 523. | 591. | 54x.1383 | 7x.1383 | 1.245 | .415 | 3 | 1331 | 36.6 | .0909 | .0924 | .1013 | .1101 | .1190 | .0420 | .385 | .0877 | |
| Ortolan Merganser Cardinal Rail Baldpate | 1033. | 523. | 560. | 45x.1515 | 7x.1010 | 1.212 | .303 | 3 | 1165 | 27.7 | .0909 | .0930 | .1018 | .1106 | .1195 | .0401 | .390 | .0885 | |
| | 954. | 483. | 596. | 30x.1785 | 7x.1783 | 1.248 | .535 | 2 | 1493 | 46.0 | .0987 | .0995 | .1092 | .1189 | .1286 | .0430 | .382 | .0876 | |
| | 954. | 483. | 546. | 54x.1329 | 7x.1329 | 1.196 | .399 | 3 | 1229 | 33.8 | .0984 | .0998 | .1094 | .1191 | .1287 | .0404 | .389 | .0889 | |
| | 954. | 483. | 517. | 45x.1456 | 7x.0971 | 1.165 | .291 | 3 | 1075 | 25.9 | .0984 | .1004 | .1099 | .1195 | .1291 | .0385 | .395 | .0896 | |
| | 900. | 456. | 562. | 30x.1732 | 7x.1732 | 1.212 | .520 | 2 | 1410 | 43.3 | .1046 | .1054 | .1156 | .1259 | .1362 | .0417 | .385 | .0885 | |
| Canary Ruddy Crape Willet Skimmer | 900. | 456. | 515. | 54x.1291 | 7x.1291 | 1.162 | .387 | 3 | 1159 | 31.9 | .1043 | .1056 | .1158 | .1260 | .1362 | .0392 | .393 | .0897 | |
| | 900. | 456. | 487. | 45x.1414 | 7x.0943 | 1.131 | .283 | 3 | 1015 | 25.4 | .1043 | .1062 | .1163 | .1265 | .1367 | .0374 | .399 | .0905 | |
| | 875. | 443. | 501. | 54x.1273 | 7x.1273 | 1.146 | .382 | 3 | 1126 | 31.4 | .1073 | .1086 | .1191 | .1296 | .1401 | .0387 | .395 | .0901 | |
| | 874. | 443. | 474. | 45x.1394 | 7x.0929 | 1.115 | .279 | 3 | 987 | 25.0 | .1073 | .1082 | .1196 | .1301 | .1406 | .0369 | .400 | .0909 | |
| | 795. | 403. | 497. | 30x.1628 | 7x.1628 | 1.140 | .488 | 2 | 1246 | 38.3 | .1183 | .1191 | .1307 | .1423 | .1540 | .0392 | .393 | .0903 | |
| Mallard Drake Condor Cuckoo Tern | 795. | 403. | 495. | 30x.1628 | 19x.0977 | 1.140 | .489 | 2 | 1235 | 38.4 | .1183 | .1191 | .1307 | .1423 | .1540 | .0392 | .393 | .0903 | |
| | 795. | 403. | 469. | 26x.1749 | 7x.1360 | 1.108 | .408 | 2 | 1094 | 31.5 | .1180 | .1190 | .1306 | .1422 | .1538 | .0375 | .399 | .0911 | |
| | 795. | 403. | 455. | 54x.1213 | 7x.1213 | 1.092 | .364 | 3 | 1024 | 28.2 | .1181 | .1193 | .1309 | .1425 | .1541 | .0368 | .401 | .0916 | |
| | 795. | 403. | 455. | 24x.1820 | 7x.1213 | 1.092 | .364 | 2 | 1024 | 27.9 | .1181 | .1193 | .1308 | .1424 | .1540 | .0366 | .402 | .0916 | |
| | 795. | 403. | 431. | 45x.1329 | 7x.0886 | 1.063 | .266 | 3 | 896 | 22.1 | .1181 | .1197 | .1313 | .1428 | .1544 | .0352 | .406 | .0923 | |
| Coot Buteo Redwing Starling Crow | 795. | 403. | 414. | 36x.1486 | 1x.1486 | 1.040 | .149 | 3 | 805 | 16.5 | .1175 | .1197 | .1311 | .1426 | .1540 | .0337 | .411 | .0930 | |
| | 715. | 362. | 447. | 30x.1544 | 7x.1544 | 1.081 | .463 | 2 | 1119 | 34.4 | .1316 | .1322 | .1452 | .1581 | .1711 | .0372 | .399 | .0919 | |
| | 715. | 362. | 445. | 30x.1544 | 19x.0926 | 1.081 | .463 | 2 | 1111 | 34.6 | .1316 | .1322 | .1452 | .1581 | .1711 | .0372 | .399 | .0919 | |
| | 718. | 363. | 422. | 26x.1659 | 7x.1290 | 1.051 | .387 | 2 | 985 | 28.4 | .1312 | .1321 | .1450 | .1579 | .1707 | .0355 | .405 | .0927 | |
| | 715. | 362. | 409. | 54x.1151 | 7x.1151 | 1.036 | .345 | 3 | 921 | 26.3 | .1312 | .1323 | .1452 | .1580 | .1709 | .0350 | .407 | .0931 | |
| Stilt Grebe Gannet Gull Flamingo | 716. | 363. | 410. | 24x.1727 | 7x.1151 | 1.036 | .345 | 2 | 922 | 25.5 | .1311 | .1322 | .1451 | .1579 | .1708 | .0347 | .408 | .0931 | |
| | 716. | 363. | 388. | 45x.1261 | 7x.0841 | 1.009 | .252 | 3 | 807 | 20.6 | .1312 | .1327 | .1455 | .1583 | .1712 | .0334 | .413 | .0939 | |
| | 666. | 338. | 393. | 26x.1601 | 7x.1245 | 1.014 | .374 | 2 | 917 | 26.6 | .1409 | .1417 | .1555 | .1694 | .1832 | .0343 | .409 | .0937 | |
| | 667. | 338. | 382. | 54x.1111 | 7x.1111 | 1.000 | .333 | 3 | 858 | 24.5 | .1408 | .1418 | .1557 | .1695 | .1833 | .0337 | .411 | .0942 | |
| | 667. | 338. | 382. | 24x.1667 | 7x.1111 | 1.000 | .333 | 2 | 859 | 23.7 | .1407 | .1418 | .1556 | .1694 | .1832 | .0335 | .412 | .0942 | |
| Scoter Egref Grosbeak Goose Rook | 636. | 322. | 397. | 30x.1456 | 7x.1456 | 1.019 | .437 | 2 | 993 | 30.8 | .1480 | .1486 | .1631 | .1777 | .1923 | .0351 | .406 | .0936 | |
| | 636. | 322. | 396. | 30x.1456 | 19x.0874 | 1.019 | .437 | 2 | 988 | 31.5 | .1480 | .1485 | .1631 | .1777 | .1923 | .0351 | .406 | .0936 | |
| | 636. | 322. | 375. | 26x.1664 | 7x.1216 | 0.990 | .365 | 2 | 875 | 25.2 | .1476 | .1484 | .1629 | .1774 | .1920 | .0335 | .412 | .0944 | |
| | 636. | 322. | 364. | 54x.1085 | 7x.1085 | 0.977 | .326 | 3 | 819 | 23.6 | .1477 | .1486 | .1631 | .1776 | .1922 | .0330 | .414 | .0949 | |
| | 636. | 322. | 364. | 24x.1628 | 7x.1085 | 0.977 | .326 | 2 | 819 | 22.0 | .1476 | .1485 | .1630 | .1775 | .1920 | .0327 | .415 | .0949 | |
| Kingbird Swift | 636. | 322. | 340. | 18x.1880 | 1x.1880 | 0.840 | .188 | 2 | 691 | 15.7 | .1468 | .1484 | .1627 | .1771 | .1915 | .0304 | .424 | .0960 | |
| | 636. | 322. | 331. | 36x.1329 | 1x.1329 | 0.930 | .133 | 3 | 644 | 13.4 | .1469 | .1487 | .1630 | .1774 | .1918 | .0302 | .425 | .0963 | |

ELECTRICAL CHARACTERISTICS OF EHV-UHV CONDUCTOR CONFIGURATIONS AND CIRCUITS

Table 3.3.3 (Cont.)
CHARACTERISTICS OF MULTILAYER ALUMINUM-CONDUCTOR-STEEL-REINFORCED

| Code | Cross Section | | | Stranding | | Diameter | | L a y e r s | wt / per 1000 ft | STRG (Kips) | DC 25 C | Resistance (Ohms/Mile) ¹ | | | | | Reactance 1 ft Rad. 60 HZ | | |
|-----------|---------------|------------|------------|-----------|----------|---------------|---------------|----------------------------|------------------------------|----------------|------------|--|-------|-------|-------|-------|---------------------------------|----------------------------------|-------------------------------------|
| | (kcmil) | (sq mm) | (sq mm) | Aluminum | Steel | Cond (in.) | Core (in.) | | | | | AC at 60 HZ | | | | | GMR (ft) | X _a (Ohm/ Mile) | X _b (Megohm -Mile) |
| | | Al | Al | | | | | | | | | Tot | 25 C | 25 C | 50 C | 75 C | | | |
| Wood Duck | 605. | 307. | 378. | 30x.1420 | 7x.1420 | 0.994 | .426 | 2 | 947 | 29.4 | .1556 | .1561 | .1714 | .1868 | .2021 | .0342 | .410 | .0943 | |
| Teal | 605. | 307. | 376. | 30x.1420 | 19x.0852 | 0.994 | .426 | 2 | 940 | 30.0 | .1558 | .1561 | .1714 | .1868 | .2021 | .0342 | .410 | .0943 | |
| Squab | 605. | 306. | 356. | 26x.1525 | 7x.1186 | 0.966 | .356 | 2 | 833 | 23.6 | .1552 | .1560 | .1713 | .1866 | .2018 | .0327 | .416 | .0952 | |
| Peacock | 605. | 307. | 346. | 24x.1588 | 7x.1059 | 0.953 | .318 | 2 | 780 | 21.6 | .1551 | .1560 | .1712 | .1865 | .2018 | .0319 | .418 | .0956 | |
| Duck | 606. | 307. | 347. | 54x.1059 | 7x.1059 | 0.953 | .318 | 3 | 779 | 22.5 | .1550 | .1559 | .1711 | .1864 | .2016 | .0322 | .417 | .0956 | |
| Eagle | 557. | 282. | 348. | 30x.1362 | 7x.1362 | 0.953 | .409 | 2 | 872 | 27.2 | .1691 | .1696 | .1863 | .2029 | .2196 | .0328 | .415 | .0956 | |
| Dove | 556. | 282. | 328. | 26x.1463 | 7x.1138 | 0.927 | .341 | 2 | 766 | 22.4 | .1687 | .1694 | .1860 | .2026 | .2192 | .0313 | .420 | .0964 | |
| Parakeet | 557. | 282. | 319. | 24x.1523 | 7x.1015 | 0.914 | .305 | 2 | 717 | 19.8 | .1686 | .1696 | .1860 | .2026 | .2192 | .0306 | .423 | .0968 | |
| Osprey | 556. | 282. | 298. | 18x.1758 | 1x.1758 | 0.879 | .176 | 2 | 604 | 13.7 | .1679 | .1693 | .1857 | .2022 | .2187 | .0284 | .432 | .0980 | |
| Hen | 477. | 242. | 298. | 30x.1261 | 7x.1261 | 0.883 | .378 | 2 | 747 | 23.8 | .1973 | .1977 | .2171 | .2366 | .2560 | .0304 | .424 | .0979 | |
| Hawk | 477. | 242. | 281. | 26x.1354 | 7x.1053 | 0.858 | .316 | 2 | 657 | 19.5 | .1969 | .1975 | .2169 | .2363 | .2557 | .0290 | .430 | .0987 | |
| Flicker | 477. | 242. | 273. | 24x.1410 | 7x.0940 | 0.846 | .282 | 2 | 615 | 17.2 | .1967 | .1975 | .2168 | .2362 | .2556 | .0283 | .432 | .0991 | |
| Pelican | 477. | 242. | 255. | 18x.1628 | 1x.1628 | 0.814 | .163 | 2 | 518 | 11.8 | .1958 | .1970 | .2162 | .2355 | .2547 | .0263 | .441 | .1003 | |
| Lark | 397. | 201. | 248. | 30x.1151 | 7x.1151 | 0.806 | .345 | 2 | 623 | 20.3 | .2368 | .2371 | .2605 | .2838 | .3072 | .0277 | .435 | .1006 | |
| Ibis | 397. | 201. | 234. | 26x.1236 | 7x.0961 | 0.783 | .286 | 2 | 547 | 16.3 | .2363 | .2368 | .2601 | .2834 | .3067 | .0265 | .441 | .1014 | |
| Brant | 398. | 201. | 228. | 24x.1287 | 7x.0858 | 0.772 | .257 | 2 | 512 | 14.7 | .2361 | .2367 | .2600 | .2833 | .3066 | .0259 | .444 | .1018 | |
| Chickadee | 397. | 201. | 213. | 18x.1486 | 1x.1486 | 0.743 | .149 | 2 | 432 | 9.9 | .2350 | .2360 | .2591 | .2822 | .3054 | .0240 | .452 | .1030 | |
| Oriole | 336. | 170. | 210. | 30x.1059 | 7x.1059 | 0.741 | .318 | 2 | 527 | 17.0 | .2797 | .2800 | .3076 | .3362 | .3628 | .0255 | .445 | .1030 | |
| Linnet | 336. | 170. | 198. | 26x.1137 | 7x.0884 | 0.720 | .265 | 2 | 463 | 14.0 | .2793 | .2797 | .3072 | .3348 | .3623 | .0243 | .451 | .1039 | |
| Widgeon | 336. | 170. | 193. | 24x.1184 | 7x.0789 | 0.710 | .237 | 2 | 433 | 12.5 | .2790 | .2795 | .3070 | .3345 | .3621 | .0238 | .454 | .1043 | |
| Merlin | 336. | 170. | 180. | 18x.1367 | 1x.1367 | 0.684 | .137 | 2 | 366 | 8.6 | .2777 | .2785 | .3059 | .3332 | .3606 | .0221 | .463 | .1054 | |
| Piper | 300. | 152. | 167. | 30x.1000 | 7x.1000 | 0.700 | .300 | 2 | 470 | 15.5 | .3137 | .3139 | .3449 | .3758 | .4068 | .0241 | .452 | .1047 | |
| Ostrich | 300. | 152. | 177. | 26x.1074 | 7x.0835 | 0.680 | .251 | 2 | 413 | 12.7 | .3130 | .3134 | .3443 | .3751 | .4060 | .0230 | .458 | .1056 | |
| Gadwall | 300. | 152. | 172. | 24x.1118 | 7x.0745 | 0.671 | .224 | 2 | 386 | 11.2 | .3129 | .3134 | .3442 | .3751 | .4060 | .0225 | .461 | .1060 | |
| Phoebe | 300. | 152. | 160. | 18x.1281 | 1x.1291 | 0.646 | .129 | 2 | 326 | 7.7 | .3114 | .3121 | .3428 | .3735 | .4042 | .0209 | .469 | .1071 | |
| Junco | 267. | 135. | 167. | 30x.0943 | 7x.0943 | 0.660 | .283 | 2 | 418 | 13.7 | .3527 | .3530 | .3878 | .4226 | .4574 | .0227 | .459 | .1065 | |
| Partridge | 267. | 135. | 157. | 26x.1013 | 7x.0788 | 0.642 | .236 | 2 | 367 | 11.3 | .3518 | .3522 | .3869 | .4216 | .4563 | .0217 | .465 | .1073 | |
| Waxwing | 267. | 135. | 143. | 18x.1217 | 1x.1217 | 0.609 | .122 | 2 | 289 | 6.9 | .3504 | .3510 | .3856 | .4201 | .4547 | .0197 | .477 | .1089 | |