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Correction

Leo Young, the author of "Tables for Cascaded Homogeneous Quarter-Wave Transformers," which appeared on pages 233-237 in the April, 1959 issue of these TRANSACTIONS, has requested that the following revisions be made in his paper.

The values of Z_1 and Z_2 for the four-section ($n=4$) transformers given in Tables IV to XIII are not quite optimum. In computing them, the positive roots of the fourth degree Tchebycheff polynomial were erroneously taken as $\frac{1}{2}(1 \pm 1/\sqrt{2})$ instead of $[\frac{1}{2}(1 \pm 1/\sqrt{2})]^{1/2}$. The effect of this is to reduce the bandwidth by approximately the ratio of the incorrect to the correct outer roots, that is, by a factor $[\frac{1}{2}(1 + 1/\sqrt{2})]^{1/2} = 0.924$. At the same time, the match is improved near the center of the band.

Twenty representative four-section transformers were analyzed numerically. The bandwidth reduction appeared to be independent of R , and was about 1/15 below the greatest possible bandwidth for the maximum VSWR specified in Table III. For instance, the stated 60 per cent four-section transformers (Table X) had only 56 per cent bandwidth; and the stated 120 per cent four-section transformers (Table XIII) had only 112 per cent bandwidth, for the VSWR claimed in Table III.

New tables for four-section transformers were computed and are appended. These have been checked out by numerical analysis of representative cases.

Various two- and three-section transformers given in my original tables were also checked by numerical analysis, and found to give the predicted frequency response.

FOUR-SECTION QUARTER-WAVE TRANSFORMERS

| Impedance Ratio, R | Maximally Flat | | Bandwidth = 0.10 | | Bandwidth = 0.20 | | Bandwidth = 0.30 | |
|----------------------|----------------|---------|------------------|---------|------------------|---------|------------------|---------|
| | Z_1 | Z_2 | Z_1 | Z_2 | Z_1 | Z_2 | Z_1 | Z_2 |
| 1.00 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |
| 1.25 | 1.01405 | 1.07223 | 1.01414 | 1.07232 | 1.01440 | 1.07260 | 1.01486 | 1.07306 |
| 1.50 | 1.02570 | 1.13512 | 1.02586 | 1.13530 | 1.02635 | 1.13584 | 1.02719 | 1.13673 |
| 1.75 | 1.03568 | 1.19120 | 1.03591 | 1.19146 | 1.03659 | 1.19224 | 1.03777 | 1.19354 |
| 2.00 | 1.04444 | 1.24206 | 1.04473 | 1.24239 | 1.04558 | 1.24340 | 1.04706 | 1.24508 |
| 2.50 | 1.05933 | 1.33204 | 1.05972 | 1.33252 | 1.06088 | 1.33396 | 1.06287 | 1.33636 |
| 3.00 | 1.07176 | 1.41051 | 1.07223 | 1.41113 | 1.07364 | 1.41296 | 1.07607 | 1.41603 |
| 4.00 | 1.09190 | 1.54417 | 1.09250 | 1.54503 | 1.09435 | 1.54760 | 1.09752 | 1.55190 |
| 5.00 | 1.10801 | 1.65686 | 1.10873 | 1.65794 | 1.11093 | 1.66118 | 1.11472 | 1.66660 |
| 6.00 | 1.12153 | 1.75529 | 1.12235 | 1.75657 | 1.12486 | 1.76043 | 1.12917 | 1.76689 |
| 8.00 | 1.14356 | 1.92323 | 1.14455 | 1.92490 | 1.14758 | 1.92990 | 1.15279 | 1.93828 |
| 10.00 | 1.16129 | 2.06509 | 1.16242 | 2.06710 | 1.16588 | 2.07315 | 1.17184 | 2.08328 |
| 12.50 | 1.17961 | 2.21803 | 1.18090 | 2.22044 | 1.18483 | 2.22770 | 1.19160 | 2.23985 |
| 15.00 | 1.19506 | 2.35186 | 1.19648 | 2.35465 | 1.20082 | 2.36303 | 1.20829 | 2.37706 |
| 17.50 | 1.20847 | 2.47169 | 1.21001 | 2.47483 | 1.21471 | 2.48426 | 1.22281 | 2.50007 |
| 20.00 | 1.22035 | 2.58072 | 1.22200 | 2.58419 | 1.22703 | 2.59463 | 1.23571 | 2.61213 |
| 25.00 | 1.24078 | 2.77447 | 1.24262 | 2.77857 | 1.24824 | 2.79089 | 1.25795 | 2.81154 |
| 30.00 | 1.25803 | 2.94423 | 1.26004 | 2.94891 | 1.26618 | 2.96299 | 1.27679 | 2.98659 |
| 40.00 | 1.28632 | 3.23492 | 1.28862 | 3.24067 | 1.29564 | 3.25798 | 1.30781 | 3.28698 |
| 50.00 | 1.30920 | 3.48136 | 1.31174 | 3.48809 | 1.31953 | 3.50835 | 1.33302 | 3.54228 |
| 60.00 | 1.32853 | 3.69752 | 1.33129 | 3.70517 | 1.33974 | 3.72816 | 1.35440 | 3.76669 |
| 80.00 | 1.36025 | 4.06810 | 1.36338 | 4.07741 | 1.37297 | 4.10544 | 1.38965 | 4.15241 |
| 100.00 | 1.38591 | 4.38263 | 1.38936 | 4.39348 | 1.39992 | 4.42610 | 1.41832 | 4.48078 |