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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 $[\frac{1}{2}(1 \pm 1/\sqrt{2})]^{1/2} = 0.924$. 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

Impedance Ratio, R	Bandwidth = 0.40		Bandwidth = 0.50		Bandwidth = 0.60		Bandwidth = 0.80	
	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	1.01553	1.07371	1.01643	1.07456	1.01761	1.07559	1.02106	1.07830
1.50	1.02842	1.13799	1.03009	1.13961	1.03227	1.14162	1.03866	1.14685
1.75	1.03949	1.19537	1.04182	1.19773	1.04488	1.20065	1.05385	1.20827
2.00	1.04921	1.24745	1.05214	1.25052	1.05598	1.25431	1.06726	1.26420
2.50	1.06577	1.33974	1.06973	1.34412	1.07494	1.34954	1.09026	1.36370
3.00	1.07963	1.42036	1.08448	1.42596	1.09086	1.43290	1.10967	1.45105
4.00	1.10216	1.55795	1.10849	1.56581	1.11685	1.57553	1.14159	1.60102
5.00	1.12026	1.67423	1.12783	1.68414	1.13784	1.69642	1.16759	1.72864
6.00	1.13549	1.77600	1.14415	1.78783	1.15559	1.80248	1.18974	1.84098
8.00	1.16043	1.95009	1.17092	1.96543	1.18482	1.98446	1.22654	2.03453
10.00	1.18060	2.09756	1.19264	2.11613	1.20863	2.13915	1.25683	2.19984
12.50	1.20156	2.25698	1.21527	2.27926	1.23353	2.30691	1.28883	2.37988
15.00	1.21931	2.39686	1.23449	2.42260	1.25475	2.45455	1.31638	2.53898
17.50	1.23478	2.52237	1.25128	2.55137	1.27335	2.58739	1.34074	2.68264
20.00	1.24854	2.63681	1.26625	2.66891	1.28998	2.70880	1.36269	2.81433
25.00	1.27232	2.84069	1.29220	2.87862	1.31891	2.92575	1.40125	3.05065
30.00	1.29251	3.01989	1.31432	3.06324	1.34367	3.11712	1.43467	3.26008
40.00	1.32587	3.32792	1.35100	3.38123	1.38498	3.44754	1.49127	3.62377
50.00	1.35308	3.59021	1.38108	3.65262	1.41905	3.73029	1.53879	3.93704
60.00	1.37624	3.82111	1.40677	3.89200	1.44833	3.98025	1.58022	4.21547
80.00	1.41455	4.21877	1.44952	4.30522	1.49736	4.41293	1.65091	4.70063
100.00	1.44587	4.55802	1.48467	4.65870	1.53798	4.78420	1.71073	5.12003

Impedance Ratio, R	Bandwidth = 1.00		Bandwidth = 1.20	
	Z_1	Z_2	Z_1	Z_2
1.00	1.00000	1.00000	1.00000	1.00000
1.25	1.02662	1.08195	1.03560	1.08683
1.50	1.04898	1.15394	1.06576	1.16342
1.75	1.06838	1.21861	1.09214	1.23248
2.00	1.08559	1.27764	1.11571	1.29572
2.50	1.11531	1.38300	1.15681	1.40907
3.00	1.14059	1.47583	1.19218	1.50943
4.00	1.18259	1.63596	1.25182	1.68360
5.00	1.21721	1.77292	1.30184	1.83358
6.00	1.24702	1.89401	1.34555	1.96694
8.00	1.29722	2.10376	1.42054	2.19954
10.00	1.33920	2.28397	1.48458	2.40096
12.50	1.38421	2.48134	1.55461	2.62317
15.00	1.42350	2.65667	1.61690	2.82190
17.50	1.45869	2.81570	1.67357	3.00321
20.00	1.49074	2.96208	1.72593	3.17095
25.00	1.54791	3.22609	1.82099	3.47548
30.00	1.59831	3.46148	1.90654	3.74905
40.00	1.68552	3.87328	2.05820	4.23198
50.00	1.76055	4.23091	2.19214	4.65555
60.00	1.82732	4.55096	2.31378	5.03760
80.00	1.94412	5.11329	2.53156	5.71502
100.00	2.04579	5.60394	2.72559	6.31175