There exists a related extension of the Richards transformation [8], leading to the following statement: An impedance $Z(j\omega)$ $(Z(\infty) \neq 0, \infty)$, which can be realized as a lumped passive one-port, can also be realized as a distributed transmission line of arbitrary length l terminated in an impedance $Z'(j\omega)$ $(Z'(\infty) \neq 0, \infty)$ that is also realizable as a lumped passive one-port. If $Z(0) \neq 0, \infty$, $Z'(j\omega)$ tends to a constant ohmic resistance of value $Z(0)$ as $l \to \infty$ (otherwise $Z'(j\omega)/l^k \to$ const with some integer k). Under certain conditions, the extended Richards transformation can be generalized for lossy lines.

Both of these extended transformations can be used for the synthesis of 1) distributed transmission lines and 2) cascades, in which such lines and lumped lossless two-ports follow one another alternately. In both cases, the synthesis starts from a lumped reference network. Case 1 is based upon the fact that in Fig. 4 of the paper[1] with $W_0(x) = R_2 \equiv$ const the properties of the transformed distributed transmission line with characteristic impedance $W(x)$ tend to those of the lumped lossless two-port N_R (reference network) in some sense as $l \to \infty$.

For case 2, consider the lumped reference network terminated in the ohmic resistance R_2. Now insert a cascade of uniform transmission lines all with the same characteristic impedance R_2 between the reference network and its terminating resistance. This does not affect the input impedance and changes the transfer properties (from the input port of the reference network to the terminals of the resistance) only by a constant time delay. Then represent the lumped reference network by a cascade of Darlington sections (and maybe an ideal transformer).

The final cascade can then be constructed by a multiple application of the extended Levy transformation. It can be shown that if the zeros of transmission all occur at real frequencies, and if the lengths of the lines between the lumped lossless two-ports in the final cascade are chosen appropriately, transformers, which in general appear in the lumped reference network, can be avoided.

In both cases, instead of using the extended Levy transformation, we can also apply the extended Richards transformation (in case 2) together with the extraction cycles [9] of lumped network synthesis) to the input impedance of the reference network terminated in R_2.

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Corrections to "TE and TM Modes in Circularly Shielded Slot Waveguides"

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In the above paper[1], the following misprints should be corrected:

1) Just below (15) and just before (28), $x_2 = -h + wt$ should read: $x_2 = -h + wt''$.
2) In (20), $H_0^{(2)} \cdot (k_c|x - x'|)$ should read: $H_0^{(2)}(k_c|x - x'|)$.
3) In (27), $B_m \cdot (\alpha)$ should read: $B_m(\alpha)$.
4) In (28), $H_0^{(2)}[k_c|2h + w(t - t)|]$ should read: $H_0^{(2)}[k_c|2h + w(t - t'')|]$.

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[1] J. L. Tsalamengas, I. O. Vardiambasis, and J. G. Fikioris, *IEEE Trans. Microwave Theory Tech.*, vol. 41, no. 6/7, pp. 966–972, June/July 1993.

Corrections to "Experimental Proof-of-Principle Results on a Mode-Selective Input Coupler"

Jeffrey P. Tate

Upon careful review of the above paper,[1] two errors were found. The cutoff frequency for the TE_{01} coaxial mode was incorrectly shown as 13.81 GHz in Fig. 4. The results in Fig. 9(a) and 9(b), which compare theory and experiment, are also incorrect. The new figures that should replace them are shown below as Fig. 1(a) and 1(b). The figure captions used for Fig. 9(a) and 9(b) are unchanged. These new graphs correctly illustrate the effect discussed in the text

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