VI. Conclusions

The equivalent circuit discussed here is the result of a search for a simple model which can represent, at least qualitatively, the propagation characteristics of all coupled-cavity waveguides that use resonant coupling elements. It has been shown that the circuit provides a very good model for the "centipede" waveguide. The dispersion of the two most important pass bands of an S-band "centipede" waveguide has been represented to within a few percent. The interaction ratio and waveguide attenuation for the operating pass band have also been accurately modeled, although for the greatest accuracy it was necessary to allow the circuit elements to vary slightly with frequency.

The most important feature of the equivalent circuit is its simplicity. Only five parameters are needed to specify its propagation characteristics, and these parameters give direct insight into the electrical behavior of the circuit and the analogous waveguide. The parameters f_a, f_b, and k determine the circuit dispersion, C_1 determines the interaction ratio, and D specifies the circuit attenuation. Finally, we note that the circuit represents the important electrical resonances of the waveguide, rather than its mechanical details. The circuit can therefore be expected to provide a qualitative model for other cavity chain waveguides which, like the "centipede," use resonant coupling elements.

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Corrections

R. E. Collin, author of the paper, "Electromagnetic Potentials and Field Expansions for Plasma Radiation in Waveguides," which appeared on pages 413–420 of the July, 1965, issue, submits the following.

The upper limit of integration in equations (19) and (24) should be

$$r = t - \frac{|z - z'|}{c}$$

and not infinity.

P. J. Meier and S. Arnow, authors of the paper, "Wide-Band Polarizer in Circular Waveguide Loaded with Dielectric Discs," which appeared on pages 763–767 of the November, 1965, issue, wish to note the following.

In formula (14), page 765, the last term in the denominator ± 1 should appear outside the radical.

In Section II, page 763, λ_2, β_3 should read β_2, β_3.