Correspondence

Correction to "Generalized Quasi-TEM Approximation and Telegrapher Equations for Nonreciprocal Ferrite-Loaded Transmission Lines"

The set of equations (17) and (18) in the above letter[1] was incomplete. In fact, considering the quasistatic expression for the variation of the per unit length energy along the line, $\delta U = V\delta\lambda + I\delta\Phi$, applying the symmetry relations between the generalized susceptances in gyrotropic media [1] and taking into account the different transformations of V and I under time inversion, it is found that (18) must be substituted by

$$I = W'V + L^{-1}\Phi \tag{1}$$

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[1]R. Marqués, F. Mesa, and F. Medina, *IEEE Microwave Guided Wave Lett.*, vol. 10, pp. 225–227, June 2000.

where W' is the memductance of the line with the reversed magnetic bias field, $\mathbf{H}_0' = -\mathbf{H}_0$.

Using this equation instead of (18) in the above letter, the following slightly different result for the propagation constant $\beta^{\pm}$ is obtained:

$$\frac{\beta\pm}{\omega} = \frac{1}{2}\left[(W - W')L \pm \sqrt{(W - W')^2L^2 + 4LC}\right] \tag{2}$$

which substitutes to (22) in the above letter. For the specific structure studied in the above letter, it is found that $W' = -W$ and therefore

$$\frac{\beta\pm}{\omega} = LW \pm \sqrt{L^2W^2 + LC}. \tag{3}$$

When $\beta^{\pm}$ is computed using expressions (23)–(25) in the above letter, the new quasi-TEM results are closer to the full-wave data shown in Fig. 2.

It should be also considered that in the *Index terms* of the original letter, where it is said "heuristor," it should say "memristor."

References

[1] L. D. Landau and E. M. Lifshitz, *Statistical Physics*. New York: Pergamon, 1980.