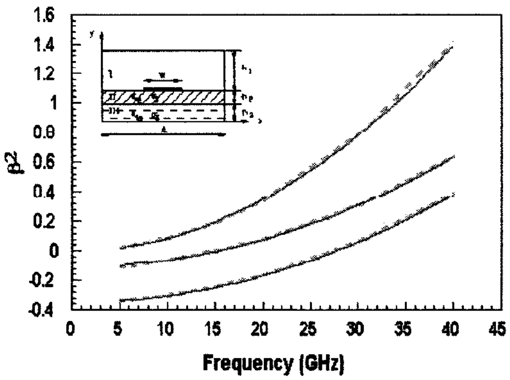

Fig. 3 Comparison of β^2 of the first three modes in a shield microstrip line between accurate and approximate data. Parameters: $h_1 = 3$ mm, $h_2 = h_3 = 0.3175$ mm, $w = 0.56$ mm, $A = 5$ mm, $\varepsilon_{r2} = \varepsilon_{r3} = 10, \sigma_2 = \sigma_3 = 0$. Basic functions: ($\beta_1 = 0.28709$E-01, 0.0, Freq$_1 = 1.0$ GHz). Near cutoff frequency: ($\beta_2 = 1.0644$E-001, 0.0, Freq$_2 = 16.04$ GHz), ($\beta_3 = 1.9356$E-001, 0.0, Freq$_3 = 29.20$ GHz).

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Comments on "Rigorous Modeling of Packaged Schottky Diodes by the Nonlinear Lumped Network (NL^{2}N)–FDTD Approach"

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In the above paper,[1] we have found several errors in (1), (3), (4), (6), (9), and (14), and those of the parameters presented in Tables I and II that should be corrected to allow an accurate implementation of the model proposed in the above paper for the modeling of packaged Schottky diodes by the nonlinear lumped-network finite-difference time-domain (FDTD) approach.

Considering the Schottky diode model depicted in Fig. 1(b) in the above paper, we can easily prove that the inductance L_1 should be replaced by L_2 in the expression of the admittance matrix of this circuit given by (1). Consequently, this admittance matrix should be written as follows:

$$[Y] = \frac{1}{D(s)} \begin{bmatrix} L_1Cs^2 + RC's + 1 & -1 \\ -1 & L_2Cs^2 + 1 \end{bmatrix}$$
$$D(s) = L_1L_2Cs^3 + RL_2Cs^2 + (L_1 + L_2)s + R. \tag{1}$$

Equation (3) should be written without the term "1" appearing in the denominator as follows:

$$\hat{Y}_{pq}(z) = \frac{\sum_{r=0}^{M} C_r^{pq} Z^{-r}}{\sum_{r=0}^{M} d_r Z^{-r}}. \tag{2}$$

The left-hand side of all the expressions in (4) and (6) of the above paper should be multiplied by d_0. Therefore, the correct form of these equations should be written, respectively, as follows:

$$d_0 I_1^{n+1} = \sum_{r=0}^{3} C_r^{11} V_1^{n-r+1} + \sum_{r=0}^{3} C_r^{12} V_2^{n-r+1} - \sum_{r=1}^{3} d_r I_1^{n-r+1} \tag{3}$$

$$d_0 I_2^{n+1} = \sum_{r=0}^{3} C_r^{21} V_1^{n-r+1} + \sum_{r=0}^{3} C_r^{22} V_2^{n-r+1} - \sum_{r=1}^{3} d_r I_2^{n-r+1}. \tag{4}$$

The inductance L_1 should be substituted by L_2 in all the coefficients appearing in Tables I and II of the above paper.

Furthermore, the constants q_x, γ_x, and $\alpha_x(\mathbf{r}E_x)$ appearing in (9) of the above paper should be divided by d_0. Thus, the correct expressions of these equations are, respectively,

$$\begin{aligned} q_x &= 1 + \frac{\Delta t \Delta x C_0^{11}}{2\varepsilon d_0 \Delta y \Delta z} \\ \gamma_x &= -\frac{1}{q_x}\, \frac{\Delta t C_0^{12}}{2\varepsilon d_0 \Delta y \Delta z} \\ \delta_x^n(rE_x) &= -\frac{1}{q_x} \left[\frac{\Delta t}{2\varepsilon d_0 \Delta y \Delta z}\, \alpha_x^n(rE_x) - E_x^n(rE_x) \right. \\ &\qquad \left. - \frac{\Delta t}{\varepsilon} [\nabla \times H]_x^{n+(1/2)}(rE_x) - \frac{\Delta t}{2\varepsilon}\, J_{lx}^n(rE_x) \right]. \end{aligned} \tag{5}$$

The last error encountered in the above paper concerns two terms of (14), which should be multiplied by d_0. Thus, this equation should be written as follows:

$$\begin{aligned} &2d_0 f(V_2^{n+1}, V_2^n) + \left[C_0^{21} \Delta x \gamma_x + C_0^{22} \right] V_2^{n+1} \\ &\quad + \left[C_0^{21} \Delta x \delta_x^n(rE_x) + \beta_x^n(rE_x) + d_0 I_2^n \right] = 0. \end{aligned} \tag{6}$$

Manuscript received June 30, 2002.

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Digital Object Identifier 10.1109/TMTT.2002.803454.

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