

Errata to “FIELD ANALYSIS OF DIELECTRIC WAVEGUIDE DEVICES BASED ON COUPLED TRANSVERSE-MODE INTEGRAL EQUATION - MATHEMATICAL AND NUMERICAL FORMULATIONS”

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- (1) Page 331, Figure 1: The label on the z -axis x_1, x_{m-1}, x_m, x_N should be z_1, z_{m-1}, z_m, z_N
- (2) Page 335, Equation (6d): There is a missing symbol Δ in the denominator of the middle expression of Eq. (6d). It should be $\sin \beta_n^{(N+1)} \Delta z_{N+1}$. Also the text in the parenthesis “(TM-PEMW)” should be “(TM-PMCW)”.
- (3) Page 337, three lines after Fig. 2: The sentence $\mathbf{Q}_h^{(m)}$ operator “back reflects” the left-interface source function $\mathcal{H}_{m-1}(x)$ to the right-interface target function $\mathcal{E}_m(x)$. $\mathbf{R}_h^{(m)}$ operator “reflects” the right-interface source functions $\mathcal{H}_{m-1}$ to the left-interface target function $\mathcal{E}_m$. should read $\mathbf{Q}_h^{(m)}$ operator “back reflects” from the right-interface source function $\mathcal{H}_m(x)$ into its transverse dual component $\mathcal{E}_m(x)$ at the same location. $\mathbf{R}_h^{(m)}$ operator “reflects” from the left-interface source function $\mathcal{H}_{m-1}(x)$ into its dual component $\mathcal{E}_{m-1}(x)$.

- (4) Page 337, Equation (8b): The original express

$$\begin{aligned}\mathcal{E}_{m-1}(x) &= E_x^{(m)}(x, z_{m-1}) = \int \mathbf{Q}_h^{(m)} \mathcal{H}_{m-1}(x') dx' + \int \mathbf{S}_h^{(m)} \mathcal{H}_m(x') dx', \\ \mathcal{E}_{m-1}(x) &= E_x^{(m)}(x, z_m) = \int \mathbf{P}_h^{(m)} \mathcal{H}_{m-1}(x') dx' + \int \mathbf{R}_h^{(m)} \mathcal{H}_m(x') dx'\end{aligned}\quad (8b)$$

should be

$$\begin{aligned}\mathcal{E}_{m-1}(x) &= E_x^{(m)}(x, z_{m-1}) = \int \mathbf{R}_h^{(m)} \mathcal{H}_{m-1}(x') dx' + \int \mathbf{S}_h^{(m)} \mathcal{H}_m(x') dx', \\ \mathcal{E}_{\textcolor{red}{m}-1}(x) &= E_x^{(m)}(x, z_m) = \int \mathbf{P}_h^{(m)} \mathcal{H}_{m-1}(x') dx' + \int \mathbf{Q}_h^{(m)} \mathcal{H}_m(x') dx'\end{aligned}\quad (8b)$$

- (5) Page 338, Equation (8d): In the sub-expression of the TE impedance $q_n^{(N+1)}$, the sub and superscript for $\beta_k^{(i)}$ should be $\beta_n^{(N+1)}$. This occurs twice in (8d). Also the text in the parenthesis “(TE-PECW)” of the third expression of (8d) should be “(T**M**-PECW)”.
- (6) Page 341, Equation (10e): This is related to error (2). There is also a missing symbol Δ in the denominator of the middle expression of Eq. (10e). It should be $\sin \beta_n^{(N+1)} \Delta z_{N+1}$. The text in the parenthesis “(TE-PECW)” is correct.
- (7) Page 341, Equation (11b): In the sub-expression of the for TM admittance $q_n^{(N+1)}$, both sub and superscripts for $\beta_k^{(i)}$ should be $\beta_n^{(N+1)}$. This occurs twice in (11b).
- (8) Page 341, Equation (12b): There are errors in the sub and superscripts in second and third expression of (12b).

$$\begin{aligned}O_{k,l}^{\bar{i},j} &\triangleq \int \phi_k^{(i)}(x) \frac{1}{\varepsilon_r^{(j)}(x)} \phi_l^{(i)}(x) dx, \\ O_{k,l}^{j,\bar{i}} &\triangleq \int \phi_l^{(i)}(x) \frac{1}{\varepsilon_r^{(j)}(x)} \phi_k^{(i)}(x) dx = O_{k,l}^{\bar{i},j}.\end{aligned}$$

They should be corrected as

$$\begin{aligned}O_{k,l}^{\bar{i},j} &\triangleq \int \phi_k^{(i)}(x) \frac{1}{\varepsilon_r^{(j)}(x)} \phi_l^{(\textcolor{red}{j})}(x) dx, \\ O_{k,l}^{j,\bar{i}} &\triangleq \int \phi_{\textcolor{red}{k}}^{(\textcolor{red}{j})}(x) \frac{1}{\varepsilon_r^{(j)}(x)} \phi_l^{(i)}(x) dx = O_{\textcolor{red}{l},\textcolor{red}{k}}^{\bar{i},j}.\end{aligned}$$

- (9) Page 342, Equation (12c): There should be a minus sign for the expression $G_{i,i+1}$. The correct formula should look like

$$G_{i,i+1} = -O^{\bar{i},i+1} s^{(i+1)} O^{i+1,\overline{i+1}}.$$