Letters

Corrections to "Compact Multi-Port Power Combination/Distribution With Inherent Bandpass Filter Characteristics"

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In the above paper [1, eq. (13c)], there is an error. The correct equation should read

$$2\left(jB_1^2 + J_1^2\right) = d_1. \tag{13c}$$

When (13c) is used in combination with [1, eqs. (13a)–(13d)], an exact solution to the synthesis of a 3-dB Chebyshev response is, in fact, possible. For the target function given by [1, eq. (14)], the exact values given by [1, eq. (13a)–(13d)] are as follows.

From (13c), with $d_1 = 2.9996$, we get $B_1 = 0$ and $J_1 = 1.2247$. From [1, eq. (13a)] with the obtained value of J_1, we get $J_{12} = 1.1725$. From [1, eq. (13b)] with the obtained value of J_1, we get $J_{14} = 1.1725$. When these values are used, it is found that [1, eq. (13d)] is satisfied. Contrary to the statement in [1], an exact solution does, in fact, exist for this example.

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The same typographical error in the s-term in the denominator is reflected in [1, eqs. (7)–(9)] and should read

$$\begin{aligned} S_{11} &= S_{22} \\ &= S_{33} \\ &= S_{44} \\ &= \frac{s^2+2jsB_1-B_1^2+J_{14}^2+J_{12}^2-J_1^4}{s^2+2s\left(jB_1+J_1^2\right)+2jJ_{12}^2B_1-B_1^2+J_{14}^2+J_{12}^2+J_1^4} \end{aligned} \tag{7}$$

$$\begin{aligned} S_{12} &= S_{21} \\ &= S_{34} \\ &= S_{43} \\ &= \frac{2jJ_1^2J_{12}}{s^2+2s\left(jB_1+J_1^2\right)+2jJ_{12}^2B_1-B_1^2+J_{14}^2+J_{12}^2+J_1^4} \end{aligned} \tag{8}$$

$$\begin{aligned} S_{14} &= S_{41} \\ &= -S_{23} \\ &= -S_{32} \\ &= \frac{2jJ_1^2J_{14}}{s^2+2s\left(jB_1+J_1^2\right)+2jJ_{12}^2B_1-B_1^2+J_{14}^2+J_{12}^2+J_1^4}. \end{aligned} \tag{9}$$

Note that the response shown in [1, Fig. 2] is not affected. It is correct for the given values of B_1, J_1, J_{12}, and J_{14}.

References

[1] U. Rosenberg, M. Salehi, S. Amari, and J. Bornemann, "Compact multi-port power combination/distribution with inherent bandpass filter characteristics," *IEEE Trans. Microw. Theory Techn.*, vol. 62, no. 11, pp. 2659–2672, Nov. 2014.

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