Abstracts

Transitional combline/evanescent-mode microwave filters (Comments and Authors' Reply)

I. Shapir, V. Sharir, R. Levy, Hui-Wen Yao and K.A. Zaki. "Transitional combline/evanescent-mode microwave filters (Comments and Authors' Reply)." 1998 Transactions on Microwave Theory and Techniques 46.9 (Sep. 1998 [T-MTT]): 1346-1347.

For the original paper see ibid., vol. 45, no. 12, p. 2094-99 (1997). In the aforementioned paper, Levy et al. refer to the phenomenon of combline-filter bandwidth expansion (i.e., practical bandwidth versus theoretical TEM-analyzed bandwidth). Levy et al. explain that this phenomenon is mainly caused due to evanescent waveguide modes propagating through the structure, affecting the overall coupling coefficients and bandwidth. The commenters point out that this explanation, known for many years, is only one among other explanations such as coupling between nonadjacent resonators, also known for many years. They suggest that these explanations and derived equivalent models are not fully compliant with practical results and may be applicable only in limited frequencies and structural dimensions. In conclusion, the commenters consider it important to mention that their explanation, based on deviation from quasi-static 2-D cross-sectional TEM-derived coupling coefficients, and modified equivalent model were successfully adopted by others to achieve fast and accurate design procedure, thus proving the validity of their explanation and the practical value of their modified equivalent circuit. In reply Levy et al. say that, on the whole, they disagree with most of the arguments of Shapir and Sharir, but think that they have raised some interesting points which deserve careful consideration, and the authors are grateful for the opportunity both to respond and to clarify certain aspects of their paper which may be subject to misunderstanding.

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