Abstracts

A Generalized Theory of Tapered Transmission Line Matching Transformers and Asymmetric Couplers Supporting Non-TEM Modes

P. Pramanick and P. Bhartia. "A Generalized Theory of Tapered Transmission Line Matching Transformers and Asymmetric Couplers Supporting Non-TEM Modes." 1989 Transactions on Microwave Theory and Techniques 37.8 (Aug. 1989 [T-MTT]): 1184-1191.

This paper presents a generalized Fourier transform pair for the analysis, synthesis of tapered transmission lines supporting a non-TEM mode. The Fourier transform pair first pointed out by Bolinder and subsequently used by Klopfenstein and others, for TEM lines, can be shown to be a special case of the present transform pair. A step-by-step synthesis method has been described for exact designs of matching transformers, asymmetric couplers. The theory is verified with the design of two Ka-band finline tapers, a C-band microstrip coupler.

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