Abstracts

Arbitrary filter design by using nonuniform transmission lines

Te-Wen Pan, Ching-Wen Hsue and Jhin-Fang Huang. "Arbitrary filter design by using nonuniform transmission lines." 1999 Microwave and Guided Wave Letters 9.2 (Feb. 1999 [MGWL]): 60-62.

We develop new formulations of reflection and transmission coefficients of nonuniform transmission lines having unequal reference impedances. By using the ABCD transmission matrix of a transmission line, we express the reflection and transmission coefficients of a nonuniform line as polynominal ratios in Z transforms. These formulations, in conjunction with digital signal processing (DSP) techniques and a reconstruction method, lead to the realization of nonuniform lines which satisfy prescribed scattering characteristics in frequency domain. Some examples are presented to illustrate the validity of this technique.

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