Abstracts

Gain-Bandwidth Limitations and Synthesis of Single-Stub Bandpass Transmission-Line Structures

M.E. Mokari-Bolhassan and W.H. Ku. "Gain-Bandwidth Limitations and Synthesis of Single-Stub Bandpass Transmission-Line Structures." 1977 Transactions on Microwave Theory and Techniques 25.10 (Oct. 1977 [T-MTT]): 848-852.

Gain-bandwidth limitations and synthesis of a class of bandpass transmission-line structures with a single shunted stub and n cascaded commensurate lines are presented in this paper. With a shunt shorted stub as the reactive constraint, the optimum gain bandwidth is derived for an ideal bandpass gain characteristic. Explicit gain-bandwidth and synthesis results have been obtained for the class of single-stub cascaded line structures with one and two cascaded lines for both maximally flat and Chebyshev characteristics. For the general case of n cascaded lines approximate gain-bandwidth limitations have also been derived. The explicit results including gain-bandwidth limitations and element values can be used for the design of this class of bandpass transmission-line networks for broad-band matching of the reactive constraint as well as impedance transformation.

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