Abstracts

Isolation of Lossy Transmission Line Hybrid Circuits (Correspondence)

R.M. Kurzrok. "Isolation of Lossy Transmission Line Hybrid Circuits (Correspondence)." 1967 Transactions on Microwave Theory and Techniques 15.2 (Feb. 1967 [T-MTT]): 127-128.

With the advent of integrated microwave circuit techniques, use of lossy transmission lines to achieve miniaturization can seriously affect circuit performance. A frequently used performance characteristic of hybrid circuits is the isolation between conjugate ports. Such isolation is normally limited to maximum values of 40 dB to 50 dB due to incidental mismatch of terminations and capabilities of test equipment. When lossy transmission lines are employed to realize the hybrid circuits, an additional constraint is placed upon the peak isolation that can be achieved. In this correspondence, the theoretical isolations of lossy hybrids will be determined at their design center frequencies. Two different hybrid circuits will be considered: the square hybrid and the "rat race" hybrid ring. The preferred method of analysis of symmetrical four-port networks will be used herein.

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