Abstracts

The Design and Construction of Broadband, High-Directivity, 90-Degree Couplers Using Nonuniform Line Techniques (Dec. 1966 [T-MTT])

C.P. Tresselt. "The Design and Construction of Broadband, High-Directivity, 90-Degree Couplers Using Nonuniform Line Techniques (Dec. 1966 [T-MTT])." 1966 Transactions on Microwave Theory and Techniques 14.12 (Dec. 1966 [T-MTT]): 647-656.

It is possible, at present, to obtain multioctave bandwidth in symmetrical couplers that employ cascaded quarter-wave-length sections of uniformly coupled line. However, the physical junctions between the various sections contribute reactive discontinuities, which significantly degrade coupler directivity. This paper describes a coupler design employing a continuously tapered coupling coefficient that helps to circumvent the directivity problem. Two classes of couplers have been investigated, including one which provides optimum equal-ripple performance. Synthesis has been performed with the aid of both digital and fourier integral computers. Somewhat tighter center coupling is required in the tapered design to produce bandwidth-mean-coupling-level performance comparable to stepped-coupling design. Experimental data is presented on several models constructed in three-layer polyolefin stripline.

❑ Return to main document.