Abstracts

Ultra-Broadband High-Directivity Directional Coupler Design

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This paper discusses the theory and design of ultra-broadband high-directivity tapered line directional couplers. Causes of imperfect directivity are examined from both a theoretical and experimental standpoint. This includes the effects of non-unity VSWR terminations and internal connections, unequal even and odd mode velocities, and unequal even and odd mode attenuation constants. Practical considerations in the modem design of asymmetrical tapered couplers are discussed. Such information is significant in the choice of structure, layout, and tolerances to achieve maximum directivity. An example design is presented which displays a bandwidth that is believed to be approximately 1.7 octaves greater than any other coupler of comparable directivity.

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