Abstracts

A leaky-mode S-parameter extraction technique for efficient design of the microstrip line leaky-wave antenna

Jyh-Wen Sheen, Yu-De Lin and Tai-Lee Chen. "A leaky-mode S-parameter extraction technique for efficient design of the microstrip line leaky-wave antenna." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. I [MWSYM]): 175-178 vol.1.

A leaky-mode S-parameter extraction technique is proposed in this paper. The proposed method can be employed in a numerical way or an experimental way. By properly arranging two circuits under test, the leaky-mode S-parameter can be de-embedded from the transmission line theory. Numerically, this method can avoid the problem of having to deal with a large-circuit-size structure when designing a leaky-wave antenna. The propagation constants of the leaky modes calculated by the full-wave spectral domain approach, and the experimental results of an aperture-coupled leaky-wave antenna are used to confirm the parameters extracted by this proposed technique. They all show good agreement. With appropriate modifications, the method can also be extended to extract and define the characteristic impedance of a leaky-wave antenna.

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