Abstracts

An unconventional circuit model for an efficient description of impedance and radiation features in printed-circuit leaky-wave structures

P. Burghignoli, C. Di Nallo, F. Frezza, A. Galli and P. Lampariello. "An unconventional circuit model for an efficient description of impedance and radiation features in printed-circuit leaky-wave structures." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. I [MWSYM]): 179-182 vol.1.

In this work an original circuit model is presented, which furnishes an efficient description of the impedance and of the radiation performance for typical printed-circuit leaky-wave antennas. By considering in particular a junction between slot-coupled feeding and radiating microstrips, we have developed an unconventional equivalent transmission-line formulation, involving the propagation of the dominant mode for the feeding line and of the first higher mode for the radiating line, which is leaky. Various antenna configurations have been tested, and the relevant results have been validated through comparisons with heavier full-wave numerical approaches.

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