Abstracts

Role of Complex Modes in Modeling Discontinuities of Dielectric Loaded Wave Guides

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It is shown that modeling of step discontinuities in cylindrical dielectric loaded waveguides excited in hybrid modes, using mode matching cannot converge unless complex modes are included in the field expansions. If the parameters of the structure and operating frequency allow the existence of complex modes, then the purely propagating and purely evanescent mode fields are not a complete set, unless complemented by the complex mode fields. Numerical results are presented that clearly illustrate the role of the complex mode fields in step discontinuity modeling.

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