Abstracts

Unified Solution of Various Dielectric-Loaded Ridge Waveguides with a Mixed Spectral-Domain Method

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A mixed spectral-domain method is developed and applied to analyze various dielectric-loaded ridge waveguides. Magnetic surface currents at apertures are identified as unknowns in auxiliary structures. Spectral Green's functions are formulated with the spectral immittance approach for these structures. Mixing different spectral domains existing on the two sides of an aperture in a spectral Galerkin approach then leads to the characteristic equations required for the dispersion analysis. The simplicity and numerical efficiency of the conventional spectral-domain immittance approach, which cannot be applied directly to the present structures, are maintained. Representative results are obtained to illustrate the application of the method.

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