Abstracts

On the Orthogonality of Approximate Waveguide Mode Functions (Short Papers)

H. Steyskal. "On the Orthogonality of Approximate Waveguide Mode Functions (Short Papers)." 1981 Transactions on Microwave Theory and Techniques 29.6 (Jun. 1981, Part I [T-MTT]): 615-617.

For many waveguides, only approximate solutions for the mode functions are available and in such cases the question arises, whether the orthogonality property of the exact modes can be preserved. This problem is addressed in the present paper. A fairly general method of solution is considered and it is shown that in spite of two consecutive approximations the resultant mode functions are indeed orthogonal. Examples that have been analyzed include a rectangular waveguide with a septum, a rectangular waveguide with an axial, conducting strip and a (phased array) unit cell waveguide with one or more axial, conducting strips.

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