Abstracts

Analysis of Wide Inclined Slot Coupled Narrow Wall Coupler Between Dissimilar Rectangular Waveguides (Comments and Authors' Reply)

S.R. Rengarajan. "Analysis of Wide Inclined Slot Coupled Narrow Wall Coupler Between Dissimilar Rectangular Waveguides (Comments and Authors' Reply)." 1995 Transactions on Microwave Theory and Techniques 43.1 (Jan. 1995 [T-MTT]): 240-241.

We wish to comment on a recent publication in the IEEE Transactions on Microwave Theory and Techniques. The authors claim that our paper has not considered the contribution of TE/sub 00/ mode in the scattered fields in the waveguide region and imply that the Green's function employed in our paper is incomplete. It was recognized as far back as in 1973 that the eigenfunction expansion of the dyadic Green's functions in terms of the waveguide modes is incomplete in the source region and that there is an additional singular term. The source region singularity of the dyadic Green's functions in waveguides and cavities was a topic of discussion in several papers in seventies, and it is well understood now by the electromagnetic community. The singular term was interpreted as TE/sub 00/ mode contribution by Vu Khac and Carson. In our paper, the Green's functions in the waveguide region do indeed include the source region singularity. The correct form of wavegtride Green's functions are found in many papers in the literature, and hence for brevity they were not reproduced in our paper. We wonder how a reader could conclude that the singular terms are not treated in our paper since there is a discussion on the singular contribution with a mathematical expression containing the appropriate Dirac delta function. It is also obvious that the specific terms of the cavity Green's functions that treat the waveguide wall thickness in our analysis do not have such a singular contribution present. Therefore, Green's functions employed in our paper are complete and rigorous.

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