Abstracts

Regular Solution of Shielded Planar Transmission Lines

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The analysis of shielded transmission lines has been completed using a new method: Regular solution of singular integral equation (RSSIE). Here, an integration procedure is adopted and the uniqueness of the fields is determined by the regularity conditions for the solutions of the singular integral equations at the edges of the metal strips. This leads to more rapid convergence of the series solutions, and enables the analysis of any kind of shielded planar transmission line. It is demonstrated that the results obtained by the proposed method are more accurate than those computed by the spectral domain method (SDM) in comparison with the data measured. In some special cases where the results can exactly be obtained, the proposed method gives more accurate values than those calculated by the SDM. Dominant and higher order modes can be calculated effectively and accurately. The investigation of convergence shows that not only dominant mode but also higher order modes converge rapidly. The computer time required by this proposed method decreases considerably in comparison with SDM.

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