

Abstracts

On the Quasi-TEM Modes in Inhomogeneous Multiconductor Transmission Lines

I.V. Lindell. "On the Quasi-TEM Modes in Inhomogeneous Multiconductor Transmission Lines." 1981 Transactions on Microwave Theory and Techniques 29.8 (Aug. 1981 [T-MTT]): 812-817.

We consider the general inhomogeneous shielded N-conductor transmission line and derive several properties for the quasi-TEM modes. The concept of quasi-TEM is deduced through an asymptotic series expansion of the fields and conditions for the propagation constant as well as the construction of the field are presented. It is seen that the problem is reduced to two static two-dimensional boundary value problems. The concepts of propagating modes and impedance modes are introduced and it is shown, that in the general case, these are not the same. The special cases of propagating impedance modes are finally discussed and are seen to exist under certain symmetry conditions of the multiconductor line.

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