Abstracts

Numerical analysis of the propagation characteristics of multiangle multislot coaxial cable using moment method

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In this paper, multiangle multislot coaxial cable is analyzed qualitatively and quantitatively. This is the extended result of the previous studies of the single-slot coaxial cable. The properties of this cable have been studied by many authors, especially for the surface-wave type. However, the slotted coaxial cable utilizing leaky waves has not been treated rigorously despite its wide use. In this paper, a numerical analysis of a leaky coaxial cable with a multiangle multislot configuration is performed to obtain many useful results, which are impossible to derive employing the approximate model frequently used in this area. Using the moment method, the propagation constant has been obtained for the leaky coaxial cable as a function of various parameters. Several slot configurations are considered to give insight into the properties of coupling loss and transmission loss complicated by simultaneous existence of leaky and surface waves.

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