Abstracts

Theory of the Slotted Coaxial Cable

P.P. Delogne and A.A. Laloux. "Theory of the Slotted Coaxial Cable." 1980 Transactions on Microwave Theory and Techniques 28.10 (Oct. 1980 [T-MTT]): 1102-1107.

The electromagnetic problem of the coaxial cable with a continuous slot along the outer conductor is solved taking into account the dielectric constant of the cable insulation. Cylindrical harmonics expansions for the inner and outer space are used. The basic difficulty is to express boundary conditions on a part of the period in Fourier series. It appears that the singularity of the fields at the edge of the outer conductor plays a key role in the uniqueness of the result. The propagation constants of the monofilar and coaxial modes are obtained with a good accuracy. It is shown that these modes have different transfer inductances.

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