Abstracts

Condition for Distortionless Transmission Line with a Nonuniform Characteristic Impedance (Short Papers)

J. Lundstedt. "Condition for Distortionless Transmission Line with a Nonuniform Characteristic Impedance (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.6 (Jun. 1995 [T-MTT]): 1386-1389.

The well-known condition for distortionless signal propagation on a dissipative transmission line with constant impedance is generalized to the case of nonuniform impedance. The result is based on a time-domain wave-splitting formulation of the Telegraphist's equations. It is shown that an appropriate choice of the resistance and the conductance can eliminate the distortion caused by the varying characteristic impedance. A nonuniform transmission line that satisfies the given condition is distortionless in both directions, but reflectionless for signals propagating in one direction only.

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