

Abstracts

A New Definition of Characteristic Impedance

J.C. Rautio. "A New Definition of Characteristic Impedance." 1991 MTT-S International Microwave Symposium Digest 91.2 (1991 Vol. II [MWSYM]): 761-764.

Existing two-dimensional definitions of characteristic impedance can result in a wide range of values for the characteristic impedance of a given transmission line in inhomogeneous media. This paper suggests a three-dimensional definition, the "TEM Equivalent" characteristic impedance, which is unique for any given transmission line geometry and is appropriate for use in circuit theory applications. Comparisons with two-dimensional results and comparisons with measurements are presented. The TEM equivalent characteristic impedance also shows a non-monotonic dispersion which is not seen in the usual two-dimensional definitions but is seen in experimentally.

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