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Some scaling rules for ferrite-loaded coaxial lines

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In this work a description of behavior of ferrite-loaded coaxial lines is carried out by solving the gyromagnetic magnetization equation for the ferrite coupled with the Maxwell equation for transmission line in time domain. The influence of induced radial and axial magnetic field components in the ferrite magnetization is investigated as well the rise time of input high voltage. The model is used for different ferrite types. From the results is possible to outline some scaling rules concerning magnetic properties, physical dimension of ferrites and the coaxial lines.

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