

عنوان مقاله:

Numerical Investigation of External Electromagnetic Field Coupling to Coplanar Waveguide

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خلاصه مقاله:

In this paper, for the first time, effects of external electromagnetic fields on a coplanar waveguide (CPW) are numerically studied by means of the method of finite elements. Two CPW lines with different geometry and dielectric substrate permittivity are considered. Both lines have characteristic impedance of $\Delta \circ \Omega$. Induced electric and magnetic fields on the two CPW lines are analyzed by illuminating the structure with a plane wave. The uniform plane wave with fixed frequency at \mathcal{P} GHz is considered as the incident field. The influences of the incidence angle and dielectric substrate permittivity are investigated. For this purpose, two incidence planes are considered and, for each case, two polarizations, parallel and perpendicular, for incidence electric field relative to incidence planes are studied. According to the results, for the two CPW lines terminated with their characteristic impedance at both ends and the incident plane wave with electric-field intensity of 1 V/m at f = \mathcal{P} GHz with incidence angles of YY. Δ° and F Δ° , maximum peaks of the induced field occur and also, depending on the incidence plane, incidence angle and E-field polarization, even or odd .quasi-TEM mode of the CPW line can be propagated

كلمات كليدى:

electromagnetic field coupling, coplanar waveguide (CPW), external electromagnetic field

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