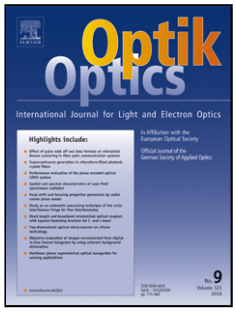

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Scattering from a PEC strip located at planar interface of free-space and lossy dispersive dielectric-magnetic medium using Kobayashi Potential method

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Abstract

Kobayashi potential method has been used to study the scattering of electromagnetic plane wave from a Perfect Electric Conducting (PEC) strip placed at planar interface of the free space and dielectric-magnetic medium. The strip has been assumed to be thicker than the skin depth and also, it is thinner than a tenth of the free-space wavelength. Furthermore, it has been assumed that dielectric-magnetic medium is homogeneous, lossy and dispersive. Lorentz-Drude model has been used to incorporate losses and dispersion both in permittivity and permeability of the dielectric-magnetic medium. Depending upon the frequency, the lossy dispersive dielectric-magnetic medium may behave as ENG $\{Re\,(\varepsilon) < 0\}$, MNG $\{Re(\mu) < 0\}$, DNG $\{Re(\varepsilon,\mu) < 0\}$, and DPS $\{Re(\varepsilon,\mu) > 0\}$. Scattered field pattern was observed at different operating frequencies by varying different parameters of the considered geometry. The monostatic and bistatic scattering widths