

Название публикации:

Transient Radiation of Charged Particle in a Waveguide Completely and Partially Filled with an Anisotropic Magnetodielectric Medium

Авторы:

Gevorkyan, E.A.

Plekhanov Russian University of Economics, Moscow, Russian Federation

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Аннотация:

This article provides a review of theoretical works devoted to the study of transient radiation and Cherenkov radiation of a charged particle at its uniform motion in perpendicular direction to the waveguide axis. It is assumed that the waveguide fully and partially filled with an anisotropic magnetodielectric medium. Wave equations and analytical expressions for transverse electric (TE) and transverse magnetic (TM) fields both in the waveguide and in various regions of the waveguide in the presence of a plate of finite length in it have been found. Energies of transient radiation of the particle moving in a rectangular waveguide have been calculated. In this case the peculiarities of transient radiation and Cherenkov radiation have been analyzed. © 2018 IEEE.

Ключевые слова:

Anisotropic magnetodielectric medium, Charged particle, Maxwell equations, Transient radiation, Waveguide