Dushkin, V. D.; **Zhuchenko, S.**; **Kostenko, O. V.**

Discrete mathematical model of the scattering process of E-polarized wave on a periodic impedance grating. (English) Zbl 1463.78002

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Summary: There are considered discrete mathematical models which describe the interaction process of the E-polarized wave and periodic system of impedance tapes. It is shown that the discrete model for various values of the discretization parameter is equivalent to the system of singular integral equations. Calculations were performed for the proposed model and for the model based on the hypersingular equations. The obtaining results showed the closeness of the field characteristics.

MSC:

78A45 Diffraction, scattering
35J05 Laplace operator, Helmholtz equation (reduced wave equation), Poisson equation
45B05 Fredholm integral equations
45E05 Integral equations with kernels of Cauchy type

Keywords:

mathematical model; impedance structures; numerical experiment

Full Text: DOI