

THE BEHAVIOR OF REFLECTION FACTORS IN CASE OF OBLIQUE FALL OF MICROWAVE RANGE PLANE WAVES ON A LAYERED MEDIUM.

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Abstract:

In recent years intensive development of both methods and technical means of the remote control and diagnostics of various material mediums is being observed. These methods are based on the analysis of the tested medium response to sounding radio signals with a broad spectrum. The task of processing radioechoes with a subsequent interpretation is rather complex and laborious. One of the tendencies of perfecting radioechoes interpretation methods is connected with the solution of more simple model problems for the case of interaction of plane waves with a layered medium with real electrical and geometrical parameters.

The oblique sounding method is used for solving many problems of both control and diagnostics of material mediums. In the case the polarization of the used radio signals starts playing an essential role. The combined usage of the results of vertically and horizontally polarized waves will allow to solve successfully a number of new tasks of subsurface sounding.

In the present work the behavior of reflection factors of plane waves of vertical and horizontal polarization in case of oblique fall on the inspected medium is being analyzed. One of possible methods of technical realization of the device to control electrical parameters of the environment either detection of the natural or latent artificial discontinuities is being considered.