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The analytical solution of the Maxwell equations with a harmonic source in the frequency domain for horizontally stratified anisotropic media and its stable calculation

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In this work we present the analytical solution of the Maxwell equations with the harmonic source in the frequency domain for horizontally stratified media of any type of anisotropy. Calculation of this solution connects with unstable procedures: determination of eigenvectors of the corresponding matrices and solution of homogeneous systems. We obtained the analytical solution in the form which allows us to suggest the stable algorithm for its calculation. The present analytical solution can be used to test numerical methods.