

DIFFRACTION OF TE AND TM
POLARIZATION OPTICAL WAVES
BY NON-ABSORPTIVE MEDIA
WITH PERIODICAL VARIATION
OF THE DIELECTRIC CONSTANT.

1. SYSTEMS OF DIFFERENTIAL
EQUATIONS

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S u m m a r y

Analysis of the diffraction of TE and TM polarization optical waves by non-absorptive media, dielectric constant of which varies by the cosine law in a certain direction is performed. Linear systems of differential equations of coupled waves are obtained. The strength of electric and magnetic field which appear in a periodic medium while propagation are described as a superposition of plane waves with variable amplitudes. In the obtained system of equations with constant coefficients, the waves which propagate in the forward and backward directions are taken into account, which allows one to take into account the precise boundary conditions and to solve the problem of diffraction for phase gratings.