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标题: RECORDING AND RECONSTRUCTION OF IN-LINE HOLOGRAMS OF AMPLITUDE OBJECTS IN THE TERAHERTZ FREQUENCY RANGE USING A FREE ELECTRON LASER
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摘要: Until now, holography experiments in the terahertz frequency range have been performed using only pulsed broadband sources and the time domain imaging technique. In this paper, we study the feasibility of the classical holographic technique in this spectral region using the Novosibirsk free electron laser as a high-power monochromatic terahertz source. Gabor (in-line) holograms of amplitude objects (metal masks) are recorded with the help of a temperature-sensitive phosphor image plate and a CCD camera operated in the visible range at a wavelength of 130 mu m. The holograms are reconstructed by the Fresnel-Kirchhoff integral calculation in the image plane. Contrast of the images increases when several individually reconstructed holograms are summed up in a standard way. Spatial resolution of the reconstructed images amounts to 0.4 mm.
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