

Influence of the type of the illumination source of a liquid-crystal light modulator based on a π -cell on its total operation time

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The paper presents a study of the dependence of the dynamics of the optical response of a high-speed liquid crystal light modulator based on a cell on the wavelength of the modulated radiation. To solve this problem, the method of computer simulation of the electro-optical characteristics of liquid-crystal modulators was used. It has been established that the total response times of the modulator at the same absolute values of the control voltage have different values for different regions of the modulated radiation. It is shown that the value of the optical threshold voltage, in contrast to the deformation threshold voltage, depends on the wavelength of the modulated radiation. As a result, the value of the total response time of such a device depends on the spectrum of the modulated radiation source. Therefore, for monochrome liquid crystal modulators, in order to achieve the minimum values of the total response times, when choosing the values of control voltages, it is necessary to take into account the spectral composition of the modulated radiation.

Keywords: liquid crystals, modulators, computer simulation.

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