

# THE INFLUENCE OF ATMOSPHERIC CONDITIONS ON IMAGE CONTRAST IN LASER GATED VISION SYSTEMS

Tarasenkov M.V., Belov V.V., Peshkov S.A., Poznakharev E.S.

V.E. Zuev Institute of Atmospheric Optics of the SB RAS, Tomsk, Russia

e-mail: [TMV@iao.ru](mailto:TMV@iao.ru), [Belov@iao.ru](mailto:Belov@iao.ru), [S\\_Peshkov@list.ru](mailto:S_Peshkov@list.ru), [724\\_pes1992@iao.ru](mailto:724_pes1992@iao.ru)

The influence of atmospheric conditions on image contrast in gated vision systems is investigated using the statistical modeling method. The changes in image contrast are considered when the system operates in conditions of high atmospheric turbidity. An improved calculation method based on the Monte Carlo algorithm is proposed, taking into account reflection from the earth's surface and the object, receiver obstruction, and the influence of a turbid medium. Numerical modeling performed shows the dependence of contrast on the distance to the object and atmospheric conditions. The results demonstrate a decrease in contrast with increasing distance, as well as the influence of gating parameters on image quality.

*Keywords:* laser gated vision systems, image contrast, turbid atmosphere, Monte Carlo method.