Reflection of the laser radiation by Luneberg lens moving in low Earth orbit

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The article describes a mathematical model of the laser radiation reflection by a compound Luneburg lens as a part of the reference microsatellite "Blits". The trajectory of beam propagation inside the lens and angular characteristics of the reflected beams are determined. The magnitude of velocity aberration and additional bending of light beams with respect to the ground receiver was determined by numerical calculations. This factors should be taken into consideration in satellite laser ranging of spacecrafts making up the GLONASS.

Keywords: *Luneburg lens, gradient lens, dispersion equation, satellite reflector, laser ranging.*

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