

## **PROPOSALS FOR THE DEVELOPMENT OF A DEVICE FOR THE TRANSMISSION OF INFORMATION USING LASER RADIATION IN THE "LAST MILE" TECHNOLOGY**

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Prospects for the development of laser communication, which transmits information using electromagnetic waves of the optical range, are associated with high bandwidth due to the high value of the carrier frequency and the ability to transmit large amounts of information at high speed. In addition, the small angular divergence of laser radiation (LR) provides spatial concealment and high energy stability of information transmission over an optical communication channel with relatively small dimensions of transceiver devices.

Therefore, the LW is actively used in atmospheric optical communication lines (AOCL). This technology creates reliable communication channels at distances from 100 to 7000 m in the atmosphere and up to 100,000 km in outer space, for example, for communication between satellites.

**The purpose of the report** is to increase the amount of information transmitted by laser radiation in the last mile technology.

**The report presents** the results of a study of wireless information transmission in the short-wave part of the electromagnetic spectrum.

It is noted that the main advantages of this method of information transmission include: high transmission speed, ease of installation and no need to pay for the use of the frequency range.

According to the price-quality criterion, AOCL is the best solution to the "last mile" problem with high security of the communication channel. Connecting a new cluster of clients to the access node via a dedicated high-speed communication line within one day without obtaining a radio frequency permit and leasing lines. The necessity of using the spectrum features of a single-mode multi-time division multiple-access line LR with synchronization of longitudinal modes is substantiated. A device for separating carrier frequencies from this spectrum for further modulation with information is proposed.

### **References**

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