



Setup for verification of FSO channel jamming and monitoring

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Description – The setup consists of two modules: transmitter and receiver. The purpose of the transmitter module is to generate an optical signal, which jams the operation of a Free-space optical link (FSO), in a similar way to radio systems. The receiver module is a high-gain optical receiver with analog output for connecting analysis modules.



Basic parameters:

- Narrow transmitted beam with divergence 1 – 2 mrad.
- Regulated output power up to 100 mW (20 dBm) in 1550 nm nabd.
- Generation of chosen bit sequence with rate of 100 Mb/s - 1 Gb/s.
- Optical receiver with 300 mm aperture.
- Optical receiver band 800 - 1700 nm.
- Receiver bandwidth 1 GHz.

The base of the transmitter unit is an FPGA circuit with optical fiber output, which generates the transmitted sequence. The adjustable EDFA amplifier amplifies the optical signal up to a level of 20 dBm. The optical transmitter itself is connected to the cabinet using a single-mode optical fiber. The optical transmitter is passive and, thanks to its small dimensions, easy to handle.

To achieve the highest possible optical sensitivity of the receiver, a simple assembly with a Fresnel lens of large diameter is used, in the focus of which a photodiode module and a low-noise preamplifier are placed. The output signal is further analyzed by connected devices.

