



EFFICIENCY OF A SYSTEM FOR PRIMARY PROCESSING OF SIGNALS IN AN OPTO-ELECTRONIC DEVICE¹

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ABSTRACT: *The energy efficiency of systems for primary processing of signals in optoelectronic devices is analyzed for the case of identification and study of remote objects against a bright background and under low-contrast conditions. A criterion is determined for evaluating the energy efficiency of the major unit of the system for primary signal processing - the optic system, and some expressions are derived, relating the value of the signal-to-noise ratio at the device's input with these criteria (amplification factor) and other "ideal" or "real" optic systems' parameters. The specific thing here is the operation of the system for primary processing of signals when the value of recorded contrast equals 1 percent or less. As an evaluation criterion for the energy efficiency of this system, the signal-to-noise ratio is used.*

Comparative evaluation of various systems for primary processing of signals operating under low-contrast conditions and specific values of the signal-to-noise ratio is performed.

The operation analysis for the system for primary processing of information (signals) under low-contrast conditions is performed accounting for the impact of the optic system.

KEY WORDS: *efficiency, opto-electronic device*

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