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## WAYS OF TRANSMITTING INFORMATION VIA THE CABLE POWER LINE

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**Purpose.** Study the possibility of transmitting information via the cable power line of using NLS based on pseudorandom sequences (PRS).

**Methodology.** At the moment there are two methods to study extensive power networks. The first method is analytical one, which makes it impossible to obtain all the necessary information about the physical phenomena occurring in the network, since with non-stationary objects the input resistance and the overall distribution of the signal level are continuously varied.

The second method is electrical simulation, which provides ample opportunities to explore the different modes of operation. This takes into account all the phenomena affecting the transmitted signal.

Under the electric modeling implies the creation of a set of active and reactive resistances of the equivalent cell line which is typed in the network diagram which is electrically equivalent to a real network located in the mine.

To achieve this goal it is necessary to develop a laboratory setting that allows to generate a modulated NLS based on the PRS of Huffman coding, which will be sent to the communication line, and then transmitted to the receiver for subsequent correlation and integration. The experimental data at different levels of noise in the communication line will be recorded for further statistical processing.

**Findings.** Broadband information transmission system with noise-like signals(NLS)[1] was initially developed for the operating conditions of the channels with interference of an uncertain nature, including intentional one. The basis of action is the dispersion of the signal energy in the frequency band, which in some cases exceeds the bandwidth information message signal by 2 to 3 orders of magnitude. Receive-side signal “is being gathered” across the bandwidth of the channel with the method of correlation processing.

In the scientific literature the noise-like signals by their properties are divided into these types: frequency modulated, multi-frequency, digital frequency, digital composite frequency, phase-shift keyed signals [2]. In connection with the presence of powerful jamming, affecting the communication line, it is proposed to use frequency-modulated NLS, their advantages are: high noise immunity, more effective use of transmitter power, and comparative ease of obtaining modulated signals.

The method of electrical modeling provides ample opportunities to explore the different modes of operation. In this regard, to investigate the possibility of data transmission via power grids developed a laboratory setting. The length of the electric cable in this experiment was 1000 meters which is enough to confirm the possibility of transmission of information at the local grid.

The analysis power line of distribution network as a communication line was established that, despite its multi design, this network of mine like a single-line. This method has the ease of connecting the receiving-transmitting equipment to the power cable.

The choice of a primitive irreducible polynomial of third degree allows to obtain a single maximum autocorrelation function, which would allow for independent transmission 7 channels of communication, which have noise-like signals based on a single generating polynomial with different initial phases.

This method of information transmission enables error-free reception when the ratio signal/noise is equal to 4, which confirms the study. If you use the pre-error-correcting-encoded and when the ratio signal/noise is equal to 1 (the noise level will be equal to the signal level) it is possible to receive signals.

**Key words:** Noise-like signal, pseudorandom sequence of Huffman, power distributive network

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