

The Stability of New Transmission Channels of Measurement Signals, Based on the Frequency Modulation Method, in the Case of Operation in Electrical Networks

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Abstract— The measurement of electrical quantities in the energy supply systems requires the utilization of measurement means with stable operation. The means used for outdoor measurements must be insensible to the temperature variation, the action of intense electric and magnetic fields specific to medium and high voltage networks, the action of radiofrequency disturbances. Besides it is necessary to ensure energy autonomy for measurement units placed in the points with high potential. All these have the role to keep the value of measurement errors within the limits allowed by standards. The paper shows some aspects of operation of channels for measurement signals transmission using the method of frequency modulation and the problems that arise at the outdoor operation. At the same time it shows solutions for creating channels with stable operation and the experimental results obtained with these channels. The development of digital acquisition and treatment systems of signals, the appearance of optic fibres and optoelectronic devices which emit and receive optical signals, the decrease of prices of acquisition modules and associated software enable the development of new products for medium and high voltage power systems.