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Features of VLF radiation of industrial frequencies

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The features of the emission of electromagnetic waves of an VLF range by industrial power lines, in the circuit of which thyristor power regulators are installed, are considered. For VLF, such a line, due to current surges with a front of about 10 microseconds, is a traveling wave antenna – a Beveredge antenna. Due to the dispersion properties of the underlying surface, the radiation angle relative to the horizon depends on the frequency. The effects of slow drift in time of shift frequencies modulated 50/60 Hz, which are recorded both on the satellite and on the ground, are discussed. It is proposed to use drifting frequencies to monitor the state of the lower ionosphere.

Keywords: harmonics of industrial frequency current, Beveredge antenna, radiation pattern, dynamic spectrum, frequency drift.

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