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## IMPROVING THE ELECTROMAGNETIC COMPATIBILITY OF DISCHARGE-PULSE SYSTEMS WITH A POWER NETWORK

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### Abstract

*Dependences of the relative amplitude of the voltage pulsations on the capacitor of the buffer filter of the discharge-pulse systems caused by the charge of the working capacitor from it from the ratio of their capacitances, the ratio of initial conditions on them and on the quality factor of the charging circuit are investigated. The analysis of the efficiency of technical means for*

improving the electromagnetic compatibility of discharge-pulse systems with a power network is given. With the use of application program package Simetrix a models of the active and passive power factor correctors for the discharge-pulse system were created and operation of the active corrector was investigated when the parameters of its main elements and the switching frequency of the power transistor had changed in wide ranges. As a result of analytical calculations and computer simulation, the dependencies of the total harmonic distortion coefficient of the input current of the corrector from the active resistance of its load, the inductance of the charger's inductor, the capacitance of the filter capacitor, and the switching frequency of the power transistor are obtained. Recommendations to increase the stability of the initial conditions on the working capacitor and filter capacitor of discharge-pulse systems and also to improve the electromagnetic compatibility of such systems with the power network are given. References 35, figures 8, tables 2.

**Key words:** discharge-pulse systems, pulsations, power factor corrector, total harmonious distortions factor.

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