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IMPLEMENTATION FEATURES OF THE TRANSFER FUNCTION OF THE TRANSFORMER-AND-SWITCHES EXECUTIVE STRUCTURE OF THE AC VOLTAGE REGULATOR-STABILIZER

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Abstract

Devices of the converter equipment with transformer-and-switches executive structures (TSES) intended for implementation of dual types of purposeful changes in the magnitude of the input voltage U_1 , regulation and stabilization of the output voltage U_2 at any required level. To facilitate the analysis of the processes occurring at the same time, it was introduced the definition of a zone on the U_1U_2 plane as "conversion field", within which there is a plurality of operating points of the converter. The aim of this work is to determine the characteristics of the

formation of the conversion field and an array of transfer coefficients of the AC voltage discrete converter. It was proposed to consider the conversion field as a set of cells, in each of which the transformer-and-switches executive structure acts as a conventional two-winding transforming element with inherent voltage transmission coefficient. The problem has been solved in a general form in all ranges of the stabilization and regulation. Dependencies of the number of transfer coefficients and their values from the parameters of the conversion field and the allowable error of the desired voltage value have been determined. Examples of options for the reconfiguration of the conversion field have been presented. References 10, figures 5.

Key words: transformer-and-switches executive structure, tap chancing, tap switching, transfer factor, regulator, stabilizer, converting field, reconfiguration.

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