Diagnostics of the influence of internal parameters on the operability of electronic means

ABSTRACT

The work is devoted to the study of the internal parameters of electronic devices (ED) influence on their performance. Schematic and design features of ED and their levels of hierarchy are shown. The main methods of diagnosing electronic devices are analyzed and the existing software for computer modeling of ED is listed as a tool for studying the effect of defects in component elements on the output characteristics and device operability. It was revealed that to ensure effective control of the ED technical state, it is necessary to solve the problem of generating diagnostic tests. Much attention is also paid to the synthesis of rejection tolerances for the internal electrical parameters of the ED components. The corresponding algorithmic and software-methodological support has been developed, the possibility of using which has been proven by the presented results of a number of numerical experimental studies.

Keywords: technical diagnosis, electronic device, reliability, operability, fault, testability, test generation, synthesis of tolerances, computer aided design system, mathematical modeling, fault dictionary approach, parameter identification approach.