

Automated Logical-Probabilistic Methodology and Software Tool as Component of the Complex of Methodologies and Software Tools for Evaluation of Reliability and Survivability of Onboard Equipment of Small Satellites

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Logical-probabilistic method, Reliability, Survivability, Onboard equipment for small satellites, Diagram of functional integrity, System operability function, Probability of failure-free operation, Software tool.

Abstract. The paper presents solutions for current problems with estimation and analysis of indicators of reliability and survivability in onboard equipment (OE) of small satellites (SS) based on the logical-probabilistic approach to the reliability and survivability estimation of complex systems. There were developed modified logical-probabilistic method and software tool for evaluating the reliability and survivability of OE SS systems. The correctness of suggested method and software tool was shown by computational experiments on some systems of OE SS similar to Belarusian SS, later compared with “Arbitr” software complex results. The software tool was integrated into the complex of methodologies and software tools for evaluation, analysis and prediction of the values of reliability and survivability indicators of OE SS in local desktop and distributed web versions.

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