

Using a Systematic Approach to Solving the Problematic Issues of Functioning of the Automated Complex of Programs for Ballistic and Navigational Support of GNSS Spacecraft Missions

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Abstract. The article describes the general provisions of the systematic approach to the study of the problems arising in the application systems for data processing. A thesis that the investigated systems have a hierarchical structure combining a certain amount of counterparts is taken as a basis. Therefore, the solution for the system under analysis should be in identifying the inconsistencies between the normal operation being on the same or different hierarchy levels and defining the method of solution depending on the problem structure. A step-by-step technology in the form of successive stages of solution is proposed in the frames of a systematic approach. A work of the automated complex of programs for ballistic and navigational support of GNSS spacecraft missions is given as an example of usage of the proposed technology. As a result, the component parts of the complex containing probable errors that disturb normal functioning were detected. Moreover, the methods for their elimination are defined. Conclusions are drawn about the practicability of using a systematic approach in the form of the proposed technological scheme for the analysis of work of the hardware and software objects for data processing in the space industry.

Key words: system approach, issue, system, subject area