

ON MODELS OF ERGATIVE SYSTEM SOFTWARE RELIABILITY

*Institute of Technical Mechanics
of the National Academy of Sciences of Ukraine and the State Space Agency of Ukraine
15 Leshko-Popel St., Dnipro 49005, Ukraine; e-mail: Poshivalov.V.P@nas.gov.ua*

The aim of this work is to analyze models of the reliability of the ergative system software component and to develop approaches to the assurance thereof. Software reliability models are analyzed, and the features of software failures are pointed out. Basic approaches to software reliability assurance are considered, and it is pointed out that in actual practice they do not allow one to assess software reliability in full measure. Factors that have an effect on the number of software errors and factors that enhance software reliability are identified. Ways to enhance software reliability are suggested. It is shown that the reliability function and the average time between failures must be used as the basic software reliability indices.

Keywords: *ergative system, reliability, reliability models, software.*

1. Daniev Yu. F., Poshyvalov V. P., Reznichenko L. V. General principles of ergative system reliability assurance (in Russian). System Technologies: collected articles. Dnepropetrovsk, 2014. Pp. 121–126.
2. Daniev Yu. F., Poshyvalov V. P., Reznichenko L. V. System approach to complex system reliability assurance (in Russian). System Technologies: collected articles. Dnipro, 2017. Issue 2 (109). Pp. 27–34.
3. Lipayev V. V. Software Reliability (in Russian). Moscow: Sinteg, 1998. 220 pp.
4. Myers G. Software Reliability (in Russian): translated from English / V. Sh. Kaufman (Ed.). Moscow: Mir, 1980. 360 pp.
5. Teyer ., Lipow M., Nelson E. Software Reliability (in Russian). Moscow: Mir, 1981. 323 pp.
6. Reliability assessment for the software component of an ergative control system (in Russian): 4.02 / Daniev Yu. F., Poshyvalov V. P. // Information Technologies in Complex System Control – 2013: scientific conference (June 19–20, 2013): proceedings. Section 2 / V. V. Pilipenko (Ed.). Dnepropetrovsk: Institute of Technical Mechanics of the National Academy of Sciences of Ukraine and the State Space Agency of Ukraine, 2013. URL: <http://www.itm.dp.ua/>. 3 pp.
7. Shaporov V. N. Information System Reliability (in Russian). Syktyvkar. 2013. 86 pp.
8. Palchun B. P., Yusupov R. M. Software Reliability Assessment (in Russian). Saint Petersburg: Nauka, 1994. 84 pp.
9. Shtrik A. A., Osovetsky L. G., Messikh I. G. Structured Design of Reliable Software for Embedded Computers (in Russian). Leningrad: Mashinostroyeniye, 1989. 296 pp.