METHODS AND MODELS OF AUTONOMOUS CONTROL OVER EARTH REMOTE SENSING SPACECRAFT SURVIVABILITY

State Research and Production Space Centre "TsSKB-Progress", Samara

There considered detection methods of remote sensing spacecraft onboard equipment abnormal functioning in real time, preventing methods of abnormal situation grow up to irreversible consequences, methods of automatic diagnosis of onboard systems failures and their revival. There given results of autonomous analysis, diagnosis and further reconfiguration of spacecraft attitude position control loop.

Earth remote sensing spacecraft, abnormal situation, reference model, autonomous analysis, diagnosis, revival, Vald criteria

References

1. **Akhmetov, R.N.** Spacecraft survivability control / R.N. Akhmetov // All-Russian scientific-technical magazine "Polyot" (Flight), 2006. – N 9. – P.16-20. – [in Russian].

2. **Akhmetov, R.N.** Conceptual issues of compound technical objects survivability control / R.N. Akhmetov [and other] // Papers of VIII International conference on compound systems control and modeling (Samara, June 24-28, 2006). – Samara: Samara scientific center of Russian Academy of Science, 2006. – P.274-284. – [in Russian].

3. **Anshakov, G.P.** Resurs-DK1 remote sensing spacecraft control methods and facilities / G.P. Anshakov [and other] // Collected papers of XIII All-Russian seminar on aircraft motion and navigation control issues. – Samara: S.P. Korolyov Samara State Aerospace University, 2007. – P.4-17. – [in Russian].

4. **Kirilin, A.N.** Main results and plans of Samara Space Centre for design of Earth remote sensing systems assigned for socio-economic purpose / A.N. Kirilin, R.N. Akhmetov, G.P. Anshakov // Moscow: Papers of Scientific production enterprise VNIIEM, "Elektromekhanika" (electromechanics), 2008. – Vol.105. – [in Russian].

5. **Kirilin, A.N.** Development of Russian remote sensing space system / A.N. Kirilin, R.N. Akhmetov // Aerospace courier. – 2007. – N 2. – P.57-61. – [in Russian].

6. **Makarov, V.P.** Artificial intilligence elements as providers of satellite orientation system survivability / V.P. Makarov, S.N. Platonov // Dynamics and space objects control. Novosibirsk: "Nauka| (Science), 1992. – P.193-202. – [in Russian].

7. **Vald, A.** Sequential analysis / A. Vald – Moscow: "Fizmatgiz", 1960. – [in Russian].

8. **Fu, K.** Sequential methods of pattern recognition and machin education / K. Fu – Moscow: "Nauka" (Science), 1971. – [in Russian].

Akhmetov Ravil Nurgalievich, First Deputy General Director – General Designer of SRP SC "TsSKB-Progress", Head of TsSKB, candidate of technical science. Field of his scientific interest is development of spacecraft designing methods and their matematical and algorithmic support.