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An Approach to Determining the Demand for Advanced Electronic Components for Space Applications

M.I. Krasnov, *Cand. Sci. (Engineering)*, mkrasnov@yarz.ru

Joint Stock Company Yaroslavl Radio Plant, Yaroslavl, Russian Federation

E.M. Luk'yanov, lukyanov.em@spacecorp.ru

Joint Stock Company "Russian Space Systems", Moscow, Russian Federation

Abstract. A methodology is presented for determining the demand of the space industry for promising electronic components by analyzing the unified layout of on-board equipment and end-to-end translation from the requirements for the target characteristics of spacecraft to the requirements for the components.

The approach proposed by the authors, through the use of methods incorporated in the design of modern and future spacecraft and through focusing only on the target characteristics of obtaining and processing the target information, makes it possible to simplify the composition of blocks and implement a unified model without reducing accuracy.

The described software-based approach makes it possible to determine the required characteristics of the main electronic components and formulate long-term schedules to ensure import independence in future spacecraft.

Keywords: electronic components, prospects, on-board equipment, model, vector function, graphs, linear programming

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References

1. Semushin I. V. Sbornik zadach po lineynomu programmirovaniyu: elektronnoe posobie [Collection of problems on linear programming: online manual]. Ul'yanovsk, UIGTU, 2012. (in Russian)
2. Bundi, B. Osnovy lineynogo programmirovaniya [Basics of linear programming]. Trans. from Eng. Moscow, Radio i svyaz', 1989. (in Russian)
3. Lemeshko B.Yu. *Teoriya igr i issledovanie operatsiy* [Game theory and operations research]. Novosibirsk: NGTU publ., 2013. Available at: <http://www.knigafund.ru/books/185330> (in Russian)
4. Yur'eva A.A. *Matematicheskoe programmirovanie* [Mathematical programming]. 2nd ed. St. Petersburg, Lan' publ., 2014. (in Russian)
5. Gadel'shina, G.A., Upshinskaya A.E., Vladimirova I.S. *Vvedenie v teoriyu igr* [Introduction to game theory]. Kazan National Research Technological University publ., 2014. (in Russian)

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