ROCKET-SPACE DEVICE ENGINEERING AND INFORMATION SYSTEMS
2024, Vol. 11, Iss. 2, pp. 82–86

UDC 621.3.049.7 EDN EISPLR

Considering the Influence of Parasitic Components in the Design of the K-Band Space Equipment

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Abstract. Modelling and manufacturing of the K-band (18–26 GHz) microwave equipment product is carried out and adequacy of the created model is evaluated. The influence of microwave path assembly processes on the final characteristics of the manufactured product is studied. The possibility of increasing the speed of development by reducing the testing time when using the obtained model for space products of microwave frequency range due to the high convergence of modelling data and measurements of manufactured samples is demonstrated on the example of the SIW filter technology. The model proposed by the authors allows one to reduce the errors in the design of space microwave devices, speed up the manufacturing process, and reduce the number of defects in the assembly of devices.

Keywords: K-band microwave technology, CAD, band-pass filter, electromagnetic oscillation, SIW (Substrate Integrated Waveguide) filter, microwave path

For citation: Nelin A.A., Poymalin V. E., and Fomenko I.A. Considering the Influence of Parasitic Components in the Design of the K-Band Space Equipment. *Rocket-Space Device Engineering and Information Systems.* 2024. V. 11. No. 2. P. 82–86. (in Russian)

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Received ***08.12.2023***
Revised ***19.03.2024***
Accepted ***30.04.2024***