Development of a double-ridged horn antenna in the range of 1-10 GHz

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In order to register the radio emission of a laboratory pulsed high-voltage discharge [1] , a model of a double-ridged horn antenna was created in the CST studio suite. After creating the antenna model, all its parameters were checked to ensure that it meets the requirements of the $VSWR < 2$. The verification of antenna parameters included an analysis of its radiation pattern, gain, input impedance, and other characteristics. These parameters were critical to ensure compliance with the requirements of the task. As a result of the simulations and checks, it was confirmed that the developed antenna model meets all the necessary criteria for successful registration of radio emission from laboratory pulsed high-voltage discharges. The study was supported by the Russian Science Foundation (grant No. 23-19-00524).

[1] Parkevich E, Shpakov K, Baidin I, Rodionov A, Khirianova A, Bolotov Y K and Ryabov V 2024 *Journal of Applied Physics* **136**