PACS: 07.50-e

Pulsed IR radiation source characteristics operating in a discharge circuit

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Received 19.12.2022; accepted 23.01.2023

The article presents the result of a theoretical analysis and experimental studies of the influence of the discharge circuit parameters on the electrical properties and radiation characteristics of a pulsed cesium lamp. The determining role of the correcting inductance for the time of the plasma channel formation during one current pulse and the IR source radiation characteristics are shown. Recommendations are given for choosing the discharge circuit parameters to obtain the optimal peak power values and duration of radiation from a cesium lamp in the mid-IR range.

Keywords: cesium, plasma channel, gas-discharge lamp, discharge circuit, storage capacitor, corrective inductance, wave impedance.

DOI: 10.51368/1996-0948-2023-2-56-63

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