

TESTING OF THE WATER SUPPLYING SYSTEM FOR THE CATHODE OF A VACUUM ELECTRON DIODE*

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An increase in the number of examples of the use of pulsed electron accelerators as sources of ionizing radiation stimulates the development of accelerator technology. One of the nodes that require the attention of researchers and developers of high-power pulsed accelerators is the electron emitter, the cathode. Research in this direction is being carried out both to improve the emission characteristics and to increase the lifetime and operational characteristics of the assembly. One of the original developments is the use of a liquid injected into the accelerating gap as a substance for plasma formation [1]. This work is devoted to testing the system of external liquid supply to the cathode of a vacuum electron diode. The change in the vacuum conditions in the diode during the injection of water is studied. The system is tested when a high voltage pulse is applied to the cathode. The values of water flow rates at which frostbite occurs by the injection system are established. Based on the research results, conclusions were made about the required characteristics of the liquid during injection into the accelerating gap of the vacuum electron diode of a pulsed submicrosecond accelerator.

REFERENCES

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