Emission of X-ray and high-frequency radio radiation during intensive FORMATION OF STREAMERS in high-voltage discharge [[1]](#footnote-1)\*)

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The paper provides comprehensive data on the spectral and temporal characteristics of low-frequency (LF) (10–150 MHz) and high-frequency (HF) (1–4 GHz) radio emissions recorded during the development of extended high-voltage discharge in 50 cm air gaps at voltages of the order of 1 MV. The relationship between the generation of radio emissions and the formation of streamers in the category is investigated. It is shown that the propagation of streamers from the cathode to the anode is accompanied only by the emission of LF radio emission, whereas HF radio emission occurs when the oncoming streamers move from the anode. At the same time, the power of LF radio emission increases sharply almost synchronously with the appearance of emission of HF radio emission. It has been established that HF radio emission has a complex spectral-time structure and is a set of short (less than 1 ns) bursts of HF radio signal power, characterized by various frequency components in subnosecond time intervals. For the first time, by the method of high-frequency radio interferometry, the areas of the "sources" of radio emissions were localized with centimeter accuracy. A close relationship was found between the generation of HF radio emissions and the intensive development of numerous streamers of opposite polarity.

References

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1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/L/Lt/ru/EG-Parkevich.docx) [↑](#footnote-ref-1)