EXPLOSIVE PLASMA JET - HELICAL ANTENNA FIELD INTERACTION

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The research results of explosive plasma jet - helical antenna electromagnetic field interaction are presented. The setup for plasma jet creation is presented as well. The plasma antenna using in mobile sources on base RF MCG could solve some problems such as making the source dimensions less and expanding the band of radiating signal.

The plasma generator has been developed for getting the plasma identical the plasma the MCG produces. The exploder is as a power source for the generator. The explosive products flux to atmosphere through a nozzle and form a plasma jet. The moment when the plasma is fluxing out of the generator is shown. The twin sound was used for plasma jet electrical characteristics research. The sound connection circuit is shown. The sound signal time dependence for case when sound locates on 15 cm distance from generator nozzle. Several sound signals time dependences for cases of different distances are shown. The sound gap resistance is shown. Experimental setup is shown. Power of the generator for helical antenna feeding was 5 W in the frequency range 300 – 800 MHz. The helical antenna and plasma jet complex correspond to a parametrical system.

Experimental results showed density of field increasing more than 10 dB.

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