Contribution ID: **63** Type: **Poster**

High-Power RF Source for the Pulsed Fields Excitation in the Ground

Monday 19 June 2017 13:30 (1h 30m)

High-power electromagnetic fields and currents in the excitation and propagation in the ground is of a significant interest for numerous applied problems. A pulsed electromagnetic field source has been developed for the related purposes. The source is designed as a dipole (vibrator) antenna, excited by the high-current pulsed discharges.
The usage of a dipole with a high input capacitance and a low input impedance is a distinctive feature of this source dipole antenna. The dipole antenna impedance being low improves antenna matching with the spark-gap, being the source of exciter signal. This approach is used to increase the source efficiency. The electromagnetic fields source length is 1.63 m while its diameter is 0.5 m. The source can operate either in single-burst or repetitive mode.

The output source radiation parameters have been experimentally measured in the far field zone. The generated waveform is close to a sine-wave impulse with the central frequency of 60 MHz, E*R product of 450 kV and a peak pulsed power of greater than 2.5 GW with a burst length of 200 ns. Excellent coupling of this source signals through the soil has been shown experimentally.

Authors: Mr HRISTENKO, Viktor (IEMR Ltd.); Mr MYRONENKO, Sviatoslav; Dr RADER, Mark (USAS-MDC/ARSTRAT); Mr SKACHKO, Vladislav; Mr SOMOV, Victor (IEMR Ltd.); TKACH, Yaroslav (GRA Inc.)

Presenter: TKACH, Yaroslav (GRA Inc.)

Session Classification: Poster session I - High Power Microwaves, RF Sources and Antennas

Track Classification: High Power Microwaves, RF Sources and Antennas