

THE TERAMOBILE : FACILITY AND FIRST EXPERIMENTS

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A mobile TW laser facility combined with a detection unit was constructed. It consists of a 4 TW (350 mJ, 80 fs) compact Titanium:Sapphire laser that is housed in a standard Euro container together with a control unit, sending and receiving optics for the laser beam and lidar signals as well as diagnostics equipment.

First experiments with this novel facility concentrated on propagation of intense laser pulses in the atmosphere and the investigation of the electrical conductivity of light channels produced by the TW laser. At the high-voltage facility at the Technische University Berlin it was shown that discharges of 4 m length are guided along the laser beam. For laser energies exceeding 30 mJ such discharges are initiated by the laser even at voltages which are not sufficient to lead to spontaneous air breakdowns.