A MOBILE COMPLEX FOR INVESTIGATING HIGH-POWER RADIATION PROPAGATION IN THE ATMOSPHERE

Description
A mobile complex is intended for investigation of high-power IR-laser radiation propagation in the atmosphere. The complex is located in two motor-cars of “Gazel” type, each of those has autonomous power supply. The equipment in the first motor-car is intended for measuring meteorological conditions (pressure, humidity, mean values and temperature fluctuations, three components of wind velocity): two acoustic meteorological stations with sensors that can be carried out at a distance up to 100 and 600 m and the visibility meter (a purchased product). The equipment mounted in the second motor car can measure radiation parameters (the pulse repetition rate up to 25 Hz, the duration ≤ 400 ns, the radiation can be wideband), the total energy, energy distribution in the cross section (based on the thermalvision system) and spectral composition of radiation. Carrying out of sensors is up to 50 m. Synchronization is external or by leading edge of each radiation pulse. A record is kept using PC. Seats for the operating staff during transportation are foreseen.

Technical appraisal and economic benefits
Analogues are unknown.

Application areas
The mobile complex can be used for:
- studies of high power IR-laser radiation propagation along atmospheric paths;
- high-power laser tests.

Development stage
Technical proposals for the complex composition are developed and well-founded; models of several instruments are prepared.

Patent situation
No patent was obtained.

Commercial offers
Completion of the complex according special requirements of a customer. Development of experimental samples of some meters. The system will be delivered within three months after the order.

Estimated cost
The cost of development and installation is 18–20 million roubles.
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Layout of carrying out modules on the path

RS – radiation source; CCD – the central control desk; MS-1 – the mobile station for measuring meteorological parameters; MS-2 – the mobile station for measuring the radiation parameters; M1 and M2 – meteorological stations; R and Tr – the receiver and transmitter of the visibility meter; MTE – total energy meter; EDM – the energy distribution meter; SPECTR – the meter of spectral radiation composition; GC – ground contour; 220 v; low-voltage and information line.