WIDE-RANGE DOSIMETER BASED ON SYNTHETIC DIAMOND AND SOLID-STATE PHOTOELECTRONIC MULTIPLIER[1]

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A mock-up of a dosimeter with a primary converter based on synthetic diamond has been developed and manufactured to record the absorbed dose of gamma radiation in the range from 10^{-7} to 10^{2} Gy/h. A synthetic diamond with nitrogen-vacancy color centers (NV^0 centers) was used as the primary converter, and the photodetector was a solid-state photomultiplier of the MicroFC-30035 and MicroFC-10035 types manufactured by On Semiconductor (USA).

The main parameters of the dosimeter have been determined.

The linearity of the dosimeter readings in the range of recorded absorbed dose rates was confirmed at several setups:

- GIC2-7 (ГИК2-7);
- UPGD-2 (УПГД-2);
- SGUL-2M (СГУЛ-2М);
- RTU3000 (РТУ3000), Ozersk, Scientific-production association «Mayak».