

AT1121

Hand-held multifunctional wide-range instrument for continuous and short-term x-ray and gamma radiation dosimetry

Features

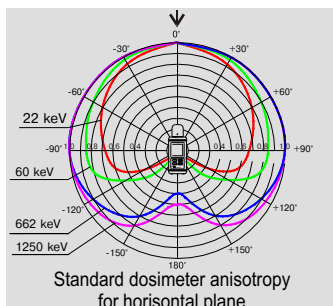
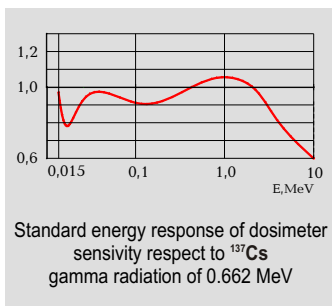
- Tissue-equivalent detector - scintillation plastic with heavy metal admixtures
- Ambient equivalent dose $H^*(10)$ and dose rate $\dot{H}^*(10)$ measuring
- Gamma and beta radiation source search
- Short-term radiation measuring
- Built-in LED stabilization system of measuring path providing no need to use reference source
- Large LCD with a backlighting
- Remote measuring with remote control
- Audible and visual alarm at threshold exceeding
- Three types of power
- Emergency use

Application

- X-ray diagnostics
- Nuclear medicine
- Radiology
- Customs x-ray equipment
- Radiation emergency
- Radiation monitoring
- Nuclear industry
- Acceleration equipment
- Scientific search

X-RAY AND GAMMA RADIATION DOSIMETER

50 nSv/h - 10 Sv/h 15 keV - 10 MeV
continuous and short-term
radiation



The main dosimeter function is to measure equivalent dose and dose rate of short-term and continuous x-ray and gamma radiation. The instrument provide equivalent dose and dose rate measuring, quick-reaction, wide measuring range from background to emergency values, isotropy and high energy response within wide energy range. The dose rate measurement time at variation coefficient of 20 % does not exceed 60 s for 50 nSv/h, 30 s for 100 nSv/h, 2 s for 2 Sv/h and more. The instrument shows average and maximum dose rate values and influence duration for short radiation influence time when it measures dose and dose rate of short-term radiation (single pulse of not less than 30 ms duration or run of pulses). In search mode it is possible to detect point gamma radiation source of 10 kBq at the distance of 10 cm for 2 s. When the cap "0.06 - 10 MeV" is taken off, the instrument can effectively search beta radiation sources.



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**INSTRUMENTS AND TECHNOLOGIES FOR
NUCLEAR MEASUREMENTS AND RADIATION MONITORING**

There is the possibility to detect moving source. When the dosimeter is on the following thresholds setup automatically: dose rate threshold is 29 Sv/h and dose threshold is 180 Sv/h. Use instrument keyboard to setup any threshold from the whole measuring range. The instrument fixes automatically the maximum dose rate value, provides 100 measurement results keeping for long time and transfers data to PC with the rate from 300 to 19200 baud. The dosimeter has the self-testing mode which starts at switching-on and continues within dosimeter operation. There is no need to use reference source because of LED stabilization of measuring path.

Specification

Detector dimensions	30x15 mm	Sensitivity on ¹³⁷Cs	100 cps s ⁻¹ / Sv h ⁻¹
Ambient equivalent continuous radiation dose rate H*(10) measuring range	50 nSv/h - 10 Sv/h	Sensitivity to accompanying beta radiation of ⁹⁰Sr+⁹⁰Y at the distance of 5 cm when the cap "0,06 - 10 MeV" is on	3 · 10 ⁻⁷ Sv h ⁻¹ Bq ⁻¹
Minimum short-term radiation measuring duration	30 ms	Operation mode setup time	1 min
Ambient equivalent dose H*(10) measuring range	50 nSv - 10 Sv	Continuous operation time AC mains or DC supply	not less than 24 h built-in accumulator unit
Intrinsic measurement error	±15%	Operating temperature range	-30 +40°C
Calibration error	±5%	Complementary error within operating temperature range	±10%
Energy range	0.015 -10 MeV	Relative humidity at the temperature of 35 C°	98%
Energy response respect to ¹³⁷Cs gamma radiation of 0.662 MeV :		Protection class	IP54
from 15 keV to 60 keV	±35%	Power requirements	
from 60 keV to 3 MeV	±25%	built-in accumulator unit	6 V
from 3 MeV to 10 MeV	±50%	AC mains	220 V
		DC supply	12 V
Sensitivity response to radiation incidence angle within 90°		Radio disturbance characteristics CEI/IEC CISPR 22:1997	
for energy of 662 keV	±5%	Electromagnetic compatibility CEI/IEC 61000-4-2:1995 IEC 61000-4-3:1995	
for energy of 60 keV	±20%	Weight	0.8 kg
for energy of 22 keV	±30%	Dimensions	233x85x67 mm

Complete set: the dosimeter, cap "0.06 - 10 MeV", AC adapter A51212DG, hand strap, handle, holster and Manual. **By additional order** it is possible to include into dosimeter complete set: remote control (RC) with 25 m. cable, diskette with AT1121 applied software, cable to connect PC, cable for DC supply, audible and visual alarm unit, extension bar. **It is possible to order** AT1121A modification with operating temperature range of -30 - +50 °C, lower energy range of 20 keV and upper dose rate range limit of 5 Sv/h.

The x-ray and gamma radiation dosimeter AT1121 has pattern approval certificates of Republic of Belarus and Russian Federation. It meets IEC 60846 International standard requirements.

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