

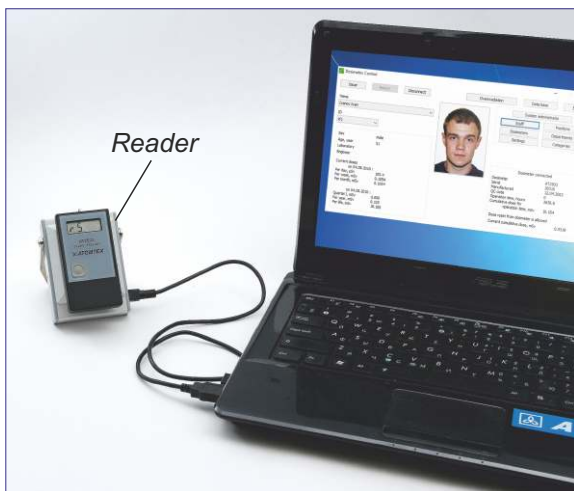
AT2503, AT2503A Personal Dosimeters

Monitoring of individual exposure doses from X-ray and gamma radiation with energy range from 50 keV to 1.5 MeV



Pocket-size intelligent instrument is an ideal combination of accuracy, functionality, usability, reliability and price.

Dosimeters are designed for measurement of Hp(10) personal dose equivalent and $\dot{H}_p(10)$ personal dose equivalent rate of continuous X-ray and gamma radiation.



Dosimeter, PC-connectible reader and application software suite make an efficient automatic system for staff radiation exposure monitoring.

Operating principle

Geiger-Muller counter tube with energy compensating filter is used as a detector.

Intrinsic background metering and microprocessor processing provides high measurement accuracy.

Microprocessor control of operation mode management, processing, display on TFT screen and self-check function.

Integrated non-volatile memory allows recording and saving in deenergised state all accumulated dose data and dose accumulation history.

Applications

- Radiation protective measures in case of nuclear disasters
- Nuclear industry
- Nuclear medicine
- Radiology
- Emergency situations
- Civil aviation
- Research activities
- Dose monitoring of population

Features

- Simultaneous measurement of Hp(10) personal dose equivalent and $\dot{H}_p(10)$ personal dose equivalent rate of continuous X-ray and gamma radiation
- Autocompensation of intrinsic detector background
- Resistance to impacts and vibration, dust-and-moisture-proof, tolerance to electromagnetic interference
- Constant detector self-check and battery level monitoring
- Sound and LED alarm
- Alarm mode for pulsed X-radiation detection with pulse length 10 ns and more (option)
- Can be integrated into a system or used separately
- Low weight and small size
- Calibrated with water phantom ISO 30x30x15 cm
- Dosimeter-to-PC communication via IR-transmitter in reader

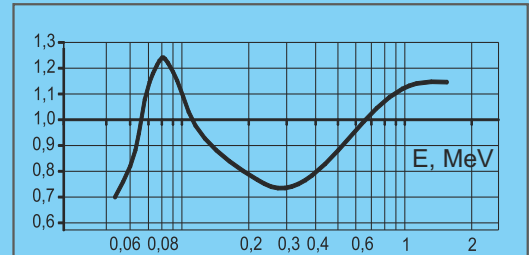


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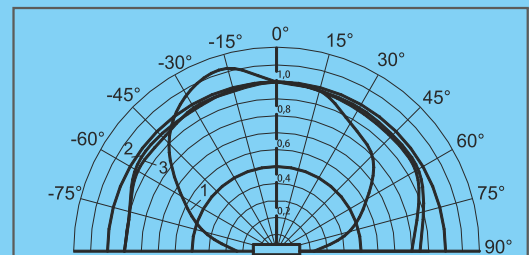
Specification

Detector	Geiger-Muller counter tube
Measurement range for:	
Individual dose equivalent AT2503, AT2503A	1 μ Sv...10 Sv
Individual dose equivalent rate AT2503	0.1 μ Sv/h...0.5 Sv/h
AT2503A	0.1 μ Sv/h...0.1 Sv/h
Intrinsic relative error for:	
Dose measurement	$\pm(15+\dot{H}_p/50)\%$, where \dot{H}_p is dose rate in mSv/h
Dose rate measurement	$\pm(15+3.5 \cdot 10^{-3}/\dot{H}_p+\dot{H}_p/50)\%$, where \dot{H}_p is dose rate in mSv/h
Calibration error for ^{137}Cs	$\pm 5\%$
Energy range	50 keV... 1.5 MeV
Energy dependence relative to 662 keV (^{137}Cs)	$\pm 30\%$
Alarm thresholds	1 of 8 independent dose thresholds, 1 of 8 independent dose rate thresholds
Anisotropy in angular spacing $\pm 75^\circ$	
For ^{137}Cs and ^{60}Co	$\pm 20\%$
For ^{241}Am	$\pm 50\%$
Response time for dose rate change	5 s
Radiation overloading	
AT2503	≤ 5 Sv/h
AT2503A	≤ 1 Sv/h
Power	3 x SR44 type batteries with nominal voltage 1.5 V
Continuous run time	
In normal conditions	≥ 1000 h
In economy mode	≥ 5000 h
Working temperature range	-10°C...+40°C (-30°C...+60°C - special order)
Relative air humidity with temperature $\leq 35^\circ\text{C}$ without moisture condensation	$\leq 90\%$
Drop protection	From ≤ 1.5 m to hard surface
Protection class	IP54
Connection to PC	USB or RS232 (via Reader)
Overall dimensions	85x46x16 mm
Weight	70 g

Design and specifications are subject to change without notice



Normal energy relationship between dosimeter sensitivity and ^{137}Cs gamma radiation energy of 662 keV



Normal dosimeter anisotropy for vertical position
1 – ^{241}Am ; 2 – ^{137}Cs ; 3 – ^{60}Co

The personal dosimeters AT2503 and AT2503A meet International standard requirements: IEC 61526:2010 (confirmed by tests IAEA-EURADOS, IAEA-TECDOC-1564) Safety standard requirements: IEC 61010-1:2001 EMC requirements: EN 55011:2009 IEC 61000-4-2:2008 IEC 61000-4-3:2008

The personal dosimeters AT2503 and AT2503A have the pattern approval certificates of Republic of Belarus, Russian Federation, Ukraine, Kazakhstan, Lithuania and Slovakia.