



Number
U1524-07
in State Register
for Measuring
Instruments

Hygienic
conclusion
of the State
Sanitary-Hygienic
Expertise
5.10/6300 of
February 20, 2002

TY Y 33.2-22362867-006:2001
TY Y 33.2-22362867-006-01-2003 (military accepted)

Branches of Use

- Customs and Border Service
- Law enforcement agencies (Army, Ministry of Internal Affairs, State Security Services, guard services)
- Emergency Services and Civil Defense
- Vehicles monitoring, seaports and airports
- Environmental inspectorates
- Sanitary and epidemiological services
- Radiological laboratories
- Labor protection
- Medicine
- Educational programs

State Sanitary-
Epidemiological
Conclusion for use
in educational
establishments
05.03.02-04/
20545 of
April 09, 2009

Purpose of Use

- Measurement of gamma and X-ray radiation ambient dose equivalent rate (DER).
- Measurement of gamma and X-ray radiation ambient dose equivalent (DE).
- Measurement of surface beta-particles flux density.
- Measurement of ambient dose equivalent accumulation time.
- Real time measurement (clock), alarm clock.

Specifications

Measurement ranges and main relative errors:

- Gamma and X-ray radiation ambient dose equivalent rate (^{137}Cs)	0.1 ... 9 999 $\mu\text{Sv/h}$; $\pm (15+2/\dot{H}^*(10))\%$, where $\dot{H}^*(10)$ is a numeric value of measured DER equivalent to $\mu\text{Sv/h}$
- Gamma and X-ray radiation ambient dose equivalent (^{137}Cs)	0.001 ... 9 999 mSv; $\pm 15\%$
- Beta-particles flux density ($^{90}\text{Sr}+^{90}\text{Y}$)	10 ... 100 000 $1/(\text{cm}^2 \times \text{min})$; $\pm (20 + 200/\phi\beta)\%$, where $\phi\beta$ is a numeric value of measured beta-particles flux density equivalent to $\text{part.}/(\text{cm}^2 \times \text{min})$
- Ambient dose equivalent accumulation time and accuracy of measurement	1 min ... 9 999 h ; $\pm 0.1\text{s}$ per 24 h

Energy ranges of measurement and energy dependence:

- Gamma and X-ray radiation	MeV	0.05...3.0; $\pm 25\%$
- Beta radiation	MeV	0.5...3.0
- Resolution of threshold level programming for:		
• dose rate	$\mu\text{Sv/h}$	0.01
• dose	mSv	0.001
• flux density	$10^3/(\text{cm}^2 \times \text{min})$	0.01
- Battery life*	hours	1 500
- Operating temperature range	$^{\circ}\text{C}$	-20...+50
- Weight	kg	0.2
- Dimensions	mm	120 x 52 x 26

* under gamma background not more than $0.3 \mu\text{Sv/h}$, switched off display backlight and alarm system

Features

- Big display with luminescent backlight.
- Simultaneous indication of units of measurement, measurement errors, threshold level and real time on the display.
- Analog ten-segment indicator of registered radiation intensity.
- Ability to perform measurements with a preset error.
- Four-level indication of battery discharge.
- Built-in memory which allows storing up to 1200 measurements.
- Mode of PC connection via Bluetooth.

Features (continued)

- Five independent measuring channels with alternate indication of data on the single liquid crystal display.
- Built-in gamma, beta sensitive Geiger-Muller counter.
- Prompt evaluation of gamma background within 10 seconds.
- Automatic subtraction of gamma background at measurement of beta contamination.
- Measurement results averaging, manually and automatically interrupted.
- Automatic setting of measurement intervals and ranges.
- Audio, vibration and vibration-audio alarm of each detected gamma-quantum or beta-particle that can be switched off.
- Two-tone audio, vibration and vibration-audio alarm of exceeded programmed threshold levels.
- Two AAA batteries.
- Shock-resistant body.
- Small weight and dimension parameters.

A description of communications protocol with the PC and a demo program have been prepared and can be downloaded from www.ecotest.ua.

Delivery Kit

- MKS-05 "TERRA" dosimeter-radiometer;
- operating manual;
- leather case;
- "Cadmium ECOMONITOR" software;
- packing box.

"Cadmium ECOMONITOR" Software

Is used for:

- readout of measurement results from the dosimeter memory into the PC as a dosimeter measurement protocol;
- viewing measurement results on the PC monitor, preparation and printout of the report, saving measurement results to a file without changes or as a report for further use.