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*Number U1207-07
in State Register for Measuring
Instruments*

*Hygienic conclusion of the State
Sanitary-Hygienic Expertise
B-7.02/28 of November 04, 1999*

Branches of Use

- Customs and Border Service
- Ministry of Internal Affairs
- Nuclear power industry
- Metallurgy and scrap metal storage
- Mining industry
- Vehicles monitoring, seaports and airports
- Construction industry
- Logging and woodworking industry
- Sanitary dosimetry and ecology (environmental inspectorates, sanitary and epidemiological services, radiological laboratories, labor protection)
- Medicine

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 surface alpha-particles flux density with the help of the BDPA-07 detecting unit of alpha radiation (on demand).
- Measurement of thermal and fast neutron flux density with the help of the BDPN-07 detecting unit of neutron radiation (on demand).

Specifications

Measurement ranges and main relative errors:

Gamma and X-ray radiation dose equivalent rate (^{137}Cs)	0.1 $\mu\text{Sv/h}$... 2.0 Sv/h	
Main relative permissible error limit of DER measurement with confidence probability of 0.95: - in precise measurement mode - in search mode	$\pm(15+2/\dot{H}^*(10)) \%$, $\pm(25+2/\dot{H}^*(10)) \%$, 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)	1.0 μSv ... 9 999 mSv $\pm 15 \%$	
Beta-particles flux density ($^{90}\text{Sr}+^{90}\text{Y}$)	5 ... 100 000 $1/(\text{cm}^2 \times \text{min})$	
Main relative permissible error limit of surface beta-particles flux density measurement with confidence probability of 0.95: - in precise measurement mode - in search mode	$\pm(15+200/\phi\beta) \%$, $\pm(25+200/\phi\beta) \%$, where $\phi\beta$ is a numeric value of measured flux density equivalent to $\text{part.}/(\text{cm}^2 \times \text{min})$	

Energy ranges of measurement and energy dependence:

Gamma and X-ray radiation	MeV	0.05 ... 3.0 ; $\pm 25\%$
Beta radiation	MeV	0.15 ... 3.0
Measurement time intervals	seconds	2 ... 5
Storage battery life (four NiMH AA batteries)*	hours	not less than 400
Operating temperature range	$^{\circ}\text{C}$	-25 ... +55

Weight and dimensions:

	Weight (kg)	Dimensions (mm)
Control panel	0.5	154 x 86 x 35
Gamma radiation detecting unit	0.6	214 x 80 x 36
Beta radiation detecting unit	0.5	154 x 82 x 43
Delivery kit in packing	4.2	445 x 255 x 85

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

Features

- Geiger-Muller counters without return run of counting response.
- Analog indicator of radiation intensity.
- Up to 4096 measurement results recording in the nonvolatile memory with further transfer to the computer through infrared port.
- Review of the recorded measurement results on the display.
- "Precisely" channel with the average result indicated on the display for the fixed measurement time from 1 to 99 minutes, and "start-stop" measurement mode.
- Detection of soft beta radiation.
- Programmable threshold levels of gamma and X-ray radiation dose equivalent rate and beta-particles flux density.
- Audio signaling of detected gamma-quanta, beta-particles, and exceeded programmed threshold levels of dose equivalent rate of gamma and X-ray radiation or beta-particles flux density.
- Display backlight.
- Multilevel indication of battery discharge.

Delivery Kit

- control panel;
- gamma radiation detecting unit;
- beta radiation detecting unit;
- telescopic tube;
- connecting cable;
- technical description and operating manual;
- logbook;
- battery charger;
- packing bag of close and waterproof cloth used to carry the device on one's shoulder;
- exchange infrared port adapter and software (at the customer's request).

