



*Complies with the ANSI 42.48 standard
Complies with the ANSI 42.32 standard
Complies with the ANSI 42.33 standard*

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Branches of Use

- Customs and Border Services
- Emergency Services and Civil Defense
- Law enforcement agencies (Ministry of Internal Affairs, State Security Services, guard services)
- Vehicles monitoring, seaports and airports
- Sanitary dosimetry and ecology
- Radioactive waste storage sites

Purpose of Use

- Identification of the radionuclides type by their amplitude gamma spectra.
- Measurement of ambient dose equivalent rate (DER) of gamma, X-ray and neutron radiation.
- Measurement of ambient dose equivalent (DE) of gamma and X-ray radiation.
- Determination of gamma, X-ray and neutron radiation intensity.
- Saving amplitude gamma spectra and events logs in the nonvolatile memory.

Specifications

Gamma sensitivity for ^{137}Cs , not less than	$\frac{\text{pulse/s}}{\mu\text{Sv/h}}$	200
Neutron sensitivity for: - fast neutrons, not less than - thermal neutrons, not less than	$\frac{\text{pulse} \times \text{cm}^2}{\text{n}}$	1.2 ± 0.12 0.120 ± 0.012
Indication range of photon-ionizing radiation DER	0.01 $\mu\text{Sv/h}$... 1 Sv/h	
Indication range of neutron radiation DER	0.01 $\mu\text{Sv/h}$... 10 Sv/h	
Indication range of photon-ionizing radiation count rate	cps	1 ... 25 000
Indication range of neutron radiation count rate	cps	0.01 ... 25 000
Main relative permissible error limit of photon-ionizing radiation DER measurement with confidence probability of 0.95 (^{137}Cs)	$\pm(15+1/\dot{H}^*(10))\%$, where $\dot{H}^*(10)$ is a numeric value of measured DER equivalent to $\mu\text{Sv/h}$	
Energy range of detected photon-ionizing radiation	MeV	0.02 ... 3.00
Energy dependence of the dosimeter readings during photon-ionizing radiation DER measurement in the energy range of 0.05 to 3.00 MeV relative to 0.662 MeV energy (^{137}Cs)	%	± 25
Energy range of detected neutron radiation	from thermal neutrons to 14 MeV	
Number of amplitude gamma spectrum channels	channel	2048
Setup time of operating mode of the dosimeter, not more than	min	1
Calibration time relative to gamma background	s	2 ... 60
Response time for photon-ionizing radiation DER variation greater than 10 times	s	0.25
Operating supply voltage of the dosimeter from Li-Ion storage battery	V	3.7
Time of continuous operation of the dosimeter with fully charged storage battery under conditions of normal background radiation with switched off display backlight	h	45

Specifications (continued)

Operating temperature range	°C	-20...+50
Dimensions of the dosimeter, not more than	mm	67 x 127 x 30
Weight of the dosimeter, not more than	kg	0.28

Features

- New generation high sensitivity CsI scintillation detectors of gamma and LiI of neutron radiation with solid state (silicon) photomultiplier.
- Color display with high resolution.
- Storage and transfer of 250 complete gamma radiation spectra.
- Powerful CPU and improved algorithms for spectra processing.
- New software for detailed laboratory research and spectra processing.
- Integrated GPS/GLONASS-receiver.
- No “microphone effect”.
- High thermal stability.
- Powered by built-in lithium polymer storage batteries that can be charged via USB-cable.
- The dosimeter communicates with a PC via USB-port.
- Real-time identification of spectra.
- Identification of radionuclides with specification of the categories they belong to (in compliance with IAEA requirements):
 - medical radionuclides: ^{18}F , ^{67}Ga , ^{51}Cr , ^{75}Se , ^{89}Sr , ^{99}Mo , $^{99\text{m}}\text{Tc}$, ^{103}Pd , ^{111}In , ^{123}I , ^{125}I , ^{131}I , ^{153}Sm , ^{201}Tl , ^{133}Xe ;
 - industrial radionuclides: ^{57}Co , ^{60}Co , ^{133}Ba , ^{137}Cs , ^{192}Ir , ^{152}Eu , ^{22}Na , ^{241}Am ;
 - special nuclear materials: ^{233}U , ^{235}U , ^{237}Np , Pu [Reactor grade plutonium (more than 6% ^{240}Pu)];
 - naturally occurring radioactive materials: ^{40}K , ^{138}La , ^{226}Ra , 2^{32}Th -decay series, ^{238}U -decay series.

Note. The list of nuclides the device is able to identify may be extended if needed.

- Threshold alarm system with four independent threshold levels:
 - search threshold level (threshold level of count rate from the detector photon and neutron ionizing radiation);
 - safety threshold level (threshold level of photon and neutron ionizing radiation DER).
- Light color alarm (indication) of threshold levels exceeding (gamma radiation – red color, neutron – blue) and visual alarm on the side of the device.
- Ingress protection rating IP67.

Delivery Kit

- Search Dosimeter-Radiometer MKS-11GN “SPECTRA”;
- charger;
- operating manual;
- software;
- packing case.

"Spectra Reader" Software

Is used for:

- reading measurement results and critical events from the dosimeter memory into the PC
- report preparation and printout
- display of the obtained dosimetric information with the GPS-coordinates on the area map.

