

MKS-U
MULTIPURPOSE DOSIMETER-RADIOMETER

Logbook
BICT.412129.004-03 ΦΟ

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1 GENERAL GUIDELINES

Carefully study the operating manual before using the MKS-U multipurpose dosimeter-radiometer (hereinafter called the dosimeter).

The logbook should be always included in the delivery kit of the dosimeter.

All records in the logbook should be accurate and clear.

Erasures and uncertified corrections are not allowed.

Operation is registered in hours.

The dosimeter can be used under the following conditions:

- ambient air temperature from minus 40 to +50 °C;
- relative humidity up to (95±3) % at the temperature of 35 °C without humidity condensation;
- atmospheric precipitates of (5±2) mm/min intensity;
- submergence of the remote detector of gamma radiation at a depth of 1 m;
- atmospheric pressure from 60 to 106.7 kPa.

2 KEY SPECIFICATIONS

2.1 Key specifications are presented in the Table 2.1

Table 2.1

Name	Standardized value according to the specification	Actual data
1	2	3
1 Measurement range of photon-ionizing radiation ambient dose equivalent rate (DER) by the remote combined detecting unit (CDU), μSv/h	$10^{-1} - 10^7$	meets the requirements
2 Main relative permissible error limits of DER measured by the CDU at ¹³⁷ Cs calibration with 0.95 confidence probability, %	$15 + \frac{2}{\dot{H}^*(10)}$, where $\dot{H}^*(10)$ is a numeric value of measured DER in μSv/h	
3 Measurement range of photon-ionizing radiation DER by the remote detector of gamma radiation (RD), Sv/h	$10^{-2} - 10^2$	meets the requirements

Table 2.1 (continued)

1	2	3
4 Main relative permissible error limits of DER measured by the RD at ^{137}Cs calibration with 0.95 confidence probability, %	$15 + \frac{200}{\dot{H}^*(10)},$ where $\dot{H}^*(10)$ is a numeric value of measured DER in mSv/h	
5 Measurement range of photon-ionizing radiation ambient dose equivalent (DE) by the built-in detector of the operator's dose (BDD), mSv	0.001 - 9999	meets the requirements
6 Main relative permissible error limits of DE measured by the BDD at ^{137}Cs calibration with 0.95 confidence probability, %	±15	
7 Energy range of the detected photon-ionizing radiation, MeV	0.05 – 3.00	meets the requirements
8 Energy dependence of the dosimeter readings of photon-ionizing radiation measurements for: - the CDU and BDD in the energy range of 0.05 to 1.25 MeV, % - the RD in the energy range of 0.662 to 1.25 MeV, %	± 25 from – 25 to + 30	meets the requirements meets the requirements
9 Measurement range of surface beta-particles flux density by the CDU, part./($\text{cm}^2 \cdot \text{min}$)	10 - $2 \cdot 10^5$	meets the requirements
10 Main relative permissible error limits of surface beta-particles flux density measurement by the CDU at $^{90}\text{Sr}+^{90}\text{Y}$ calibration with 0.95 confidence probability, %	$20 + \frac{200}{\phi_\beta},$ where ϕ_β is a numeric value of measured flux density in part./($\text{cm}^2 \cdot \text{min}$)	

Table 2.1 (continued)

1	2	3
11 Energy range of detected beta-particles, MeV	0.3 – 3.0	meets the requirements
12 Measurement range of operator's DE accumulation time with 1min resolution, h	100	meets the requirements
13 Absolute permissible error limits of operator's DE accumulation time measurement during 100 hrs, min	±1	meets the requirements
14 Supply voltage of the dosimeter from the storage battery of five nickel-cadmium batteries of AA type, V	6.0	meets the requirements
15 Additional permissible error limits of measurement caused by supply voltage variations from 5.4 to 6.6 V for all measured physical quantities, %	±5	meets the requirements
16 Additional permissible error limits of measurement caused by environment temperature changes per each 10 °C deviation from 20 °C for all measured physical quantities: - in the temperature range of 20 to 50 °C, % - in the temperature range of 20 to minus 40 °C, %	±10 ±5	meets the requirements meets the requirements
17 Time of operating mode setting, min, not more than	1	meets the requirements
18 Time of continuous operation of the dosimeter from the charged batteries of AA type of 750 mA·h capacity and disconnected photo battery: - under gamma background not exceeding 0.5 µSv/h, with the disconnected remote detector and switched off display backlight, h, not less than - when using the remote detector with switched on display backlight, h, not less than	100 10	meets the requirements meets the requirements

Table 2.1 (continued)

1	2	3
19 Unstable readings of the dosimeter at DER measurement during continuous operation for 8 hrs, %, not more than	10	meets the requirements
20 Dimensions of the control panel without the connecting cable, mm, not more than	82x124x163	meets the requirements
21 Dimensions of the CDU without the connecting cable, mm, not more than	Ø50x167	meets the requirements
22 Length of the connecting cable of the CDU, m, not less than	1.0	meets the requirements
23 Dimensions of the RD without the connecting cable, mm, not more than	Ø34x50	meets the requirements
24 Length of the connecting cable of the RD, m, not less than	30	meets the requirements
25 Weight of the control panel with the CDU, kg, not more than	1.8	meets the requirements
26 Weight of the RD with the connecting cable, the tube and the cover, kg, not more than	3	meets the requirements
27 Weight of the delivery kit in the packing box, kg, not more than Note. The delivery kit is completed at the customer's request.	8	meets the requirements

Mean life of the dosimeter before major overhaul is not less than 10000 hrs, average lifetime is not less than 10 years.

Quality Control Department Representative _____ (signature)

2.2 Precious materials content

The dosimeter contains no precious materials.

3 DELIVERY KIT

3.1 The delivery kit of the dosimeter consists of units and maintenance documentation presented in the Table 3.1

Table 3.1

Type	Item	Q-ty	Note
BICT.468382.003	Control panel of the MKS-U multipurpose dosimeter-radiometer	1pc.	
BICT.467979.009	Remote detector of gamma radiation	1pc.	Supplied at the customer's request
	Silicon photoelectric battery БФК-1,1-6 ААЕИ.564113.021 ТУ	1 pc.	Included in the case. Supplied at the customer's request
	Storage battery NiCd AA750mAh VARTA	5 pc.	Inserted in the battery compartment (Analog options allowed)
BICT.468626.001	Headphone	1 pc.	
BICT.381123.001	Packing box	1 pc.	
ЕЯ6.366.019	Extension tube	1 pc.	
BICT.323368.003	Case	1 pc.	
ЕЯ6.834.013 Сп	Strap	2 pcs.	
BICT.685661.001	Cable	1 pc.	
	Power supply unit ~220 V/=12 V	1 pc.	Model is not specified
	Telescopic tube	1 pc.	
	Case	1 pc.	For the remote detector of gamma radiation
	Screwdriver	1 pc.	
BICT.754152.002	Gasket	1 pc.	
BICT.754152.002-01	Gasket	1 pc.	
BICT.754152.002-02	Gasket	1 pc.	
BICT.753161.001	Button	2 pc.	
BICT.412129.004-03 HE	Operating manual	1 copy	
BICT.412129.004-03 ФО	Logbook	1 copy	

4 CERTIFICATE OF ACCEPTANCE

The MKS-U multipurpose dosimeter-radiometer BICT.412129.004 type with _____ serial number meets the standard requirements TY Y 22362867.005-2000, and is verified and accepted for use.

Date of manufacture _____

QCD Representative: _____
(signature)

Stamp here

State Verification Officer: _____
(signature)

Mark here

Customer's Representative: _____
(signature)

Mark here „ ____ ” _____ 20 __ .

5 PACKING CERTIFICATE

The MKS-U multipurpose dosimeter-radiometer of BICT.412129.004 type with _____ serial number is packed by the PE “SPPE “Sparing-Vist Center” enterprise in accordance with the requirements specified in TY Y 22362867.005-2000.

Date of packing _____

Stamp here

Packed by _____ (signature)

Packed product accepted by _____ (signature)

6 PUTTING IN PROLONGED STORAGE AND REMOVAL FROM STORAGE

Table 6.1

Date of putting in prolonged storage	Method	Date of removal from storage	Name of the enterprise in charge of putting the unit in prolonged storage or removing from storage	Date, position and signature of the responsible official

7 WARRANTY

7.1 The warranty period of the dosimeter shall terminate and be of no further effect in not less than 18 months after the date of putting it into operation, but not more than 24 months after the manufacture date.

7.2 The warranty period of storage of the dosimeter is 6 months after the manufacture date.

7.3 Free of charge repair or replacement during the warranty period of the dosimeter is performed by the manufacturer, provided that the customer observed the guidelines on its use, shipping and storage.

7.4 If the defect (according to the claim) is eliminated, the warranty period is prolonged for the time period when the dosimeter was not used because of detected defects.

7.5 The storage battery failure is not the reason for claim, after the warranty period of the battery is finished.

8 CLAIMS

8.1 In case of failure or troubles during the warranty period of the dosimeter, the user should contact the enterprise producer by e-mail (see below) to receive the address of the nearest service center:

PE "SPPE "Sparing-Vist Center"
Tel.: (+380 32) 242-15-15; Fax: (+380 32) 242-20-15;
E-mail: sales@ecotest.ua.

8.2 All claims are registered in the Table 8.1

Table 8.1

Date of failure	Claim summary	Action taken	Note

9 STORAGE

Table 9.1

Date		Storage conditions	Position, name and signature of the responsible official
of placing in storage	of removing from storage		

10 TRANSFER AND ASSIGNMENT OF THE DOSIMETER DURING USE

10.1 Transfer of the dosimeter during use

Table 10.1

Received		Position, name and signature of the person responsible for acceptance	Sent		Position, name and signature of the person responsible for sending
from	number and date of order		to	number and date of order	

10.2 Assignment of the dosimeter during use

Table 10.2

Position	Name of the person responsible for use	No and date of order		Signature of the responsible official
		about assignment	about repeal	

11 OPERATION REGISTER

11.1 Operation register

Table 11.1

Date	Purpose for operation	Time of switching on	Time of switching off	Operation duration

11.2 Calendar operation register

Table 11.2

Month	Total per year								
	20			20			20		
	Number of hours	Total	Signature	Number of hours	Total	Signature	Number of hours	Total	Signature

12 TROUBLE RECORD DURING USE

Table 12.1

Date and time of failure. Operating mode	Type (external manifestation) of trouble	Cause of trouble, number of operation hours of the failed element	Action taken and claim note	Position, name and signature of the person responsible for solving the problem	Note

13 PERIODIC VERIFICATION OF KEY SPECIFICATIONS

Table 13.1

Verified specification		Verification date					
Name	Standardized values according to the Specification	20.....		20.....		20.....	
		Actual value	Measured by, position, signature	Actual value	Measured by, position, signature	Actual value	Measured by, position, signature
Main relative error at photon-ionizing radiation DER measurement, % - by the CDU - by the RD	$15 + \frac{2}{\dot{H}^*(10)},$ where $\dot{H}^*(10)$ is a numeric value of measured DER in $\mu\text{Sv/h}$ $15 + \frac{200}{\dot{H}^*(10)},$ where $\dot{H}^*(10)$ is a numeric value of measured DER in mSv/h						
Main relative error at photon-ionizing DE measurement by the BDD, %	± 15						
Main relative error at beta-particles flux density measurement by the CDU, %	$20 + \frac{200}{\phi_\beta},$ where ϕ_β is a numeric value of measured flux density in $\text{part./}(\text{cm}^2 \cdot \text{min})$						

14 REPLACEMENT OF COMPONENT PARTS (COMPONENTRY INCLUDED) DURING USE

Table 14.1

Removed part				Newly inserted part		Date, position and signature of the responsible for replacement official
Name and type	Number or name of the unit	Number of hours worked	Cause of failure	Name and type	Number or name of the unit	

15 CATEGORY APPROVAL CERTIFICATE

Table 15.1

Date	Reason for category approval	Approved category	Position, name and signature of the responsible official	Note

16 REPAIR

Table 16.1

Position, name and signature of the responsible official	who performed repair	who accepted after repair
	Name of repair work	Type of repair
Name of the repair organization	Date	of completion of repair
Reason for repair		of arriving for repair
Name and type of the component part		

17 VERIFICATION AND INSPECTION RESULTS

Table 17.1

Date	Verification or inspection type	Verification or inspection result	Position, name and signature of the responsible for inspection person	Note

18 SPECIAL NOTES