



CALIBRATION CERTIFICATE

Type: **Radiation monitor AT1117M**Date of calibration: **19.06.2024**SN: **20784**

Dose rate measurement limits of X-ray and gamma radiation:

PU-2 detector: 1.0 μ Sv/h – 100.0 mSv/h;Flux density measurement limits of α particles:**BDPA-02: α 0.05 – $5 \cdot 10^4 \text{ min}^{-1} \cdot \text{cm}^{-2}$;**

Measurement error:

PU-2: ± 20 %;**BDPA-02: ± 20 %;**

Operating conditions:

- Air temperature	+20,9 °C
- Atmospheric pressure	98,5 kPa
- Relative humidity	74,1 %
- Gamma radiation background	95,6 nSv/h

Calibration means:

- standard dosimetry facility AT-110, N 013 reg. N 40425-09, the Certificate of Compliance N C-B/15-11-2021/112536221 on 15.11.2021 issued by FGUP «D.I.Mendeleyev VNIIM», St. Petersburg, Russia);
- standard dosimetry facility AT-130, N 015, reg. N 44761-10, the Certificate of Compliance C-B/15-11-2021/112536213 on 15.11.2021 issued by FGUP «D.I.Mendeleyev VNIIM», St. Petersburg, Russia);
- alpha radiation source of Pu-239: 4П9, 5П9, 6П9, the certificate N 1-0057839-4822, N 1-0063126-4822 issued by BelGIM, Minsk, the Republic of Belarus;

Calibration data

PU-2 (γ)

Dose rate at check point $\dot{H}_0(10)$	Radiation source number	Distance to source, $R, \text{ cm}$	Dose rate measurement at check point,					Relative gamma radiation dose rate measurement error $\theta_{npj}, \%$	Confidence limit of the intrinsic relative error $\Delta_i, \%$ during calibration	Limits of intrinsic relative error, % not above
			Back-ground, $n\text{Sv/h}$	Measured value $\dot{H}_i(10)$			Average value, $\dot{H}_i(10)$			
				H_1	H_2	H_3				
20 μ Sv/h	9XK	284.4	—	19,6	20,3	20,4	20,1	0,50	5,61	±20
70 μ Sv/h	9XK	155.2	—	70,2	72,0	73,8	72,0	2,86	6,41	
0,7 mSv/h	9XK	49.8	—	0,67	0,69	0,65	0,67	-4,29	7,04	
7 mSv/h	043	335.5	—	6,66	7,00	6,89	6,85	-2,14	4,92	
70 mSv/h	043	107.8	—	69,1	69,5	69,0	69,2	-1,14	4,54	

BDPA-02 (α)

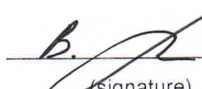
Flux density in test point φ_{0i} , $min^{-1} \cdot cm^{-2}$	Radiation source number	Measured radiation flux density in test point, φ_i					Relative alpha radiation dose rate measurement error $\theta_{np,i}$, %	Confidence limit of the intrinsic relative error Δ_i , % during calibration	Limits of intrinsic relative error, % not above
		Back-ground, φ_{0i} , $min^{-1} \cdot cm^{-2}$	Measured value φ_i			Average value, φ			
			φ_1	φ_2	φ_3				
73,0	0651	0,01	66,0	69,0	69,0	68,0	-6,85	10,14	±20
630	0652	---	587	594	582	588	-6,67	10,14	
5136	0653	---	5306	5437	5337	5360	4,36	7,93	
36240	0655	---	36764	35495	36761	36340	0,28	6,60	

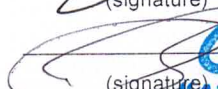
Calibrated by:

V. Pisarenko

Technical control:

N. Kurbatova


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