31 Miera str., Salaspils, LV-2169, Ph. +371 67945881, e-mail: oksana.skripnika@lvgmc.lv





CALIBRATION CERTIFICATE Nr. 24C00152

Object:

Type Serial No Components

Range

Manufacturer

Multimeter

NOMEX 101555

-

 $5 \mu Gy/s - 500 mGy/s$

 $50 - 150 \, kV$

PTW - FREIBURG

Customer:

ALARAD SRL

Address

mun. Chişinău, Codru, str. Drumul Schinoasei, 64

Date of calibration:

22/05/2024

Ambient conditions:

T = 20.1 - 21.7 °C

W = 43 - 44 %RH

P = 1018.2 - 1018.7 hPa

Calibration record No

KAL 152/2405

Place of calibration

31 Miera str., Salaspils, LV-2169

Calibration procedure:

KM-SSDL.02:2023

Traceability:

The IAEA reference standard chamber Exradin A3 S/N XR071832 used to calibrate the instruments (SSDL reference standard) was calibrated at the PTB in October 2019.

The SSDL reference standard chamber Magna A650 S/N - D051881 used to calibrate the instruments was calibrated at the IAEA in June 2020, calibration certificate Nr. LAT/2020/1, 10.08.2020.

X-rays etalonsystem PANTAK PMC - 1000 HF 225, S/N 0008-5764.

Traceability to PTB.

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State Ltd "Latvian Environment, Geology and Meteorology Centre" LABORATORY

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Calibration results:

24C00152

| Radiation quality | Etalonvalue | Measured value | Calibration factor ± U |
|--------------------------------------|-----------------------|----------------|------------------------|
| X - rays ¹⁾ , (kV, mm Al) | Air kerma rate, mGy/s | | |
| RQR3 (50kV / 2.515) | 0.602 | 0.603 | $0.997 \pm 2.3\%$ |
| RQR5 (70kV / 2.807) | 0.567 | 0.569 | $0.997 \pm 2.3\%$ |
| RQR7 (90kV / 3.098) | 0.850 | 0.847 | $1.003 \pm 2.3\%$ |
| RQR9 (120kV / 3.713) | 0.646 | 0.644 | $1.003 \pm 2.3\%$ |

¹⁾ Inherent filtration - 0.8 mm Be

Remarks:

Calibration factor is a number by which one should multiply the measurement in order to obtain a correct value.

The distance from the focus of the X-ray tube to the reference point of the detector, FCD, is 1 m.

The reported expanded uncertainty of measurement is calculated in accordance with EA-4/02 M:2022 recommendations and is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of $\approx 95\%$.

Setup: reference calibration coefficient Nk = 1.088 E+05 Gy/C

Date of issue:

22/05/2024

Operator:

(V.Kondrats)

signature (name, surname)

Metrology engineer:

(O.Skrypnik)

signature (name, surname)

Calibration certificate without signature is not valid.

This certificate may not be reproduced other than in full exept with the prior written approval of the issuing laboratory. Results of calibration are based exclusively on the object at the time of calibration.

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