



Type Approval Certificate

No. 0111-CS-A021-21

Revision 1

Czech Metrology in accordance with the Law of metrology No. 505/1990 Coll. as amended

approved

Alpha, beta, gamma radiation radiometer-dosimeter RKS-01 type STORA-ABG

under observation of technical data referred to in Annex of this Certificate.

This revision replaces all previous versions in full wording.

Type approval mark:

TCM 441/21 - 5821

Applicant: **Private Enterprise “Scientific and Production Private Enterprise “Spring-Vist Center”
TM ECOTEST
33 Volodymyr Velyky Str.
79026 Lviv
Ukraine**

Manufacturer: **Private Enterprise “Scientific and Production Private Enterprise “Spring-Vist Center”
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Valid until: **12 May 2031**

Information on judicial remedies:

The judicial remedies against this decision are available to the applicant through Czech Metrology Institute to Czech Office for Standardization, Metrology and Testing within 15 days since the receipt of this Certificate.

Description:

Essential characteristic, approved conditions special conditions, examination results including technical drawings and schemas are set out in the technical test report appertaining to this certificate. The certificate comprises the front page and the technical test report. Certificate has 3 pages.



Ing. František Staněk, PhD.
Deputy Director for Legal Metrology

Technical test report**1 Description**

The alpha, beta, gamma radiation radiometer-dosimeter RKS-01 (STORA-ABG) is intended for use in the function of legally controlled measuring instruments:

- non-spectrometric instruments for activity and doses measurements to check compliance with radiation limits protection or nuclear safety; for wrecking measurements (item 8.7 of Decree Nr. 345/2002 Coll.)

The measurement device RKS-01 (STORA-ABG) is intended for quick detection and localization of alpha, beta, gamma, and X-ray radiation sources. By changing the filter the device can be used as a surface contamination monitor or ambient dose equivalent rate meter. The special filters included in the delivery kit allow to distinguish between alpha, beta and gamma radiation and to perform selective measurements without the mutual influence of these types of radiation. The radiation is detected by a GM tube. The RKS-01 (STORA-ABG) can store the measured values in its memory.



Picture 1: Radiometer-dosimeter RKS-01 (STORA-ABG)

2 Basic metrology characteristics

Measured quantity	- ambient dose equivalent rate $H^*(10)$ - surface activity (cps)
Measurement range	- $H^*(10)$ 0.01 $\mu\text{Sv/h}$ up to 100 mSv/h - surface activity alpha, beta, gamma – 0.001 – 9999 cps
Energy range	- $H^*(10)$ - 12 keV up to 3 MeV
Sensitivity to beta-emitting radionuclides	- from 150 keV
Operating temperature range	- -20 °C up to +50 °C
Power supply	- 2 pcs of AAA batteries
Dimensions	- 160 mm × 75 mm × 37 mm
Weight	- 0.4 kg

3 Data on device

The device must be identified by the manufacturer identification, type, serial number and type approval mark.

4 Test

The aim of the tests was to verify whether RKS-01 (STORA-ABG) fulfils the requirements of the OOP No. 0111-OOP-C081-16 and IEC 60846-1:2009 and OOP No. 0111-OOP-C079-16 and IEC 60325:2002 standards. For the testing purposes the applicant submitted two samples of the RKS-01 (STORA-ABG) device, S/N 2100011 and 2000010.

The applicant also submitted following test reports:

- 1) Temperature and shocks tests – test report No. 20-06/07 dated 28.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 2) Drop test – test report No. 20-03/07 dated 25.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 3) Humidity test - test report No. 20-01/07 dated 3.6.2020, issued by SS TC LORTA laboratory, Ukraine
- 4) Magnetic fields tests - test report No. 20-05/07 dated 26.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 5) Vibration test - test report No. 20-04/07 dated 25.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 6) Electrical tests - test report No. 20-02/07 dated 25.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 7) IP test - test report No. 20-07/07 dated 29.5.2020, issued by SS TC LORTA laboratory, Ukraine
- 8) EMC tests – No. 0872-5-2019 and 0881-5-2019 dated 22.1.2020, issued by UkrTEST of SE “Ukrmetrteststandart” laboratory, Ukraine
- 9) Safety requirements - No. 0871-1-2019 dated 16.12.2019, issued by UkrTEST of SE “Ukrmetrteststandart” laboratory, Ukraine
- 10) Bluetooth test - No. 0863-5-2019 dated 20.3.20 issued by UkrTEST of SE “Ukrmetrteststandart” laboratory, Ukraine
- 11) Declaration of Conformity

For dosimeter function were performed following tests: variation of the response due to photon radiation energy and angle of incidence, variation of the response due to beta radiation, linearity and statistical fluctuations, overload characteristics, time response and accuracy of alarms. These tests were performed in Czech Metrology Institute, Regional Inspectorate Prague.

For measurement surface activity function were performed following tests: statistical fluctuations, response time, alarm threshold drift, warm-up time, resolution time, overload protection, instrument efficiency, variation of response over the surface of the detector, relative intrinsic error, variation of surface emission rate with radiation energy, background count rate and battery operation.

Technical test only applies to the measurement device itself and does not include any connected computer and communication route.

Based on the test results and submitted documentation assessment it was found that the measuring instrument can be used for the intended purpose stated in the paragraph 1 of this document and can be used as a legal measuring instrument in the scope of this protocol.

5 Verification

Verification is performed in accordance with the OOP No. 0111-OOP-C081-16 and OOP No. 0111-OOP-C079-16.

Within the verification of dosimeter function, the test of the intrinsic error on each decade of measuring range should be carried out according to the IEC 60846-1:2009 standard

Within the verification of measurement surface activity function, the test of the variation of surface emission rate with radiation energy and the test of relative intrinsic error should be carried out according to the IEC 60325:2002 standard.

After verification, the verification mark identifying the year of the verification should be placed on the front panel so as not to block any data on the device.

6 Validity period

The validity of the verification is determined by the Decree of the Ministry of Industry and Trade.

