Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-15059-01-01 according to DIN EN ISO/IEC 17025:2018

Valid from: **01.07.2026**

Date of issue: 01.07.2026

This annex is part of the Accreditation Certificate D-K-15059-01-00.

Holder of the Accreditation Certificate:

PTW – Freiburg
Physikalisch-Technische Werkstätten Dr. Pychlau GmbH
Lörracher Straße 7, 79115 Freiburg im Breisgau

with the location

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Lörracher Straße 7, 79115 Freiburg im Breisgau

The calibration laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The calibration laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of calibration laboratories and they conform to the principles of DIN EN ISO 9001.

Calibration in the fields:

High frequency and radiation quantities
Ionizing radiation and radioactivity
- **Dosimetry**
- **Radiation protection**

This annex to the certificate was issued by the Deutsche Akkreditierungsstelle GmbH (DAkkS) and is digitally sealed.
This annex to the certificate is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any valid and surveyed accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH (www.dakks.de).

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range			Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Dosimetry						The dose rates listed under the gamma radiation are reference values for July 1987, May 2008 and/or April 2014 according to the assigned sources. The dose rates decrease in consequence of the source strength decrease with the corresponding radioactive half-lives and increased if with a source change. z_0 : Phantom surface z_5 : Phantom depth 5 cm
Air kerma				X-ray tube voltage, radionuclide resp. radiation quality		
	5 mGy	to	10 Gy	15 kV to 70 kV	2.1 %	
	2 mGy	to	10 Gy	70 kV to 280 kV	1.9 %	
	100 µGy	to	10 mGy	20 kV to 50 kV (Mammography)	2.5 %	
	100 µGy	to	100 mGy	40 kV to 150 kV (RAD)	2.6 %	
	1 µGy	to	3 Gy	^{137}Cs	1.9 %	
	2 µGy	to	5 Gy	^{60}Co	1.2 %	
Air kerma rate	50 mGy/min	to	500 mGy/min	15 kV to 70 kV	2.1 %	
	20 mGy/min	to	500 mGy/min	70 kV to 280 kV	1.9 %	
	200 µGy/s	to	50 mGy/s	20 kV to 50 kV (Mammography)	2.5 %	
	5 µGy/s	to	50 mGy/s	40 kV to 150 kV (RAD)	2.6 %	
	500 µGy/h	to	250 mGy/min	^{137}Cs	1.9 %	
	1 mGy/h	to	500 mGy/min	^{60}Co	1.2 %	
Ambient equivalent dose	10 µSv	to	2 mSv	30 kV to 300 kV	4.6 %	
	10 µSv	to	3 Sv	^{137}Cs	4.6 %	
	2 µSv	to	5 Sv	^{60}Co	4.4 %	
Ambient equivalent dose rate	1 mSv/h	to	400 mSv/h	30 kV to 300 kV	4.6 %	
	25 mSv/h	to	400 mSv/h	^{137}Cs	4.6 %	
	350 µSv/h	to	5 mSv/h	^{137}Cs	5.3 %	
	0.5 µSv/h	to	10 µSv/h	^{137}Cs	7.5 %	
	500 µSv/h	to	12 mSv/h	^{60}Co	4.4 %	
Air kerma length product	700 µGy · cm	to	700 mGy · cm	70 kV to 150 kV	2.7%	
Air kerma length product rate	35 µGy · cm/s		350 mGy · cm/s	70 kV to 150 kV	2.7%	
Absorbed dose to water	10 mGy	to	10 Gy	10 kV to 100 kV. z_0	3.4 %	
	10 mGy	to	10 Gy	100 kV to 280 kV. z_5	2.9 %	
	50 mGy	to	5 Gy	^{60}Co. z_5	1.1 %	
Absorbed dose rate to water	50 mGy/min	to	300 mGy/min	10 kV to 100 kV. z_0	3.4 %	
	50 mGy/min	to	300 mGy/min	100 kV to 280 kV. z_5	2.9 %	
	50 mGy/min	to	300 mGy/min	^{60}Co. z_5	1.1 %	
	> 40 kV	to	150 kV		1.2 %	

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
DC voltage	20 kV bis 40 kV	IEC 61676:2002	1.4 %	For invasive calibration of non-invasive voltage measurement-gadgets
	> 40 kV bis 150 kV		1.2 %	

Abbreviations used:

CMC	Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
DIN	Deutsches Institut für Normung e.V. – German institute for standardization
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation