



EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

CERTIFICATE OF ACCREDITATION

No. 516/2023

VF, a.s.
with registered office Svitavská 588, 679 21 Černá Hora,
Company Registration No. 25532219

for the Calibration Laboratory No. 2336
VF Calibration Laboratory

Scope of accreditation:

Calibration of meters of ionizing radiation dosimetry quantities and meters of contamination (alpha and beta radionuclides) to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17025:2018

In its activities performed within the scope and for the period of validity of this Certificate, the Conformity Assessment Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Accredited Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 218/2020 of 1. 4. 2020, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: **1. 4. 2025**

Prague: 2. 10. 2023



Jan Velišek
Director of the Department
of Testing and Calibration Laboratories
Czech Accreditation Institute

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

VF, a.s.
CAB number 2336, VF Calibration Laboratory
Svitavská 588, 679 21, Černá Hora

CMC for the field of measured quantity: Quantities of atomic and nuclear physics

Ord. number i	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty ²	Calibration principle	Calibration procedure identification ³	Work- place
		min.	unit max.					
1	Kerma in air (Ka) /Meters of ionizing radiation dosimetry quantities	200·10 ⁻⁹ Gy	to 110·10 ⁻⁸ Gy		3.9 %	Measurement on the OG-8 irradiator	VF 1Q-3P2-0101	
		110·10 ⁻⁸ Gy	to 300·10 ⁻⁷ Gy		2.2 %			
		300·10 ⁻⁷ Gy	to 120·10 ⁻⁵ Gy		2.5 %			
		120·10 ⁻⁵ Gy	to 300 Gy		2.2 %			
	Kerma rate in air (p Ka) / Meters of ionizing radiation dosimetry quantities	300·10 ⁻⁹ Gy·h ⁻¹	to 120·10 ⁻⁷ Gy·h ⁻¹	Position OG-8 ⁴	2.2 %	Measurement on the OG-8 irradiator	VF 1Q-3P2-0101	
		120·10 ⁻⁷ Gy·h ⁻¹	to 710·10 ⁻⁷ Gy·h ⁻¹		3.9 %			
		710·10 ⁻⁷ Gy·h ⁻¹	to 150·10 ⁻⁵ Gy·h ⁻¹		4.9 %			
		150·10 ⁻⁵ Gy·h ⁻¹	to 290·10 ⁻⁴ Gy·h ⁻¹		2.2 %			
		290·10 ⁻⁴ Gy·h ⁻¹	to 970·10 ⁻³ Gy·h ⁻¹		3.9 %			
		970·10 ⁻³ Gy·h ⁻¹	to 9 Gy·h ⁻¹		2.5 %			
					2.2 %			
					2.2 %			
					2.2 %			
					2.2 %			



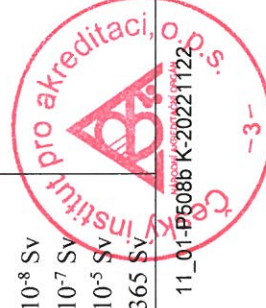
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		min.	unit	max.					
	Spatial dose equivalent ($H^*(10)$) / Meters of ionizing radiation dosimetry quantities	241 · 10 ⁻⁹ Sv		to 132 · 10 ⁻⁸ Sv		3.9 %	Measurement on the OG-8 irradiator	VF 1Q-3P2-0101	
		132 · 10 ⁻⁸ Sv		to 361 · 10 ⁻⁷ Sv		2.2 %			
		361 · 10 ⁻⁷ Sv		to 144 · 10 ⁻⁵ Sv		2.5 %			
		144 · 10 ⁻⁵ Sv		to 360 Sv		2.2 %			
	Spatial dose equivalent rate (p $H^*(10)$) / Meters of ionizing radiation dosimetry quantities	361 · 10 ⁻⁹ Sv · h ⁻¹		to 144 · 10 ⁻⁷ Sv · h ⁻¹	Position OG-8 ⁴	2.2 %	Measurement on the OG-8 irradiator	VF 1Q-3P2-0101	
						3.9 %			
						4.9 %			
		144 · 10 ⁻⁷ Sv · h ⁻¹		to 855 · 10 ⁻⁷ Sv · h ⁻¹		2.2 %			
						3.9 %			
		855 · 10 ⁻⁷ Sv · h ⁻¹		to 181 · 10 ⁻⁵ Sv · h ⁻¹		2.5 %			
						2.2 %			
		181 · 10 ⁻⁵ Sv · h ⁻¹		to 349 · 10 ⁻⁴ Sv · h ⁻¹		2.5 %			
	Personal dose equivalent ($H_p(10)$) / Meters of ionizing radiation dosimetry quantities	349 · 10 ⁻⁴ Sv · h ⁻¹		to 117 · 10 ⁻² Sv · h ⁻¹		2.2 %	Measurement on the OG-8 irradiator	VF 1Q-3P2-0101	
						2.2 %			
		117 · 10 ⁻² Sv · h ⁻¹		to 10.8 Sv · h ⁻¹		2.2 %			
						2.2 %			
		243 · 10 ⁻⁹ Sv		to 134 · 10 ⁻⁸ Sv		3.9 %			
		134 · 10 ⁻⁸ Sv		to 365 · 10 ⁻⁷ Sv		2.2 %			
		365 · 10 ⁻⁷ Sv		to 146 · 10 ⁻⁵ Sv		2.5 %			
		146 · 10 ⁻⁵ Sv		to 365 Sv		2.2 %			



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Ord. number i	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty ²	Calibration principle	Calibration procedure identification ³	Work- place
		min.	unit	max.	unit			
	Personal dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	365·10 ⁻⁹ Sv·h ⁻¹		to	146·10 ⁻⁷ Sv·h ⁻¹		VF 1Q-3P2-0101	
						Position OG-8 ⁴		
						4		
						5		
						7		
						4		
						5		
						1		
	Photon dose equivalent (Hx) / Meters of ionizing radiation dosimetry quantities	146·10 ⁻⁷ Sv·h ⁻¹		to	863·10 ⁻⁷ Sv·h ⁻¹		VF 1Q-3P2-0101	
						4		
						5		
						7		
						4		
						5		
						1		
						4		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	863·10 ⁻⁷ Sv·h ⁻¹		to	182·10 ⁻⁵ Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	182·10 ⁻⁵ Sv·h ⁻¹		to	352·10 ⁻⁴ Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	352·10 ⁻⁴ Sv·h ⁻¹		to	118·10 ⁻² Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	118·10 ⁻² Sv·h ⁻¹		to	10.8 Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	228·10 ⁻⁹ Sv		to	126·10 ⁻⁸ Sv		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	126·10 ⁻⁸ Sv		to	342·10 ⁻⁷ Sv		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	342·10 ⁻⁷ Sv		to	137·10 ⁻⁵ Sv		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	137·10 ⁻⁵ Sv		to	342 Sv		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	342·10 ⁻⁹ Sv·h ⁻¹		to	137·10 ⁻⁷ Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		
	Photon dose equivalent rate (p Hp(10)) / Meters of ionizing radiation dosimetry quantities	137·10 ⁻⁷ Sv·h ⁻¹		to	810·10 ⁻⁷ Sv·h ⁻¹		VF 1Q-3P2-0101	
						1		
						4		
						1		
						3		
						2		
						3		
						2		



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		min.	unit	max.					
2*		810·10 ⁻⁷ Sv·h ⁻¹	to	171·10 ⁻⁵ Sv·h ⁻¹	5	3.9 %			
					1	2.5 %			
		171·10 ⁻⁵ Sv·h ⁻¹	to	331·10 ⁻⁴ Sv·h ⁻¹	4	2.2 %			
					1	2.5 %			
		331·10 ⁻⁴ Sv·h ⁻¹	to	111·10 ⁻² Sv·h ⁻¹	3	2.2 %			
2*		111·10 ⁻² Sv·h ⁻¹	to	10.3 Sv·h ⁻¹	2	2.2 %			
					3	2.2 %			
					2	2.2 %			
	Surface activity of alpha radionuclides (As) /Meters of contamination	7·10 ⁻¹ Bq·cm ⁻²	to	2.5·10 ³ Bq·cm ⁻²		1.4 %	Measurements using planar sources of ionizing radiation	VF 1Q-3P2-0102	
	Activity of alpha radionuclides (A) / Meters of contamination	20 Bq	to	2·10 ⁵ Bq		1.4 %	Measurements using planar sources of ionizing radiation	VF 1Q-3P2-0102	
3*	Surface activity of beta radionuclides (As) /Meters of contamination	2.5·10 ⁻¹ Bq·cm ⁻²	to	2.5·10 ⁶ Bq·cm ⁻²		1.4 %	Measurements using planar sources of ionizing radiation	VF 1Q-3P2-0102	
	Activity of beta radionuclides (A) / Meters of contamination	4·10 ¹ Bq	to	2·10 ⁶ Bq		1.4 %	Measurements using planar sources of ionizing radiation	VF 1Q-3P2-0102	
	Kerma in air (Ka) /Meters of ionizing radiation dosimetry quantities	8·10 ⁻² Gy	to	2.5·10 ³ Gy		5.4 %	Measurement using a comparator	VF 1Q-3P2-0103	
	Kerma rate in air (p Ka) / Meters of ionizing radiation dosimetry quantities	5 Gy·h ⁻¹	to	2.5·10 ³ Gy·h ⁻¹		5.4 %	Measurement using a comparator	VF 1Q-3P2-0103	



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- ¹ Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.
- ² The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.
- ³ If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).
- ⁴ OG-8 is a gamma irradiator, the number indicates the sealed radionuclide source in the irradiator

