



# Accreditation Scope

**Federal Authority for Nuclear Regulation – Secondary Standards  
Dosimetry Laboratory, NAL 131  
Calibration Laboratory, (ISO/IEC 17025:2017)**

**Al Zafranah, Abu Dhabi, UAE**

**Issue Date: 06-12-2022**

**Expiry Date: 05-12-2025**

**Issue No: 08**

Calibration Field/ Quantity/ Property	Measurand / Equipment	Measuring Range	CMC (k=2)	Calibration Method (Standard/ Internal Procedure)	Permanent lab (P) / Client-site (S)
Ionizing Radiation	Air Kerma Rate / Dosimeter	(5.00 E-03 – 1.50 E+01) mGy/h	1.5 %	ISO 4037-1:2019 /3:2019 with Cs-137 source and Secondary standard ionization chamber	P
	Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(2 – 40,000) $\mu$ Sv/h	5.2 %	ISO 4037-1:2019 /3:2019 with Cs-137 source and Secondary standard ionization chamber	
	Personal Dose Equivalent Penetrating (in 10 mm depth) with angular dependence / Dosimeters	(10 to 10,000) $\mu$ Sv	6.2 %	ISO 4037-1:2019/3:2019 with Cs-137 source, ISO water slab phantom and Secondary standard ionization chamber	
	Personal Dose Equivalent Penetrating (in 0.07 mm depth) with angular dependence / Dosimeters	(10 to 10,000) $\mu$ Sv	6.2 %	ISO 4037-1:2019/3:2019 with Cs-137 source, ISO water slab and rod phantoms and Secondary standard ionization chamber	
	Electronic personal dose equivalent (in 10mm depth) / Dosimeters	(10 to 10,000) $\mu$ Sv	4.9 %	ISO 4037-1:2019/3:2019 with Cs-137 source, ISO water slab phantom and Secondary standard ionization chamber	
	Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(5 – 40,000) $\mu$ Sv/h	4.9 %	ISO 4037-1:2019/3:2019 with Cs-137 source, ISO water slab phantom and Secondary standard ionization chamber	
	Ambient Dose Equivalent H*(10) (free in air) with angular dependence / Dosimeters	(10 to 10,000) $\mu$ Sv	6.2 %	ISO 4037-1:2019/3:2019 with Cs-137 source, Secondary standard ionization chamber	



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Ionizing Radiation	Air Kerma Rate / Dosemeter	(7.2 E+01 – 1.5 E+04) mGy/h	1.9 %	IEC 61267:2005, IAEA Technical Reports Series No. 457 – Dosimetry in Diagnostic Radiology: An International Code of Practice, X-Ray RQR Qualities, 50 kV to 150 kV and Secondary Standard ionization chamber	P
	Air Kerma Rate / Diagnostic Ionization chamber	(1.08 E+01 – 7.9 E+02) mGy/h	1.9 %	IEC 61267:2005, IAEA Technical Reports Series No. 457 – Dosimetry in Diagnostic Radiology: An International Code of Practice, X-Ray RQA Qualities, 50 kV to 150 kV and Secondary Standard ionization chamber	
	Air Kerma Rate / Dosemeter	(3.6 E-01 – 2.3 E+01) mGy/h	2.3 %	ISO 4037-1:2019 / 3:2019, X-ray N-Series, 40 kV to 300 kV with Secondary Standard ionization chamber	
	N40 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	6.6 %	ISO 4037-1:2019 / 3:2019, with X-ray N-40 and Secondary Standard ionization chamber	
	N60 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	8.7 %	ISO 4037-1:2019 / 3:2019, with X-ray N-60 and Secondary Standard ionization chamber	
	N80 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	6.9 %	ISO 4037-1:2019 / 3:2019, with X-ray N-80 and Secondary Standard ionization chamber	
	N100 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	6.8 %	ISO 4037-1:2019 / 3:2019, with X-ray N-100 and Secondary Standard ionization chamber	



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Ionizing Radiation	N120 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	7.7 %	ISO 4037-1:2019 / 3:2019, with X-ray N-120 and Secondary Standard ionization chamber	P
	N150 & N200 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	7.1 %	ISO 4037-1:2019 / 3:2019, with X-ray N-150, N200 and Secondary Standard ionization chamber	
	N250 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	5.3 %	ISO 4037-1:2019 / 3:2019, with X-ray N-250 and Secondary Standard ionization chamber	
	N300 - Ambient Dose Equivalent Rate / Radioprotection Dosimeters	(200 – 10,000) $\mu$ Sv/h	7.7 %	ISO 4037-1:2019 / 3:2019, with X-ray N-300 and Secondary Standard ionization chamber	
	Personal Dose Equivalent Penetrating (in 10 mm depth) / Dosimeters	(100 to 25,000) $\mu$ Sv	6.1 %	ISO 4037-1:2019 / 3:2019, X-ray N-Series with Secondary Standard ionization chamber and ISO water slab phantom	
	Personal Dose Equivalent Penetrating (in 0.07 mm depth) / Dosimeters	(100 to 25,000) $\mu$ Sv	6.1 %	ISO 4037-1:2019 / 3:2019, X-ray N-Series with Secondary Standard ionization chamber and ISO pillar, rod and slab phantoms	



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Ionizing Radiation	Electronic personal dose equivalent (in 10mm depth) / Dosimeters	(100 to 25,000) $\mu$ Sv	4.8 %	ISO 4037-1:2019 / 3:2019, X-ray N-Series with Secondary Standard ionization chamber and ISO water slab phantom	P
	N40 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	6.9 %	ISO 4037-1:2019 / 3:2019, X-ray N-40 with Secondary Standard ionization chamber and ISO water slab phantom	
	N60 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	8.9 %	ISO 4037-1:2019 / 3:2019, X-ray N-60 with Secondary Standard ionization chamber and ISO water slab phantom	
	N80 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	7.2 %	ISO 4037-1:2019 / 3:2019, X-ray N-80 with Secondary Standard ionization chamber and ISO water slab phantom	
	N100 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	7.1 %	ISO 4037-1:2019 / 3:2019, X-ray N-100 with Secondary Standard ionization chamber and ISO water slab phantom	
	N120 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	8.0 %	ISO 4037-1:2019 / 3:2019, X-ray N-120 with Secondary Standard ionization chamber and ISO water slab phantom	
	N150 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	7.4 %	ISO 4037-1:2019 / 3:2019, X-ray N-150 with Secondary Standard ionization chamber and ISO water slab phantom	



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Ionizing Radiation	N200 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	7.4 %	ISO 4037-1:2019 / 3:2019, X-ray N-200 with Secondary Standard ionization chamber and ISO water slab phantom	P
	N250 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	5.6 %	ISO 4037-1:2019 / 3:2019, X-ray N-250 with Secondary Standard ionization chamber and ISO water slab phantom	
	N300 - Electronic personal dose equivalent rate (in 10mm depth) / Dosimeters	(100 – 10,000) $\mu$ Sv/h	7.9 %	ISO 4037-1:2019 / 3:2019, X-ray N-300 with Secondary Standard ionization chamber and ISO water slab phantom	
	Ambient Dose Equivalent H*(10) (free in air) with angular dependence / Dosimeters	(100 to 25,000) $\mu$ Sv	6.1%	ISO 4037-1:2019 / 3:2019, X-ray N-Series with Secondary Standard ionization chamber	
END					