

CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that:-

NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA RADIATION DOSIMETRY CALIBRATION LABORATORY

Accreditation Number: **1607**

is a South African National Accreditation System accredited Calibration laboratory
provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying scope of accreditation
Annexure "A", bearing the above accreditation number for

RADIATION DOSIMETRY METROLOGY

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2017

The accreditation demonstrates technical competency for a defined scope and the operation of a
laboratory quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the
relevant SANAS accreditation symbol to issue facility reports and/or certificates

Mr R Josias
Chief Executive Officer

Effective Date: 20 February 2020
Certificate Expires: 19 February 2025

ANNEXURE A

SCOPE OF ACCREDITATION

RADIATION DOSIMETRY

Accreditation Number: 1607

Permanent Address of Laboratory: National Metrology Institute of SA Radiation Dosimetry Calibration Laboratory Building 6, CSIR Campus Meiring Naudé Road Brummeria, Pretoria 0001 Postal Address: Private Bag X34 Lynnwood Ridge 0040 Tel: (012) 841-2097 Fax: (012) 841-4458 E-mail: sjozela@nmisa.org ntatamala@nmisa.org			Technical Signatories: Mr S Jozela (Items 1, 2, 3, 11, 14, 15 and 16) Ms RW Thoka (all items except item 11, 12, 14, 15 and 16) Mr D Seepamore (Items 4 to 10 and 14) Mr R Peppenene (Items 1, 3.1, 11, 12, 15 and 16) Nominated Representative: Ms L Ntamatamala Issue No.: 20 Date of Issue: 20 February 2020 Expiry Date: 19 February 2025		
ITEM	MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT	NUCLIDE	RANGE OF MEASURED QUANTITY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	METHOD/ PROCEDURE
1	Absorbed dose to water • Therapy level dose meter	Co-60	0,1 Gy to 10 Gy	2 %	Calibration against a secondary standard using a water phantom
2	Absorbed dose to tissue • TLD'S	Sr-90/Y-90 Kr-85	0,700 mGy to 140 mGy 8,50 μ Gy to 34,0 mGy	7,5 % 7,5 %	Irradiation in a calibrated field on a water slab/PMMA phantom or a PMMA rod phantom
3	Air kerma • Therapy level dose meter	Co-60	0,100 Gy to 10,0 Gy	1,5 %	Calibration against a secondary standard free in air or irradiation in a calibrated field on a water slab/PMMA phantom, pillar phantom or PMMA rod phantom
3.1	• Therapy level dose meter	Co-60	0,100 Gy to 10,0 Gy	1,5 %	
3.2	• Protection level dose meter	Co-60 Cs-137 Am-241	0,15 μ Gy to 5,00 mGy 0,007 μ Gy to 131 mGy 0,250 μ Gy to 11,4 mGy	3,0 % 3,0 % 5,0 %	
3.3	• TLD'S	Co-60 Cs-137 Am-241	0,010 μ Gy to 1,3 mGy 0,458 μ Gy to 50,0 mGy 1,5 μ Gy to 0,150 mGy	3,0 % 3,0 % 5,0 %	
3.4	• Therapy level dose meter	X-ray	0,100 Gy to 10,0 Gy	1,5 %	
4	Air kerma rate • Protection level survey meter	Co-60 Cs-137 Am-241	5 μ Gy/hr to 11 mGy/hr 0,438 μ Gy/hr to 0,2 Gy/hr 13 μ Gy/hr to 11,4 mGy/hr	5 % 4 % 5 %	Irradiation in a calibrated field in air

Original Date of Accreditation: 01 December 2003

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The CMC, expressed as an expanded uncertainty of measurement, is stated as the standard uncertainty of measurement multiplied by a coverage factor $k = 2$, corresponding to a confidence level of approximately 95%

Accreditation Manager

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5	Ambient dose equivalent rate • Protection level survey meter	Co-60 Cs-137 Am-241	5,8 μ Sv/hr to 12,8 mSv/hr 0,530 μ Sv/hr to 0,24 Sv/hr 22,6 μ Sv/hr to 19,8 mSv/hr	6 % 6 % 6 %	Irradiation in a calibrated field in air using multiple source unit
6	Exposure • Personal dosimeter	Cs-137 Am-241	0,100 mR to 6,00 R 0,100 mR to 20,0 mR	6 % 6 %	Irradiation in a calibrated field on a water slab/PMMA phantom, pillar phantom or PMMA rod phantom
7	Exposure Rate • Protection level survey meter	Co-60 Cs-137 Am-241	0,57 mR/hr to 1,26 R/hr 0,05 μ R/hr to 22,8 R/hr 1,48 mR/hr to 1,30 R/hr	6 % 6 % 6 %	Irradiation in a calibrated field in air using a multiple source unit
8	Personal dose equivalent • Personal dosimeter	Cs-137 Am-241	1 μ Sv to 10 mSv 1 μ Sv to 2 mSv	6 % 6 %	Irradiation in a calibrated field on a water slab/PMMA phantom, pillar phantom or PMMA rod phantom
9	2π Efficiency • Contamination monitor	Am-241 Sr-90/Y-90 Cf-252 C-14	0 to 100 %	4 % 4 % 4 % 4 %	Calibration using an extended area source
10	Surface activity response • Contamination monitor	Am-241 Sr-90/Y-90 Cf-252 C-14	Up to 500 cps/(Bq/cm ²)	10 % 10 % 10 % 10 %	Calibration using an extended area source
11	Air Kerma rate (Diagnostic)	x-ray RQR – Series RQA – Series RQT – Series Mammography quantities	50 kV to 420 kV 40 kV to 150 kV TRS 457 40 kV to 150 kV TRS 457 100 kV to 150 kV TRS 457 25 kV to 50 kV TRS 457	2 % 2 % 2 % 2 % 2 %	Calibration against a secondary standard free in air
12	Ambient dose equivalent rate • Neutron Dosimetry	Am-Be	9 μ Sv/hr to 2 mSv/hr	15 %	Irradiation in a calibrated field in air

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13	Surface Emission Rate • Single Nuclides	Am-241 Sr-90/Y-90 Cf-252 C-14	10 to 15 000 cps	2,0 %	Source substitution method
14	Reference Air Kerma rate	Ir-192, Co-60	0,0001 Gy to 0,1 Gy	3,0 %	Calibration against a secondary standard free in air
15	Air Kerma length product	X-rays	100 kV to 150 kV	3,0 %	Calibration against a secondary standard free in air
16	X-ray Tube Voltage	X-rays	25 kV to 50 kV 40 kV to 150 kV	3,0 % 3,0 %	Calibration against an invasive and/or non-invasive device
16.1	Mammography				
16.2	Conventional level				

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ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Accreditation Manager