Issue date: 06 April 2025
Valid Until: -

NO: SAMM 989

LABORATORY LOCATION/ CENTRAL OFFICE:	SMZ Laboratory Sdn. Bhd. C-1, Sunway PJ 51A Jalan SS9A/19, Seri Setia 47300 Petaling Jaya Selangor , 47300, SELANGOR MALAYSIA
ACCREDITED SINCE :	06 APRIL 2025
FIELD(S) OF CALIBRATION:	MASS

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

*** The uncertainty covered by the CMC is expressed as the expanded uncertainty corresponding to a coverage probability of approximately 95 % and have a coverage factor of k=2 unless stated otherwise.**

CENTRAL LOCATION	SMZ Laboratory Sdn. Bhd. C-1, Sunway PJ 51A Jalan SS9A/19, Seri Setia 47300 Petaling Jaya Selangor , 47300, Selangor
FIELD(S) OF CALIBRATION :	MASS,

SCOPE OF CALIBRATION : MASS

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
Standard Weight	5 kg	0.02 g	Calibration using
	1mg	4ug	Calibrated using
	1kg	14mg	Mass comparison
	10 mg	0.007 mg	Comparison with
	1g 29 59 10g	0.021 mg 0.021 mg 0.023 mg 0.05 mg	Calibrated using standard weight by comparison method with reference to standard OIML R111 (2004)

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	1mg,2mg,5mg, 10 mg , 20 mg	0.02 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	200 mg , 500 mg	0.02 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1g,29,5g	0.03 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1g,29,5g	0.04 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	50g	0.06 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	100g	0.11 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	200 g	0.19 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	500 g	1.3 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1kg	None	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	2kg	4.6 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	5kg	13 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	10 kg	117 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	20 kg	125 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1kg 2kg 10 kg 20 kg	13 mg 19mg 40 mg 77mg 0.16 g	Comparison using the ABBA or AB1.... BnA weighing sequence. “Intermediate values
	1kg 2kg 10 kg 20 kg	None	can be calibrated with
	1kg 2kg 10 kg 20 kg	None	uncertainty interpolated from the next higher and lower nominal value
	1kg 2kg 10 kg 20 kg	None	tabulated.”

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks
	2mg	0.005 mg	
	2mg	0.005 mg	2. Intermediate values
	10 mg	0.005 mg	tabulated can be
	20 mg	0.006 mg	calibrated with uncertainty
	50 mg	0.006 mg	interpolated from the next
	100 mg	0.007 mg	higher and lower nominal
	200 mg	0.007 mg	values tabulated.
	500 mg	0.007 mg	
	500 mg	None	3. Calibration Method
	1g	0.009 mg	based on OIML R111-1
	29	0.010 mg	-2004
	5g	0.014 mg	
	10g	0.020 mg	
	20g	0.028 mg	
	50g	0.07 mg	
	100g	0.14 mg	
	200 g	0.3 mg	
	500 g	0.7 mg	
	1kg	1.3 mg	
	2kg	2.6 mg	
	5 kg	8mg	
	10 kg	15 mg	
	20 k	50 m	
	5 kg	0.2g	
	10 kg	0.2g	2. Intermediate values
	20 kg	0.39	tabulated can be
	20 kg	None	calibrated with
	20 kg	None	uncertainty interpolated
	20 kg	None	from the next higher and
	20 kg	None	lower nominal values
	20 kg	None	tabulated.
	20 kg	None	3.Calibration method
	20 kg	None	based on OIML R111-1
	20 kg	None	(2004).

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	2 kg to 25 kg	0.2g	Calibrated using standard weight and comparator as standard according to OIML R111-1:2004 (E)
	1g	0.04 mg	
	29	0.05 mg	
	5g	0.06 mg	
	10g	0.07 mg	
	20g	0.09 mg	Calibrate using
	50g	0.10 mg	reference standard
	100g	0.17 mg	weight by
	200 g	0.4 mg	comparison method
	500 g	0.002 g	according to ABBA
	1kg	0.006 g	weighing scheme
	2kg	0.02 g	
	5 kg	0.03 g	
	10 kg	0.2g	
	20 kg	04g	
	2kg 5 kg 10 kg 20 kg 25 kg	0.2g	Calibrated by using standard weights and weighing comparator
	2kg 5 kg 10 kg 20 kg 25 kg	0.2g	Calibrated by using standard weights and weighing comparator
Weighing Balance	Up to 200 g	0.02 g	Calibration using
	200 g to 600 g 600 g to 1000 g to 2000 g 2000 g to 5000 g 5000 g to 10000 g 6000 g to 20000 g 20 kg to 60 kg 60 kg to 100 kg 100 kg to 200 kg 200 kg to 500 kg 500 kg to 1000 kg 1000 kg to 2000 kg	0.0050 g 0.054 g 0.011g 0.053g 0.0023 kg 0.003 kg 0.064 kg 0.015 kg 0.03 kg 0.063 kg	Calibrated using Standard weights as standards according to ASTM E898 : 2020 Euramet Cg-18 Ver 4.0
	Up to 60 kg	0.01 kg	Calibrated by using standard weights with reference to
	Up to 200 g	1.5 mg	1. The calibration
	Up to 600 g	4.0 mg	procedure covers tests
	Up to 1000 g	10 mg	for linearity error,
	Up to 2000 g	20 mg	repeatability, off-centre

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	Up to 5000 g	0.03 g	loading and hysteresis.
	Up to 10 000 g	0.19	
	Up to 20 000 g	0.2g	2. The CMC is estimated
	Up to 32 000 g	0.2g	from the contributions
	Up to 300 kg	0.02 kg	from the first three tests
	Up to 500 kg	0.04 kg	and the standards used.
	Up to 500 kg	None	3. Weighing balances
	Up to 500 kg	None	with ranges intermediate
	Up to 500 kg	None	from the values tabulated
	Up to 500 kg	None	can be calibrated with
	Up to 500 kg	None	uncertainty interpolated
	Up to 500 kg	None	from the next higher and
	Up to 500 kg	None	lower ranged values.
	Up to 500 kg	None	4. Calibration method
	Up to 500 kg	None	based on OIML R76-
	Up to 500 kg	None	1(2006) and with
	Up to 500 kg	None	standard weight sets
	Up to 500 kg	None	based on OIML R111-1
	Up to 500 kg	None	(2004).
	6 kg to 10 kg 10 kg to 15 kg	04g 0.0006 kg	weights with reference to
	15 kg to 30 kg	0.0009 kg	ASTM E898 - 88
	30 kg to 60 kg	0.005 kg	-2020
	60 kg to 100 kg	0.08 kg	
	100 kg to 150 kg	0.09 kg	
	150 kg to 300 kg	0.13 kg	
	None	None	Calibration
	Up to 100 g Up to 200 g Up to 300 g Up to 500 g	0.0002 g 0.0002 g 0.0003 g 0.0005 g	Calibrated using Standard Weight.
	Up to 1 kg Up to 2 kg Up to 3 kg Up to 5 kg	0.006 g 0.01g 0.02 g 0.05 g	The Calibration Method is with reference to
	Up to 10 kg Up to 20 kg Up to 30 kg Up to 50 kg	0.06 g 45g 9.0g	BS EN 45501: 2015 and Euramet CG No 18 Version 4.0

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	Up to 100 kg Up to 200 kg Up to 300 kg Up to 500 kg	19g 45g 49g 0.10 kg	(11/2015).
	Up to 1,000 kg	0.20 kg	