

Schedule

Issue date: 27 April 2020
Valid until: 5 February 2022



MS ISO/IEC 17025

NO: SAMM 578

(Issue 3, 27 April 2020 replacement of SAMM 578 dated 19 February 2019)

Page: 1 of 13

LABORATORY LOCATION: (PERMANENT LABORATORY)



TRESCAL (MALAYSIA) SDN. BHD.
NO 45 & 45-01, JALAN KEMPAS INDAH 1/3
TAMAN KEMPAS INDAH
81300 JOHOR BAHRU
JOHOR
MALAYSIA

FIELDS OF CALIBRATION:

**TEMPERATURE, TIME & FREQUENCY, MASS,
PRESSURE, DIMENSIONAL**

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 expanded uncertainties are based on an estimated confidence probability of approximately 95% and have a coverage factor of $k=2$ unless stated otherwise.

SCOPE OF CALIBRATION: TEMPERATURE

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Liquid in Glass Thermometer (Total Immersion)	-30 °C to 30 °C 30 °C to 200 °C	0.09 °C 0.084 °C	Comparison with reference Pt100 in liquid bath and temperature block calibrator
Liquid in Glass Thermometer (Partial Immersion)	-30 °C to 30 °C 30 °C to 200 °C	0.091 °C 0.084 °C	
Temperature sensor	-30 °C to 0 °C 0 °C to 200 °C	0.1 °C 0.097 °C	Comparison with reference Pt100/Type R thermocouple in liquid bath and temperature block calibrator
	200 °C to 400 °C 400 °C to 600 °C 600 °C to 1200 °C	0.33 °C 0.75 °C 2.7 °C	
Temperature sensor with indicator	-30 °C to 0 °C 0 °C to 200 °C	0.09 °C 0.083 °C	
	200 °C to 400 °C 400 °C to 600 °C 600 °C to 1200 °C	0.33 °C 0.75 °C 2.7 °C	

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: TEMPERATURE**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Temperature Calibrator I) Source			
a) Type K	-200 °C to -100 °C -100 °C to 1370 °C	0.3 °C 0.1 °C	By electrical measurement using multimeter
b) Type N	-200 °C to -100 °C -100 °C to 1300 °C	0.3 °C 0.1 °C	
c) Type J	-200 °C to 1200 °C	0.1 °C	
d) Type T	-200 °C to -100 °C -100 °C to 400 °C	0.2 °C 0.1 °C	
e) Type E	-200 °C to -100 °C -100 °C to 1000 °C	0.2 °C 0.1 °C	
f) Type R	0 °C to 1760 °C	0.2 °C	
g) Type S	0 °C to 1760 °C	0.2 °C	
h) Type B	600 °C to 1800 °C	0.3 °C	
i) Pt 100	-200 °C to 850 °C	0.1 °C	
II) Measurement			
a) Type K	-200 °C to -100 °C -100 °C to 1370 °C	1.2 °C 0.4 °C	By electrical simulation using calibrator
b) Type N	-200 °C to -100 °C -100 °C to 1300 °C	1.1 °C 0.3 °C	
c) Type J	-200 °C to 1200 °C	0.4 °C	
d) Type T	-200 °C to -100 °C -100 °C to 400 °C	0.6 °C 0.3 °C	
e) Type E	-200 °C to -100 °C -100 °C to 1000 °C	0.6 °C 0.3 °C	
f) Type R	0 °C to 1760 °C	2 °C	
g) Type S	0 °C to 1760 °C	2 °C	
h) Type B	600 °C to 1800 °C	2 °C	
i) Pt 100	-200 °C to 850 °C	0.2 °C	

NO: SMM 578(Issue 3, 27 April 2020 replacement
of SMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: TEMPERATURE**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Temperature Indicating Device			
a) Type K	-200 °C to -100 °C -100 °C to 1370 °C	1.2 °C 0.4 °C	
b) Type N	-200 °C to -100 °C -100 °C to 1300 °C	1.1 °C 0.3 °C	
c) Type J	-200 °C to 1200 °C	0.4 °C	
d) Type T	-200 °C to -100 °C -100 °C to 400 °C	0.6 °C 0.3 °C	By electrical simulation using calibrator
e) Type E	-200 °C to -100 °C -100 °C to 1000 °C	0.6 °C 0.3 °C	
f) Type R	0 °C to 1760 °C	2 °C	
g) Type S	0 °C to 1760 °C	2 °C	
h) Type B	600 °C to 1800 °C	2 °C	
i) Pt 100	-200 °C to 850 °C	0.2 °C	

Signatories:

1. Wee Sik Wei
2. **Hasnas Binti Hussain
3. **Teo Hun Wei

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: TEMPERATURE****SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Temperature sensor	30 °C to 200 °C 200 °C to 400 °C	0.27 °C 0.44 °C	Comparison with reference Pt100 in temperature block calibrator
Temperature sensor with indicator	30 °C to 200 °C 200 °C to 400 °C	0.2 °C 0.41 °C	
Temperature Indicating Device			By electrical simulation using calibrator
a) Type K	-200 °C to -100 °C -100 °C to 1370 °C	1.2 °C 0.4 °C	
b) Type N	-200 °C to -100 °C -100 °C to 1300 °C	1.1 °C 0.3 °C	
c) Type J	-200 °C to 1200 °C	0.4 °C	
d) Type T	-200 °C to -100 °C -100 °C to 400 °C	0.6 °C 0.3 °C	
e) Type E	-200 °C to -100 °C -100 °C to 1000 °C	0.6 °C 0.3 °C	
f) Type R	0 °C to 1760 °C	2 °C	
g) Type S	0 °C to 1760 °C	2 °C	
h) Type B	600 °C to 1800 °C	2 °C	
i) Pt 100	-200 °C to 850 °C	0.2 °C	
Temperature Controlled Enclosure	-30 °C to 100 °C 100 °C to 250 °C 250 °C to 600 °C 600 °C to 1200 °C	0.6 °C 0.6 °C 1.6 °C 2.5 °C	Calibrate using temperature recorder & thermocouple based on AS 2853- 1986
Humidity Enclosure	5 °C to 40 °C 30 %RH to 90 %RH	0.3 °C 2.4 %RH	Calibrate by using data logger based on AS2853-1986

Scan this QR Code or visit www.ism.gov.my/cab-directories for the current scope of accreditation**Signatories:**

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: TIME & FREQUENCY**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Stop Watch / Timer	0 to 30 s 30 s to 60 s 60 s to 300 s 300 s to 600 s 600 s to 900 s 900 s to 1800 s 1800 s to 3600 s 3600 s to 7200 s 7200 s to 10 800 s	0.05 s 0.06 s 0.06 s 0.09 s 0.11 s 0.20 s 0.40 s 0.80 s 1.2 s	Calibrate by using Stop Watch

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SMM 578(Issue 3, 27 April 2020 replacement
of SMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: TIME & FREQUENCY****SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Stop Watch / Timer	0 to 30 s 30 s to 60 s 60 s to 300 s 300 s to 600 s 600 s to 900 s 900 s to 1800 s 1800 s to 3600 s 3600 s to 7200 s 7200 s to 10 800 s	0.05 s 0.06 s 0.06 s 0.09 s 0.11 s 0.20 s 0.40 s 0.80 s 1.2 s	Calibrate by using Stop Watch
RPM Meter Non Contact	60 rpm to 14000 rpm	1.1 rpm	Calibrated by using Tachometer

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: MASS**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Standard Weight Class M1, M2 & M3 / Dead Weight	1 kg 2 kg 5 kg 10 kg 20 kg 25 kg	0.03 g 0.03 g 0.03 g 0.1 g 0.2 g 0.2 g	Calibrate by using standard weight and comparator based on OIML R111-1: 2004 I

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: MASS****SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Balance	10 mg to 200 g	0.0036 g	Calibrate by using standard weights based on ASTM E898-88 (2005)
	200 g to 1 kg	0.019 g	
	1 kg to 5 kg	0.094 g	
	5 kg to 10 kg	0.20 g	
	10 kg to 20 kg	0.38 g	
	20 kg to 50 kg	0.001 kg	
	50 kg to 100 kg	0.008 kg	
	100 kg to 500 kg	0.08 kg	
	500 kg to 1000 kg	0.10 kg	

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

**** Non-resident signatory**

NO: SMM 578(Issue 3, 27 April 2020 replacement
of SMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: PRESSURE**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Vacuum	Up to -0.95 bar	0.008 bar	Calibrate by using reference gauge based on AS 1349 (1986)
Pneumatic	0 mbar to 70 mbar 70 mbar to 700 mbar 700 mbar to 7000 mbar 7 bar to 30 bar	0.04 mbar 0.16 mbar 1.9 mbar 0.009 bar	
Hydraulic	0 bar to 300 bar 300 bar to 700 bar 700 bar to 2500 bar	0.09 bar 0.1 bar 0.5 bar	

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)

Page: 10 of 13

SCOPE OF CALIBRATION: PRESSURE**SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Vacuum	Up to -0.95 bar	0.008 bar	Calibrate by using reference gauge based on AS 1349 (1986)
Pneumatic	0 mbar to 70 mbar 70 mbar to 700 mbar 700 mbar to 7000 mbar 7 bar to 30 bar	0.04 mbar 0.16 mbar 1.9 mbar 0.009 bar	
Hydraulic	0 bar to 300 bar 300 bar to 700 bar 700 bar to 2500 bar	0.09 bar 0.1 bar 0.46 bar	

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)**SCOPE OF CALIBRATION: DIMENSIONAL**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Precision Caliper (Internal & External)	0 mm to 300 mm 300 mm to 600 mm	6 μ m 9 μ m	Calibrate by using caliper checker/gauge block as standards according to JIS B7507:2016
Micrometer (External)	25 mm travel for micrometer frame sizes (in mm) 25, 50 75, 100, 125, 150 175, 200, 225 250, 275, 300	2 μ m 3 μ m 4 μ m 5 μ m	Calibrate by using gauge block and optical parallel as standards according to JIS B7502:2016
Height Gauge	0 mm to 300 mm 300 mm to 600 mm	7 μ m 11 μ m	Calibrate by using caliper checker, gauge block and dial test indicator as standards according to JIS B7517:1993
Dial Thickness Gauge	Up to 20 mm	1 μ m	Calibrate by using gauge block as standards according to JIS B7503:2011
Dial Gauge	Up to 25 mm 25 mm to 50 mm 50 mm to 75 mm 75 mm to 100 mm	1.4 μ m 1.9 μ m 2 μ m 2.2 μ m	Calibrate by using micrometer head as standards according to JIS B7503:2011
Dial Test Indicator	Up to 0.3 mm 0.3 mm to 0.6 mm 0.6 mm to 2.0 mm	1.4 μ m 1.5 μ m 4 μ m	Calibrate by using micrometer head as standards according to JIS B7533:1990
Digital Indicator	Up to 50 mm	2 μ m	Calibrate by using gauge block

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)

Page: 12 of 13

SCOPE OF CALIBRATION: DIMENSIONAL**SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Precision Caliper (Internal & External)	0 mm to 300 mm 300 mm to 600 mm	6 μ m 9 μ m	Calibrate by using caliper checker/gauge block as standards according to JIS B7507:2016
Micrometer (External)	25 mm travel for micrometer frame sizes (in mm) 25, 50, 75 100, 125 125, 150 175 200 225, 250 275 300	3 μ m 4 μ m 5 μ m 6 μ m 7 μ m 8 μ m 9 μ m 10 μ m	Calibrate by using gauge block and optical parallel as standards according to JIS B7502:2016
Height Gauge	0 mm to 300 mm 300 mm to 600 mm	7 μ m 11 μ m	Calibrate by using caliper checker, gauge block and dial test indicator as standards according to JIS B7517:1993

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory

NO: SAMM 578(Issue 3, 27 April 2020 replacement
of SAMM 578 dated 19 February 2019)

Page: 13 of 13

SCOPE OF CALIBRATION: DIMENSIONAL**SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty(\pm)*	Remarks
Surface Plate	300 mm x 300 mm 1000 mm x 1000 mm	1.8 μ m 3.2 μ m	Calibrate by using planeator, microindicator and variation gauge as standards according to BS 817:2008
Measuring Microscope (Individual Linear Axis Only)	0 mm to 140 mm 140 mm to 300 mm	1.7 μ m 3.3 μ m	Calibrate by using glass scale as standards according to JIS B7153:1995
Profile Projector (Individual Linear Axis Only)	0 mm to 140 mm 140 mm to 300 mm	1.7 μ m 3.3 μ m	Calibrate by using glass scale as standards according to JIS B7184:1999

Signatories:

1. **Wee Sik Wei**
2. ****Hasnas Binti Hussain**
3. ****Teo Hun Wei**

** Non-resident signatory