Issue date: 09 April 2025
Valid Until: -

NO: SAMM 183

LABORATORY LOCATION/ CENTRAL OFFICE:	Corporate Quality Department (CQD), Panasonic Industrial Devices Malaysia Sdn. Bhd. No.1, Jalan Jemuju 16/13 Seksyen 16 40200 Shah Alam, Selangor , 40200, SELANGOR MALAYSIA
ACCREDITED SINCE :	09 APRIL 2025
FIELD(S) OF TESTING:	CHEMICAL
FIELD(S) OF CALIBRATION:	DIMENSIONAL ELECTRICAL TEMPERATURE & HUMIDITY

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.**

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FIELD(S) OF TESTING :	CHEMICAL,

SCOPE OF TESTING : CHEMICAL

Material / Product Tested	**Type Of Test / Properties Measured / Range Of Measurement**	**Standard Test Methods / Equipment / Techniques**
(electrotechnical) Products And Components	Cold (-5 ?C to -55 ?C) Max. Size: 0.4m x0.3mx0.27m	JIS C 0020 (1995) Basic environmental testing procedures Part 2 Test Ab
Electric/electronic	ENVIRONMENTAL TESTING	None
Metal Material, Liquid, Ink & Paint	Lead	In-house method: QC-I-QE-M-027 based on IEC 62321 -5:2013

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Cadmium	In-house method: QC-I-QE-M-027 based on IEC 62321 -5:2013
	Chromium	In-house method: QC-I-QE-M-027 based on IEC 62321 -5:2013
Paint, Ink, Plastic	Hexavalent Chromium	In-house method: QC-I-QE-M-030 based on IEC 62321-7-2:2017 Determination of Hexavalent Chromium in polymers and electronics by the colorimetric method
Plastic, Paper And Polymeric Material	Lead	In-house method: QC-I-QE-M-071 based on IEC 62321 -5:2013
	Cadmium	In-house method: QC-I-QE-M-071 based on IEC 62321 -5:2013
	Chromium	In-house method: QC-I-QE-M-071 based on IEC 62321 -5:2013
Plastic, Paper, Paint Ink, Metal Samples	Mercury	IEC 62321-4 (2013) Determination of mercury in polymers, metals and electronics by ICP-OES
Plastic, Paper, Paint, Ink And Polymeric Material	Lead	In-house method: QC-I-QE-M-028 based on IEC 62321 -5:2013
	Cadmium	In-house method: QC-I-QE-M-028 based on IEC 62321 -5:2013
	Chromium	In-house method: QC-I-QE-M-028 based on IEC 62321 -5:2013
Polymeric Material	PBB	None
	4-bromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	4,4 ?	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,4,5 - Tribromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,2?,4,5? - Tetrabromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Pentabromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Hexabromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Heptabromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	Octabromobiphenyl (Dow FR-250)	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	?	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	Decabromobiphenyl	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	Phthalate esters	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Dibutyl phthalate (DBP)	In-house method: QC-I-QE-M-041 based on USEPA 3540C (1996) and CPSC-CH-C1001-09.3 (2010) In-house method: QC-I-QE-M-041 based on IEC 62321-8:2017
	Benzyl butyl phthalate (BBP)	In-house method: QC-I-QE-M-041 based on USEPA 3540C (1996) and CPSC-CH-C1001-09.3 (2010) In-house method: QC-I-QE-M-041 based on IEC 62321-8:2017
	Bis (2-ethylhexyl phthalate) (DEHP)	In-house method: QC-I-QE-M-041 based on USEPA 3540C (1996) and CPSC-CH-C1001-09.3 (2010) In-house method: QC-I-QE-M-041 based on IEC 62321-8:2017
	PBDE	None
	4 - Bromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	4,4 ? Dibromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,4,4? ? Tribromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,2?,4,4? ? Tetrabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,2?,4,4?,5 ? Pentabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	2,2?,4,4?,6 ? Pentabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Hexabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Hexabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	Heptabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Octabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	? Nonabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
	Decabromodiphenyl ether	In-house method: QC-I-QE-M-026 based on IEC 62321-6:2015
Resins (including Rubber, Films And Adhesive), Coatings, Paints, Pigments	Hexabromocyclododecane (HBCDD)	In-house method: QC-I-QE-M-026 (reference to IEC 62321-6:2015)

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
Screw & Chromated Parts	Hexavalent chromium	IEC 62321-7-1:2015 Determination of Hexavalent Chromium in colourless and coloured corrosion ? protected coating on metals by the colorimetric method
Solid, Liquid And Polymer	Identification ? organic compounds (bulk)	Practice for Obtaining Infrared Spectra for Qualitative Analysis.
	Identification ? organic compounds (micro)	Practice for General Techniques of Infrared Microanalysis. (Clauses: 5.5, 5.6.13, 5.7.6, 11.6.3, 11.7.2,
Solid, Semi Solid	by Energy-Dispersive	Dispersive Spectroscopy (SEM-

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FIELD(S) OF CALIBRATION :	DIMENSIONAL, ELECTRICAL, HEAT & TEMPERATURE

SCOPE OF CALIBRATION : DIMENSIONAL

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks
25 Mm Frames	None	None	JIS B 7502:2016
External Micrometer	25 mm traverse	0.001 mm	as standard according
	0mm to 25 mm 50 mm 75mm 100 mm 125 mm 150 mm 175 mm and 200 mm 225 mm 250mm, 275 mm and 300 mm	1.1 um 1.2 um 1.3 um 1.5 um 1.7 um 1.9 um 2.4 um 2.4 um 4.0 um	Calibrated using Gauge Blocks as standards with reference to ISO 3611 2010
	0mm to 500 mm	um -˜L-™ in metre	Comparison with gauge block based on JIS B 7502:2016
	None	None	
	up to 50 mm travel with frame up to 300 mm	(0.81+0.012L) um	With reference to BS EN ISO 3611: 2010 by using Gauge Blocks
	Over 300 to up to 600 mm	(0.47+0.013L) um Where = nominal	
	(or inches equivalent)	length in mm	

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	25 mm traverse	(0.81+0.012L) ym	Calibrated by
	25 mm travel range	0.001 mm	Calibrate using
	25 mm travel range	None	gauge blocks as
	Frame size	None	standards based on
	Up to 100 mm	0.002 mm	JIS B 7502:2016
	100 mm to 150 mm	0.003 mm	Full surface e
	150 mm to 200 mm	0.004 mm	contact error
	200 mm to 250 mm	0.005 mm	Flatness e
	250 mm to 300 mm	0.006 mm	Parallelism e
	325 mm to 350 mm	0.007 mm	
	350 mm to 400 mm	0.008 mm	
	400 mm to 500 mm	0.010 mm	Note: Standard rod
	400 mm to 500 mm	None	to be provided if the
	400 mm to 500 mm	None	measurement range
	400 mm to 500 mm	None	is > 25 mm
	25 mm 25 mm spindle travel for 50 mm to 100 mm 100 mm to 175 mm frame	1.0 um 1.5 um 2.0 um	Measurement of instrument error, and parallelism and flatness of measuring faces reference to JIS B7502:2016. Setting rod must be provided by customer.
	Up to 100 mm 100 mm to 275 mm	None	Calibrated by using gauge block as standards based on JIS B 7502:2016
	0~ 25mm	0.002 mm	Gauge Block reference to ISO
	100 mm to 150 mm frame (25 mm traverse)	None	Calibrated using Gauge Block according to
	100 mm to 150 mm frame (25 mm traverse)	None	ISO 3611:2010
	Up to 1 inch	0.0003 inch	
	1 inch to 6 inch frame (1 inch traverse)	0.0003 inch	
	Up to 50 mm	0.003 mm	
	50 mm to 150 mm	0.004 mm	Calibrated using Gauge
Micrometers	None	None	Calibrated using

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SCOPE OF CALIBRATION : ELECTRICAL

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks

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SCOPE OF CALIBRATION : TEMPERATURE & HUMIDITY

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
Humidity Indicator	None	None	temperature and
	None	None	
Temperature &	None	None	Comparison with
Temperature Controlled Enclosure	-40 ?C to 40 ?C	1.3?C	Calibrated according to JTM-K 07: 2007
	40 ?C to 200 ?C	2?C	Calibrated according to JTM-K 07: 2007
	- 60 °C to 200 °C 200 °C to 400 °C 400 °C to 950 °C	0.8 °C 1.2°C 2°C	TLAS-G-20
	-20 ?C to 100 ?C 100 ?C to 400 ?C	1.9?C 2.0 ?C	Calibration using Thermocouple Sensor & meter (Based on G-20 Document Thailand)
	-80 °C to 250 °C 250 °C to 700 °C	0.50 °C 1.9°C	Based on AS 2853:1986
	700 °C to 1100 °C	3.0 °C	
	-80 °C to -30 °C -30 °C to 100 °C 100 °C to 250 °C 250 °C to 600 °C 600 °C to 1300 °C	0.7°C 0.6 °C 1.7°C	Calibrate by using temperature recorder with Pt 100 / thermocouple based on AS 2853-1986
	-80 °C to -40 °C -40°C to 0°C 0°C to 400°C	4.9°C 3.5 °C 1.0°C	Calibrate using Temperature Recorder with Thermocouple sensor with reference to
	-80 °C to -40 °C -40°C to 0°C 0°C to 400°C	None	DKD-R-5-7
	0 °C to 200 °C (Volume	1.5°C	Calibrated by using Temperature Data
	0 °C to 200 °C (Volume	None	Logger with
	0 °C to 200 °C (Volume	None	Thermocouple Type K.
	to 150 °C	1.0°C	recorder with thermocouple
	to 150 °C	None	and PRT with
	to 150 °C	None	reference to AS
	to 150 °C	None	2853-1986

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	-40 °C to 250 °C 250 °C to 1300 °C	0.6 °C	Calibrated by using temperature recorder with thermocouple
	-40 ?C to 250 ?C 250 ?C to 1300 ?C	0.6 ?C	Calibrated by using temperature recorder with thermocouple
	-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 2.5 °C	Calibrate using temperature recorder & thermocouple based on AS 2853-1986
	0?C to 300?C	1.1?C	Temperature Recorder and TC
	0?C to 300?C	None	Wire based on AS
	0?C to 300?C	None	2853:1986
Thermohygrograph	None	None	