

Schedule

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Certificate No. : LA-1999-0160-C
Issue No. : 26
Date : 01 March 2023
Expiry of certificate : 04 January 2026
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FIELD OF TESTING : Calibration and Measurement

MEASURED QUANTITIES / INSTRUMENT/ RANGE TO BE CALIBRATED	METHOD	CALIBRATION AND MEASUREMENT CAPABILITY (CMC*)
A. Dimensional		
A1. External Micrometer (Lab / Site) 0 – 200 mm > 200 – 500 mm > 500 – 1000 mm	In-house Procedure MDCP -01 : 2022 BS 870 : 2008 JIS B 7502 : 2016 ISO 3611 : 2010	0.3µm 2 µm 4 µm
A2. Caliper (Lab / Site) 0 – 1000 mm 1000 – 2000 mm	In-house Procedure MDCP -02 : 2022 BS 887 : 2008 JIS B 7507:2016 ISO 13385-1 : 2019	7 µm 26 µm
A3. Depth Micrometer 0 – 300 mm	In-house Procedure MDCP -03 : 2022 BS 6468 : 2008 JIS B 7544 : 1994	1 µm
A4. Internal & Stick Micrometer 0 – 200 mm > 200 – 500 mm > 500 – 1000 mm	In-house Procedure MDCP -04 : 2022 BS 959 : 2008	2 µm 3 µm 4 µm
A5. Height Setting Micrometer & Riser Block Length 0 – 600 mm Parallelism Flatness	In-house Procedure MDCP -05 :2022 ISO 7863 : 1984	0.5 µm 1.0 µm 0.2 µm
A6. Caliper Checker 0 – 600 mm	In-house Procedure MDCP -06 : 2022	0.9 µm

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A7. Vernier Height Gauge (Lab / Site) 0 – 600 mm	In-house Procedure MDCP -07 : 2022 BS 1643 : 2008 JIS B 7517:-2018 ISO 13225 : 2012	10 µm
A8. Vernier Depth Gauge 0 – 600 mm	In-house Procedure MDCP -08 : 2022 BS 6365 : 2020 ISO 13385-2 : 2020	10 µm
A9. Dial Indicator 0 – 30 mm 30 – 100 mm	In-house Procedure MDCP -09 : 2022 BS 907 : 2008 JIS B 7503 :2017 DIN 879 Part 1 and Part 3 :1999 DIN 878 : 2018-07 ASME/ANSI B89.1.10M : 2001 ISO 463 : 2006	0.5 µm 0.8 µm
A10. Dial Test Indicator 0 – 3 mm	In-house Procedure MDCP -10 : 2023 BS 2795 : 1981 JIS B 7533:2015 ISO 9493 : 2010	0.5 µm
A11. Digimatic Indicator (Lab / Site) 0 – 20 mm 20 – 100 mm	In-house Procedure MDCP -11 : 2022	0.6 µm 1.6 µm
A12. Plain Plug Gauge / Pin Gauge Three Wire Up to 10 mm 10 – 100 mm 100 – 200 mm	In-house Procedure MDCP -12 : 2022 BS 969 : 2008	0.5 µm 0.5 µm 1.0 µm
A13. Plain Ring Gauge 1 – 100 mm 100 – 200 mm	In-house Procedure MDCP -13 : 2022 BS 969 : 2008	0.7 µm 0.9 µm

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<p>A14. Thread Ring Gauge > M2.5 – M50</p>	<p>In-house Procedure MDCP -14 : 2022 ISO 1502:1996 ISO 228-1: 2000 ISO 228-2 : 1987 FED – STD - H28: 2019 ASME/ANSI B 1.2-1983 ASME/ANSI B1.16M – 1984 ASME/ANSI B1.22M-1985 JIS B 0251 : 2008 JIS B 0254 : 2011 JIS B 0255 : 1998 JIS B 0261 : 2020 BS 919 Part 1 to 4 : 2007 BS 84 : 2007 BS 93 : 2008 BS 1580 Part 1 : 2007 BS 1580 Part 3 : 2007 BS 3643 Part 1 & 2 : 2007</p>	<p>Pitch Dia : 0.7 µm Minor Dia : 0.6 µm</p>
<p>A15. Thread Plug Gauge > M1 – M50</p>	<p>In-house Procedure MDCP -15 : 2022 ISO 1502 :1996 ISO 228-1 : 2000 ISO 228-2 : 1987 FED – STD - H28: 2019 ASME/ANSI B 1.2-1983 ASME/ANSI B1.16M – 1984 ASME/ANSI B1.22M-1985 JIS B 0251 : 2008 JIS B 0254 : 2011 JIS B 0255 : 1998 JIS B 0261 : 2020 BS 919 Part 1 to 4 : 2007 BS 84 : 2007 BS 93 : 2008 BS 1580 Part 1 : 2007 BS 1580 Part 3 : 2007 BS 3643 Part 1 & 2 : 2007 BS 4377 : 1991</p>	<p>Pitch Dia : 0.7 µm Major Dia : 0.5 µm Pitch : 5 µm Angle : 10 mins</p>

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A16. Feeler Gauge / Calibration Foil / SHIM Up to 5 mm	In-house Procedure MDCP -16 : 2022 BS 957 : 2008 JIS B 7524 : 2008	0.4µm
A17. Surface Plate (Lab / Site) Up to 2500 x 2000 mm	In-house Procedure MDCP -17 : 2022 BS 817 : 2008	2 µm
A18. Profile Projector (Lab / Site) 50 mm 50 – 300 mm Magnification (10X to 100X) Protractor Accuracy Perpendicularity	In-house Procedure MDCP -18 : 2022 JIS B 7184 : 2021	3 µm 4 µm 0.04 % magnification 2 min 0.002 mm
A19. Dial Thickness Gauge	In-house Procedure MDCP -24 : 2022	1 µm
A20. Bore Gauge	In-house Procedure MDCP -25 : 2022 JIS B 7515 : 1982	2 µm
A21. Setting Master	In-house Procedure MDCP -26 : 2022	2 µm
A22. Straight Edge Up to 1000 mm	In-house Procedure MDCP -27 : 2022 BS 5204-1 : 1975 BS 5204-2 : 1977 DIN 874 – 1 & 2 : 2003 JIS B 7514 : 1977	3.1 µm
A23. Linear Height Gauge (Lab/Site)	In-house Procedure MDCP -29 : 2022	2 µm
A24. Holtest Measuring Face: 0 – 50 mm 50 – 100 mm 100 – 150 mm Lead Screw	In-house Procedure MDCP -23 : 2023 DIN 863 : Part 4 : 1999 & DIN 2250 : Part 1 : 2008	1.9 µm 3.5 µm 5.1 µm 0.9 µm
A25. Universal Length Measuring Machine (Lab / Site)	In-house Procedure MDCP -36 : 2022	0.3 µm

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A26. Setting Rod 25 – 100 mm 100 – 400 mm 400 – 600 mm 600 – 1000 mm	In-house Procedure MDCP -34 : 2022 BS 870 : 2008 JIS B 7502 : 2016 ISO 3611 : 2010	0.8 µm 0.9 µm 1.1 µm 1.2 µm
A27. Bevel Protractor Up to 300 mm 0 - 360 °C	In-house Procedure MDCP -39: 2022 BS 1685 : 2008	1.5 µm 5 min
A28. Measuring Microscope (Lab / Site)	In-house Procedure MDCP -22 : 2022 JIS B 7153 : 1995	2 µm
A29. Dial Gauge Calibrator 0 – 100 mm	In-house Procedure MDCP -40 : 2022	0.19 µm
A30. Gauge Block > 0.5 – 10 mm > 10 – 25 mm > 25 – 50 mm > 50 – 75 mm > 75 – 100 mm (Dissimilar & Similar Material)	In-house Procedure MDCP -38 : 2022 ISO 3650 : 1998 BS 4311-1 : 2007	0.05 µm 0.06 µm 0.08 µm 0.10 µm 0.12 µm
A31. Sine Bar 0 – 300 mm	In-house Procedure MDCP -21 : 2023 JIS B 7523 : 1977	1.5 µm
A32. Screw Thread Micrometer	In-house Procedure MDCP -28 : 2022 BS 870 : 2008 as a guide ISO 3611 : 2010	1.0 µm
A33. Precision Levels Up to 300 mm - Spirit Level - Inclinator Level Gauge	In-house Procedure MDCP -33: 2022 BS 958 : 1968 JIS B 7510 : 1993	0.3 Division 0.1 degree

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A34. Layout Measurement Linear Angle Surface (Range 5 µm)	In-house Procedure MDCP -37 :2022	0.5 µm 10 mins
A35. Vee Block	In-house Procedure MDCP -41: 2022 BS 3731 : 1987 JIS B 7540 : 1972	2 µm
A36. MU Checker	In-house Procedure MDCP -42 : 2022 JIS B 7536 : 1982	0.2 µm
A37. Precision Square 0 – 450 mm	In-house Procedure MDCP -43 : 2022 BS 939 : 2007 JIS B 7526 : 1995 JIS B 7539 : 1971	3 µm
A38. Caliper Gauge (Lab / Site)	In-house Procedure MDCP -44 : 2022	1 µm
A39. Dial Gauge Stand	In-house Procedure MDCP -45 : 2022	0.9 µm
A40. Calibration Tester	In-house Procedure MDCP -46 : 2022	0.3 µm
A41. Internal Micrometer (2-leg type)	In-house Procedure MDCP -47 : 2022	2 µm
A42. Steel Rule	In-house Procedure MDCP -49 : 2022 BS 4372 : 1968 JIS B 7516 : 2005	10 µm
A43. Centre Bench	In-house Procedure MDCP -50 : 2022	3 µm
A44. Coating Thickness Gauge Up to 1000 µm	In-house Procedure MDCP -54 : 2022	0.5 µm
A45. Roughness Machine Ra (Lab / Site)	In-house Procedure MDCP -56 : 2022	0.021 µm 0.06 µm
A46. Roughness Specimen Ra	In-house Procedure MDCP -56 : 2022	0.021 µm 0.06 µm

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A47. Roundness Machine (Lab / Site)	In-house Procedure MDCP -57: 2022	0.06 μm
A48. Parallel Bars	In-house Procedure MDCP -58: 2022 BS 906-1 & 2 : 1972	2.0 μm
A49. Co-ordinate Measuring Machine (Lab / Site) 0 – 500 mm 0 – 1000 mm 0 – 1500 mm	In-house Procedure MDCP -59 : 2022 ISO 10360 : Part 2 : 2009	3.3 μm 6.2 μm 8.2 μm
A50. Micrometer Head	In-house Procedure MDCP -63 : 2022 BS 1734 : 1951 DIN 863 : Part 4 : 1999 JIS B 7502 : 2016	0.9 μm
A51. Gauge Block Comparator (Lab / Site) 0.5 mm to 10 mm >10 mm to 50 mm >50 mm to 75 mm >75 mm to 100 mm	In-house Procedure MDCP -65 : 2022 EAL-G21 : 1996 ECA 10-02 : 2011	0.05 μm 0.14 μm 0.15 μm 0.25 μm
A52. Contour Measuring Machine (Lab / Site)	In-house Procedure MDCP -67: 2022	3 μm
A53. Dial Depth Gauge 0 – 200 mm	In-house Procedure MDCP -53: 2023	3 μm
A54. Optical Flat and Parallel Diameter: 0 – 45 mm	In-house Procedure MDCP-66: 2022 JIS B 7430 : 1977 JIS B 7431 : 1977	0.1 μm
A55. Glass Scale 0 – 100 mm 150 mm	In-house Procedure MDCP--83: 2022	1.6 μm 1.9 μm

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A56. Measuring Tape / Textile Tape Up to 396 inch	In-house Procedure MDCP -55 : 2023 JIS B 7512 : 2018 JIS B 7522 : 2018	0.04 inch
A57. Taper Thread Plug Gauge	In-house Procedure MDCP -78 : 2022 ANSI/ASME B1.20.1 : 1983 ASME B1.20.5 : 1991 JIS B 0253 : 1985	0.6 µm
A58. Taper Thread Ring Gauge	In-house Procedure MDCP -72 : 2022 ANSI/ASME B1.20.1 : 1983 ASME B1.20.5 : 1991 JIS B 0253 : 1985	1.5 µm
A59. Taper Plug Gauge	In-house Procedure MDCP -73 : 2022 JIS B 3301 : 2008	0.7 µm
A60. Taper Ring Gauge	In-house Procedure MDCP -74 : 2022 JIS B 3301 : 2008	1.1 µm

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<p>B. Mechanical</p> <p>B1. Weighing Scale (Lab / Site)</p> <p>(0-1200) g (1.2-6) kg (6-62) kg (62-150) kg (150-300) kg</p> <p>B2. Hand Torque Tool 0.1 Nm to 1000 Nm</p> <p>B3. Torque Meter/Gauge (0 - 15 Nm)</p> <p>B4. Push/Pull Gauge (0 - 5 000 N)</p> <p>B5. Hardness Tester Machine (Lab / Site)</p> <p>In-direct method only Rockwell A, B, C Vickers Brinell HRA (20-88) HRB (20-100) HRC (20-70)</p> <p>B6. Durometer Force Verification only (0 to 100)°</p>	<p>In-house Procedure MDCP -20: 2023</p> <p>In-house Procedure MDCP -31: 2023 ISO 6789-1 : 2017 Clause 6 (Exclude Overloading Test and Endurance Test)</p> <p>In-house Procedure MDCP -30: 2023</p> <p>In-house Procedure MDCP -19: 2022</p> <p>In-house Procedure MDCP -48: 2022</p> <p>JIS B 7726 : 2017 ASTM E 18 - 20 JIS B 7725 : 2020 JIS B 7724 : 2017</p> <p>In-house Procedure MDCP -51 : 2023 ASTM D 2240 –15 ISO 868 : 2003 JIS K 6251 : 2017 JIS K 6253-5 : 2016</p>	<p>0.0001 % of full scale 0.001 % of full scale 0.001 % of full scale 0.004 % of full scale 0.004 % of full scale</p> <p>0.4 % of full scale</p> <p>0.04% of full scale</p> <p>0.03 % of full scale</p> <p>0.7 HRA 0.6 HRB / HRC 1.8 Hv 1.8 Hb</p> <p>0.3 Deg</p>

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B7. Pressure / Vacuum Gauge (Lab / Site) -1 Bar – 140 Bar 0 – 2700 Bar	In-house Procedure MDCP -52 : 2023 In-house Procedure MDCP -52a : 2022 (using deadweight tester) BS EN 837-1 to 3 : 1998	0.013 % of reading 0.018 % of reading
B8. Tensile Testing Machine (Lab / Site) Up to 250 kN	In-house Procedure MDCP -61 : 2023 ISO 7500-1 : 2018	0.01 % of full scale
B9. Load Cell (Lab / Site) Up to 250 kN	In-house Procedure MDCP -62 : 2022	0.01 % of full scale
B10. Tension Gauge 0 - 150 kg	In-house Procedure MDCP -32 : 2022	0.01 %
B11. Standard Weights 1 mg – 10 g 20 g 50 g – 200 g 500 g 1000 g 2000 g – 20000 g	In-house Procedure MDCP -60 : 2022	0.00008 g 0.00009 g 0.0002 g 0.001 g 0.002 g 0.2 g
B12. Tachometer (Lab / Site) RPM Meter (0 – 99999) rpm Non-Contact Type Contact Type	In-house Procedure MDCP -68 : 2022	1.7 rpm 0.6 rpm
B13. Flowmeter (Lab/Site) (10-100) ml/min (0.5-10) LPM	In-house Procedure MDCP-69 : 2023	4.5 ml/min 0.42 LPM

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<p>C. Temperature</p> <p>C1. Thermocouple Indicator / Calibrator (measured / simulation)</p> <p>Type E (Lab) -250 °C to 1000 °C</p> <p>Type E (Site) -200 °C to 950 °C</p> <p>Type J (Lab) -210 °C to 1200 °C</p> <p>Type J (Site) -200 °C to 1200 °C</p> <p>Type K (Lab) -200 °C to 1372 °C</p> <p>Type K (Site) -200 °C to 1372 °C</p> <p>Type N (Lab) -200 °C to 1300 °C</p> <p>Type N (Site) -200 °C to 1300 °C</p> <p>Type R (Lab) 0 °C to 1767 °C</p> <p>Type R (Site) -20 °C to 1750 °C</p> <p>Type S (Lab) 0 °C to 1767 °C</p> <p>Type S (Site) -20 °C to 1750 °C</p> <p>Type T (Lab) -250 °C to 400 °C</p> <p>Type T (Site) -200 °C to 400 °C</p>	<p>In-house Procedure MDCPT-03 : 2022</p>	<p>0.51 °C</p> <p>0.74 °C</p> <p>0.32 °C</p> <p>0.82 °C</p> <p>0.4 °C</p> <p>0.97 °C</p> <p>0.4 °C</p> <p>1.2 °C</p> <p>0.77 °C</p> <p>2.0°C</p> <p>0.73 °C</p> <p>±2.0 °C</p> <p>0.55 °C</p> <p>0.97 °C</p>

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<p>C2. RTD Indicator / Calibrator (measured / simulation)</p> <p>PT385 (100 Ω) (Lab)</p> <p>-200 °C to 0 °C</p> <p>0 °C to 100 °C</p> <p>100 °C to 300 °C</p> <p>300 °C to 400 °C</p> <p>400 °C to 630 °C</p> <p>630 °C to 800 °C</p> <p>PT385 (100 Ω) (Site)</p> <p>-200 °C to 800 °C</p> <p>PT3926 (100 Ω) (Lab)</p> <p>-200 °C to 0 °C</p> <p>0 °C to 100 °C</p> <p>100 °C to 300 °C</p> <p>300 °C to 400 °C</p> <p>400 °C to 630 °C</p> <p>PT3916 (100 Ω) (Lab)</p> <p>-200 °C to -190 °C</p> <p>-190 °C to -80 °C</p> <p>-80 °C to 0 °C</p> <p>0 °C to 260 °C</p> <p>260 °C to 300 °C</p> <p>300 °C to 400 °C</p> <p>400 °C to 600 °C</p> <p>600 °C to 630 °C</p> <p>PT385 (200 Ω) (Lab)</p> <p>-200 °C to 0 °C</p> <p>0 °C to 100 °C</p> <p>100 °C to 260 °C</p> <p>260 °C to 300 °C</p> <p>300 °C to 400 °C</p> <p>400 °C to 630 °C</p>	<p>In-house Procedure MDCPT-04 : 2022</p>	<p>0.04 °C</p> <p>0.05 °C</p> <p>0.07 °C</p> <p>0.08 °C</p> <p>0.09 °C</p> <p>0.18 °C</p> <p>0.49 °C</p> <p>0.04 °C</p> <p>0.05 °C</p> <p>0.07 °C</p> <p>0.08 °C</p> <p>0.09 °C</p> <p>0.19 °C</p> <p>0.03 °C</p> <p>0.04 °C</p> <p>0.05 °C</p> <p>0.06 °C</p> <p>0.07 °C</p> <p>0.08 °C</p> <p>0.18 °C</p> <p>0.04 °C</p> <p>0.05 °C</p> <p>0.07 °C</p> <p>0.08 °C</p> <p>0.09 °C</p> <p>0.18 °C</p>

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<p>PT385 (200 Ω) (Site) -200 °C to 250 °C 250 °C to 630 °C</p> <p>PT385 (1000 Ω) (Lab) -200 °C to 0 °C 0 °C to 100 °C 100 °C to 260 °C 260 °C to 300 °C 300 °C to 630 °C</p> <p>PT385 (1000 Ω) (Site) -200 °C to 630 °C</p>		<p>0.24 °C 0.96 °C</p> <p>0.04 °C 0.05 °C 0.07 °C 0.08 °C 0.09 °C</p> <p>0.34 °C</p>
<p>C3. Enclosures</p> <p>C3(a) Chamber / Oven / Freezers / System Accuracy Test</p> <p>Range: -70 °C to 200 °C</p> <p>C3(b) Furnace / System Accuracy Test</p> <p>Range: 200 °C to 800 °C</p>	<p>In-house Procedures MDCPT-05 : 2022 MDCPT-05a : 2022</p>	<p>2.6 °C</p> <p>2.2 °C</p>
<p>C4. Thermometer with RTD Sensor / Probe</p> <p>Range: - 20 °C to 150 °C 150 °C to 500 °C</p>	<p>In-house Procedure MDCPT-02: 2023</p> <p>Dry Block method</p>	<p>0.8 °C 1.8 °C</p>

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<p>C5. Thermohygrometer / Thermohygrograph</p> <p>Range : (18 to 70) °C (40 to 95) % relative humidity</p>	<p>In-house Procedure MDCPT-06 : 2022</p>	<p>1.0 °C 5.4 % relative humidity</p>
<p>C6. Dry Block Calibrator (Accuracy, Axial Homogeneity, Uniformity & Loading Effect)</p> <p>-20 °C to 150 °C 30 °C to 300 °C</p>	<p>In-house procedure MDCPT-08a : 2022</p>	<p>0.31 °C 0.86 °C</p>
<p>C7. Surface Probe Range : 30 °C to 300 °C</p>	<p>In-house Procedure MDCPT-07: 2023</p>	<p>2.0 °C</p>
<p>D. Electrical</p>		
<p>D1. DC Voltage (Measure)</p> <p>0 mV to 330 mV 0.33 V to 3.3 V 3.3 V to 33 V 33 V to 330 V 330 V to 1000 V</p>	<p>Direct measurement with a DC voltage source MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-02 : 2022 MDCPE-07 : 2022 MDCPE-16 : 2022</p>	<p>16 µV/V + 2 µV 9 µV/V + 2 µV 10 µV/V + 17 µV 14 µV/V + 0.14 mV 14 µV/V + 1.4 mV</p>

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<p>D2. DC Current (Measure)</p> <p>0 μA to 330 μA 0.33 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 0.33 A to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20.5 A</p>	<p>Direct measurement with a DC current source MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-03 : 2022 MDCPE-16 : 2022</p>	<p>120 μV/V + 0.02 μA 78 μV/V + 0.04 μA 78 μV/V + 0.20 μA 78 μV/V + 2.1 μA 160 μV/V + 0.04 mA 300 μV/V + 0.05 mA 390 μV/V + 0.70 mA 780 μV/V + 0.59 mA</p>
<p>D3. Resistance (Measure)</p> <p>0 to 11 Ω 11 Ω to 33 Ω 33 Ω to 110 Ω 110 Ω to 330 Ω 0.33 kΩ to 1.1 kΩ 1.1 kΩ to 3.3 kΩ 3.3 kΩ to 11 kΩ 11 kΩ to 33 kΩ 33 kΩ to 110 kΩ 110 kΩ to 330 kΩ</p> <p>0.33 MΩ to 1.1 MΩ 1.1 MΩ to 3.3 MΩ 3.3 MΩ to 11 MΩ 11 MΩ to 33 MΩ 33 MΩ to 110 MΩ 110 MΩ to 330 MΩ 330 MΩ to 1100 MΩ</p>	<p>Direct measurement with a resistance source MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-04 : 2022 MDCPE-07 : 2022</p>	<p>7.8 mΩ 24 $\mu$$\Omega$/$\Omega$ + 12 mΩ 22 $\mu$$\Omega$/$\Omega$ + 12 mΩ 22 $\mu$$\Omega$/$\Omega$ + 16 mΩ 22 $\mu$$\Omega$/$\Omega$ + 16 mΩ 22 $\mu$$\Omega$/$\Omega$ + 16 mΩ 80 mΩ 22 $\mu$$\Omega$/$\Omega$ + 0.78 Ω 0.80 mΩ 8.1 Ω</p> <p>7.9 Ω 0.17 kΩ 0.5 kΩ 2.4 kΩ 51 kΩ 0.27 MΩ 0.39 MΩ</p>

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<p>D4. AC Voltage (Measure)</p> <p>1.0 mV to 33 mV</p> <p>33 mV to 330 mV</p> <p>0.33 V to 3.3 V</p> <p>3.3 V to 33 V</p> <p>33 V to 330 V</p> <p>330 V to 1000 V</p>	<p>Direct measurement with a AC voltage source MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-02 : 2022 MDCPE-07 : 2022 MDCPE-16 : 2022</p> <p>10 Hz to 45 Hz 45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 500 kHz</p> <p>10 Hz to 45 Hz 45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 500 kHz</p> <p>10 Hz to 45 Hz 45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 500 kHz</p> <p>10 Hz to 45 Hz 45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz</p> <p>45 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz</p> <p>45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz</p>	<p>7 μV 120 μV/V + 5 μV 160 μV/V + 5 μV 780 μV/V + 5 μV 0.28 % + 10 μV 0.63 % + 40 μV</p> <p>240 μV/V + 7 μV 120 μV/V + 7 μV 130 μV/V + 7 μV 280 μV/V + 7 μV 630 μV/V + 25 μV 0.16 % + 55 μV</p> <p>0.04 mV 120 μV/V + 0.05 mV 150 μV/V + 0.05 mV 240 μV/V + 0.04 mV 550 μV/V + 0.10 mV 0.19 % + 0.50 mV</p> <p>240 μV/V + 0.6 mV 120 μV/V + 0.5 mV 190 μV/V + 0.5 mV 280 μV/V + 0.5 mV 1.3 mV</p> <p>150 μV/V + 1.6 mV 4.9 mV 4.9 mV 4.8 mV 0.16 % + 39 mV</p> <p>8.1 mV 8.6 mV 8.3 mV</p>

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D5. AC Current (Measure)	Direct measurement with a AC current source MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-03 : 2022 MDCPE-16 : 2022	
29.00 μ A to 330 μ A	10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 10 kHz to 30 kHz	0.16 % + 0.08 μ A 0.12 % + 0.08 μ A 0.10 % + 0.08 μ A 0.23 % + 0.12 μ A 0.62 % + 0.16 μ A 1.2 % + 0.31 μ A
0.33 mA to 3.3 mA	10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 10 kHz to 30 kHz	0.24 μ A 0.10 % + 0.12 μ A 1.18 μ A 0.17 μ A 0.23 μ A 0.78 % + 0.47 μ A
3.3 mA to 33 mA	10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 10 kHz to 30 kHz	2.5 μ A 0.07 % + 1.6 μ A 0.03 % + 1.6 μ A 0.07 % + 1.6 μ A 0.16 % + 2.3 μ A 0.31 % + 3.1 μ A
33 mA to 330 mA	10 Hz to 20 Hz 20 Hz to 45 Hz 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz 10 kHz to 30 kHz	0.14 % + 0.02 mA 0.07 % + 0.02 mA 0.03 % + 0.02 mA 0.08 % + 0.04 mA 0.16 % + 0.08 mA 0.31 % + 0.16 mA
0.33 A to 3 A	10 Hz to 45 Hz 45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz	0.09 mA 0.05 % + 0.09 mA 0.79 mA 2.0 % + 3.9 mA
3 A to 11 A	45 Hz to 100 Hz 100 Hz to 1 kHz 1 Hz to 5 kHz	0.05 % + 1.7 mA 0.08 % + 1.7 mA 2.4 % + 1.7 mA
11 A to 20.5 A	45 Hz to 100 Hz 0.1 kHz to 1 kHz 1 kHz to 5 kHz	0.10 % + 3.9 mA 0.12 % + 3.9 mA 2.4 % + 3.9 mA

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<p>D6. Capacitance (Measure)</p> <p>0.22 nF to 0.4 nF 0.4 nF to 1.1 nF 1.1 nF to 3.3 nF 3.3 nF to 11 nF 11 nF to 33 nF 33 nF to 110 nF 110 nF to 330nF 0.33 µF to 1.1 µF 1.1 µF to 3.3 µF 3.3 µF to 11 µF 11 µF to 33 µF 33 µF to 110 µF 110 µF to 330 µF 0.33 mF to 1.1 mF 1.1 mF to 3.3 mF 3.3 mF to 11 mF 11 mF to 33 mF 33 mF to 110 mF</p>	<p>Direct measurement with a Calibrator MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-07 : 2022</p> <p>10 Hz to 10 kHz 10 Hz to 10 kHz 10 Hz to 3 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 600 Hz 10 Hz to 300 Hz 10 Hz to 150 Hz 10 Hz to 120 Hz 10 Hz to 80 Hz 0 to 50 Hz 0 to 20 Hz 0 to 6 Hz 0 to 2 Hz 0 to 0.6 Hz 0 to 0.2 Hz</p>	<p>0.39 % + 0.0078 nF 0.39 % + 0.0079 nF 0.39 % + 0.0078 nF 0.20 % + 0.0097 nF 0.20 % + 0.097 nF 0.20 % + 0.097 nF 0.20 % + 0.63 nF 0.20 % + 0.97 nF 0.20 % + 6.3 nF 0.20 % + 13 nF 0.32 % + 24 nF 0.35 % + 0.13 µF 0.35 % + 0.63 µF 0.35 % + 1.1 µF 0.35 % + 6.3 µF 0.35 % + 13 µF 0.59 % + 55 µF 0.86 % + 78 µF</p>
<p>D7. Frequency (Measure)</p> <p>0.01 Hz to 99.99 Hz 100 Hz to 119.99 Hz 120 Hz to 1199.9 Hz 1.2 kHz to 11.99 kHz</p> <p>12 kHz to 119.99 kHz 120 kHz to 1199.99 kHz 1.2 MHz to 2.0 MHz</p>	<p>Direct measurement with a Calibrator MDCPE-01 : 2022 MDCPE-01a : 2022 MDCPE-07 : 2022</p>	<p>2.0 µHz/Hz + 8.6 µHz 2.0 µHz/Hz + 71 µHz 2.0 µHz/Hz + 0.49 mHz 2.0 µHz/Hz + 7.6 mHz</p> <p>2.0 µHz/Hz + 71 mHz 2.0 µHz/Hz + 0.76 Hz 2.0 µHz/Hz + 0.99 Hz</p>

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10Hz 10 Hz to 100 Hz >100 Hz to 1 kHz >1 kHz to 10 kHz >10 kHz to 100 kHz >100 kHz to 1 MHz >1 MHz to 10 MHz >10 MHz to 100 MHz >100 MHz to 1000 MHz 1 GHz to 18.5 GHz	Direct measurement with a SIGNAL SOURCE UUT: 628A Master: 8672 + GPS Standard	0.0036 μ Hz/Hz + 5.7 μ Hz 0.0036 μ Hz/Hz + 8.8 μ Hz 0.0036 μ Hz/Hz + 79 μ Hz 0.0036 μ Hz/Hz + 75 μ Hz 0.0036 μ Hz/Hz + 0.18 mHz 0.0029 μ Hz/Hz + 0.12 mHz 0.0027 μ Hz/Hz + 0.8 Hz 0.0025 μ Hz/Hz + 0.7 Hz 0.0026 μ Hz/Hz + 0.8 Hz 0.0036 μ Hz/Hz + 5.1 Hz
D8. Stopwatch/ Timer (Lab/Site) 1s to 1 min 1 min to 2 min 2 min to 3 min 3 min to 4 min 4 min to 5 min 5 min to 10 min 10 min to 30 min 30 min to 60 min 60 min to 90 min 90 min to 120 min	In-house procedure MDCPE-13: 2022 Direct measurement with a Frequency counter/Stopwatch	6.6 msec 6.8 msec 9.0 msec 8.6 msec 8.2 msec 11 msec 15 msec 25 msec 34 msec 44 msec
D9. Clamp Meter 0 A – 16.5 A 16.5 A – 55 A 55 A – 150 A 150 A – 550 A 550 A – 1000 A 10 A – 16.5 A 10 A – 16.5 A 10 A – 16.5 A 16.5 A – 150 A 16.5 A – 150 A 16.5 A – 150 A	Direct measurement with a calibrator MDCPE-07 : 2022 DC DC DC DC DC 45 Hz – 65 Hz 65 Hz – 100 Hz 100 Hz – 440 Hz 45 Hz – 65 Hz 65 Hz – 100 Hz 100 Hz – 440 Hz	0.01 % +58 mA 0.02 % + 0.2 A 0.03 % + 0.2 A 0.04 % + 0.2 A 0.08 % + 0.2 A 0.33 % + 58 mA 0.92 % + 58 mA 0.93 % + 58 mA 0.34 % + 65 mA 0.92 % + 66 mA 0.94 % + 66 mA

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<p>150 A – 1000 A 150 A – 1000 A 150 A – 1000 A</p> <p>D10. DC Current (Source)</p> <p>(Lab) 0 to <200 µA 220 µA to <2 mA 2 mA to <20mA 20 mA to <200 mA 200 mA to <2 A 2 A to 20 A</p> <p>(On-site) 0 to 300 µA >0.30 mA to 3.0 mA >3.0 mA to 30 mA >30 mA to 300 mA >300 mA to 1A >1 A to 10 A</p> <p>D11. AC Current (Source)</p> <p>(Lab) 2 µA to <200 µA 200 µA to <2 mA 2 mA to <20 mA 20 mA to <200 mA 200 mA to <2 A 2 A to <20 A</p>	<p>45 Hz – 65 Hz 65 Hz – 100 Hz 100 Hz – 440 Hz</p> <p>Direct measurement with a precision multimeter MDCPE-08 : 2022 MDCPE-10 : 2022</p> <p>Direct measurement with a precision multimeter MDCPE-08 : 2022 MDCPE-10 : 2022</p> <p>10 Hz to 10 kHz 10 Hz >10 Hz to 10 kHz 10 Hz >10 Hz to 10 kHz 10 Hz >10 Hz to 10 kHz 10 Hz to 2 kHz >2 kHz to 10 kHz 50 Hz to 2 kHz >2 kHz to 10 kHz</p>	<p>0.34 % + 0.12 A 0.92 % + 0.13 A 1.2 % + 0.13 A</p> <p>13 µA/A + 0.31 nA 13 µA/A + 3.1 nA 14 µA/A + 31 nA 47 µA/A ppm + 0.62 µA 0.018 % + 13 µA 0.039 % + 0.32 mA</p> <p>0.047 % + 0.012 µA 0.047 % + 0.12 µA 0.047 % + 1.2 µA 0.093 % + 24 µA 0.093 % + 0.70 mA 0.058 % + 0.58 mA</p> <p>0.049 % + 0.019 µA 0.031 % + 0.19 µA 0.029 % + 0.19 µA 0.031 % + 1.9 µA 0.029 % + 1.9 µA 0.031 % + 19 µA 0.028 % + 19 µA 0.057 % + 0.19 mA 0.067 % + 0.19 mA 0.072 % + 1.9 mA 0.20 % + 1.9 mA</p>

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(On-site) 0 μ A to <30mA	20 Hz to 45 Hz 46 Hz to 100 Hz 101 Hz to 400 Hz 401 Hz to 20 kHz 21 kHz to 100 kHz	1.1 % + 3.3 mA 0.44 % + 3.3 mA 0.39 % + 3.3 mA 0.39 % + 3.3 mA 1.3 % + 3.3 mA
30 mA to <300 mA	20 Hz to 45 Hz 46 Hz to 100 Hz 101 Hz to 400 Hz 401 Hz to 20 kHz 21 kHz to 100 kHz	1.1 % + 3.3 mA 0.44 % + 3.3 mA 0.39 % + 3.3 mA 0.39 % + 3.3 mA 1.3 % + 3.3 mA
300 mA to <1A	20 Hz to 45 Hz 46 Hz to 100 Hz 101 Hz to 400 Hz 401 Hz to 20 kHz	1.2 % + 3.3 mA 0.56 % + 3.3 mA 0.50 % + 3.3 mA 0.50 % + 3.3 mA
1 A to 10 A	45 Hz to 1k Hz 1k Hz to 20k Hz	1.8 % + 5.8 mA 1.8 % + 12 mA
D12. Resistance (Source) (Lab) Normal 0 Ω 19 Ω 190 Ω 1.9 k Ω 19 k Ω 190 k Ω 1.9 M Ω 19 M Ω High Voltage 2 M Ω to <20 M Ω 20 M Ω to <200 M Ω 200 M Ω to <2 G Ω 2 G Ω to 20 G Ω	Direct measurement with a precision multimeter MDCPE-08 : 2022 MDCPE-11 : 2022 MDCPE-19 : 2022	17 $\mu\Omega/\Omega$ + 3.9 $\mu\Omega$ 9.3 $\mu\Omega/\Omega$ + 31 $\mu\Omega$ 7.8 $\mu\Omega/\Omega$ + 50 $\mu\Omega$ 7.8 $\mu\Omega/\Omega$ + 0.49 m Ω 7.8 $\mu\Omega/\Omega$ + 4.8 m Ω 7.8 $\mu\Omega/\Omega$ + 46 m Ω 9.3 $\mu\Omega/\Omega$ + 0.94 Ω 20 $\mu\Omega/\Omega$ + 93 Ω 16 $\mu\Omega/\Omega$ + 9.3 Ω 62 $\mu\Omega/\Omega$ + 0.93 k Ω 0.018 % + 0.093 M Ω 0.15 % + 9.3 M Ω

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<p>(On-site) 0Ω $>0 \Omega$ to 30Ω $>30 \Omega$ to 300Ω $>300 \Omega$ to $3k\Omega$ $>3 k\Omega$ to $30 k\Omega$ $>30 k\Omega$ to $300 k\Omega$ $>300 k\Omega$ to $3 M\Omega$ $>3 M\Omega$ to $30 M\Omega$ $>30 M\Omega$ to $300 M\Omega$ $>300 M\Omega$ to $1G\Omega$</p>	<p>Direct measurement with a precision multimeter</p>	<p>$3.9 m\Omega$ $87 \mu\Omega/\Omega + 3.7 m\Omega$ $64 \mu\Omega/\Omega + 4.0 m\Omega$ $58 \mu\Omega/\Omega + 7.0 m\Omega$ $58 \mu\Omega/\Omega + 70 m\Omega$ $58 \mu\Omega/\Omega + 0.82 \Omega$ $76 \mu\Omega/\Omega + 14 \Omega$ $0.047 \% + 0.93 \Omega$ $1.85 \% + 0.81 M\Omega$ $18.5 \% + 1.4 M\Omega$</p>
<p>D13. DC Voltage (Source)</p> <p>(Lab) 0 to $<220 mV$ $220 mV$ to $<2.2 V$ $2.2 V$ to $<22 V$ $22 V$ to $<220 V$ $220 V$ to $1000 V$</p> <p>(On-site) 0 to $30 mV$ $>30 mV$ to $300 mV$ $>300 mV$ to $3V$ $>3 V$ to $30V$ $>30 V$ to $300V$ $>300 V$ to $1000 V$</p>	<p>Direct measurement with a precision multimeter MDCPE-08 : 2022 MDCPE-09 : 2022 MDCPE-12 : 2022 MDCPE-18 : 2022</p>	<p>$5.1 \mu V/V + 0.094 \mu V$ $3.5 \mu V/V + 0.70 \mu V$ $3.5 \mu V/V + 4.0 \mu V$ $5.5 \mu V/V + 40 \mu V$ $5.5 \mu V/V + 0.75 mV$</p> <p>$52 \mu V/V + 4.3 \mu V$ $41 \mu V/V + 45 \mu V$ $29 \mu V/V + 7.0 \mu V$ $47 \mu V/V + 0.22 mV$ $64 \mu V/V + 0.70 mV$ $0.12 \% + 0.24 V$</p>
<p>D14. AC Voltage (Source) (Lab)</p> <p>$2 \mu V$ to $200 mV$</p>	<p>Direct measurement with a precision multimeter MDCPE-08 : 2022 MDCPE-09 : 2022 MDCPE-12 : 2022 MDCPE-18 : 2022</p> <p>$10 Hz$ to $40 Hz$ $>40 Hz$ to $100 Hz$ $>100 Hz$ to $2 kHz$ $>2 kHz$ to $10 kHz$ $>10 kHz$ to $30 kHz$ $>30 kHz$ to $100 kHz$</p>	<p>$0.013 \% + 3.9 \mu V$ $0.011 \% + 3.9 \mu V$ $0.011 \% + 1.9 \mu V$ $0.013 \% + 3.9 \mu V$ $0.031 \% + 7.8 \mu V$ $0.067 \% + 19 \mu V$</p>

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200 mV to <2 V	10 Hz >10 Hz to 40 Hz >40 Hz to 100 Hz >100 Hz to 2 kHz >2 kHz to 10 kHz >10 kHz to 30 kHz >30 kHz to 50 kHz >50 kHz to 100 kHz >100 kHz to 300 kHz >300 kHz to 1 MHz	0.0014 % + 0.11 mV 0.011 % + 19 µV 85 µV/V + 30 µV 70 µV/V + 19 µV 0.011 % + 19 µV 0.021 % + 39 µV 0.051 % + 0.19 mV 0.051 % + 0.19 mV 0.24 % + 1.9 mV 0.78 % + 19 mV
2 V to <20 V	10 Hz >10 Hz to 40 Hz >40 Hz to 100 Hz >100 Hz to 2 kHz >2 kHz to 10 kHz >10 kHz to 30 kHz >30 kHz to 50 kHz >50 kHz to 100 kHz	0.015 % + 1.1 mV 0.011 % + 0.20 mV 86 µV/V + 0.26 mV 70 µV/V + 0.19 mV 0.011 % + 0.26 mV 0.021 % + 0.39 mV 0.051 % + 1.9 mV 0.24 % + 19 mV
20 V to <200 V	40 Hz to 100 Hz >100 Hz to 2 kHz >2 kHz to 10 kHz >10 kHz to 30 kHz >30 kHz to 100 kHz	86 µV/V + 1.9 mV 70 µV/V + 1.9 mV 0.011 % + 1.9 mV 0.021 % + 3.9 mV 0.051 % + 19 mV
200 V to <1000 V	40 Hz to 10 kHz	0.011 % + 20 mV
D15. AC Voltage (Source) (On-site)	Direct measurement with a AC Voltage source In-house Procedure MDCPE-09 : 2022	
1.0 mV to <30 mV	20Hz to 45 Hz 45Hz to 100Hz 100Hz to 400Hz 400Hz to 20 kHz 20kHz to 100 kHz 100kHz to 300 kHz 300kHz to 1MHz	0.70 % + 16 µV 0.29 % + 16 µV 0.20 % + 16 µV 0.21 % + 16 µV 0.81 % + 27 µV 3.7 % + 0.12 mV 12 % + 0.77 mV
30 mV to <300 mV	20Hz to 45 Hz 45Hz to 100Hz 100Hz to 400Hz 400Hz to 20 kHz 20kHz to 100 kHz 100kHz to 300 kHz 300kHz to 1MHz	0.70 % + 0.16 mV 0.29 % + 0.16 mV 0.20 % + 0.16 mV 0.21 % + 0.16 mV 0.81 % + 0.27 mV 3.7 % + 1.2 mV 12 % + 7.7 mV

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0.3 V to < 3.0 V	20Hz to 45 Hz 45Hz to 100Hz 100Hz to 400Hz 400Hz to 20 kHz 20kHz to 100 kHz 100kHz to 300 kHz 300kHz to 1MHz	0.70 % + 1.6 mV 0.29 % + 1.6 mV 0.20 % + 1.6 mV 0.21 % + 1.6 mV 0.81 % + 2.7 mV 3.7 % + 12 mV 12 % + 77 mV
3 V to <30 V	20Hz to 45 Hz 45Hz to 100Hz 100Hz to 400Hz 400Hz to 20 kHz 20kHz to 100 kHz 100kHz to 300 kHz 300kHz to 1MHz	0.70 % + 16 mV 0.29 % + 16 mV 0.20 % + 16 mV 0.21 % + 16 mV 0.81 % + 27 mV 3.7 % + 0.12 V 12 % + 0.77 V
30 V to <300 V	20Hz to 45 Hz 45Hz to 100Hz 100Hz to 400Hz 400Hz to 20 kHz 20kHz to 100 kHz	0.77 % + 0.16 V 0.36 % + 0.16 V 0.27 % + 0.16 V 0.28 % + 0.16 V 1.3 % + 0.45 V
300 V to 1000 V	45Hz to 1 kHz 1kHz to 10 kHz	0.47 % + 4.7 V 0.47 % + 4.7 V
D16. DC Power (Measure)	Direct measurement with a calibrator	
(Lab)	In-house Procedure MDCPE-16 : 2022	
0 to 90 W		0.018 % + 13 mW
>90 W to 150 W		0.019 % + 0.12 W
>150 W to 600 W		0.018 % + 58 mW
>600 W to 6 kW		0.055 % + 0.58 W
>6 kW to 12 kW		0.070 % + 0.58 W
(On-site)	Direct measurement with a Multiproduct Calibrator	
0 to 90 W		0.018 % + 13 mW
>90 W to 150 W		0.019 % + 0.12 W
>150 W to 600 W		0.018 % + 58 mW
>600 W to 6 kW		0.055 % + 0.58 W
>6 kW to 12 kW		0.070 % + 0.58 W

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<p>D17. AC Power (Measure) (Lab/Site)</p> <p>2mW to 33 W >33 W to 90 W >90 W to 150 W >150 W to 900 W >900 W to 9 kW >9 kW to 12 kW</p>	<p>Direct measurement with a Calibrator MDCPE-18 : 2022</p> <p>45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz</p>	<p>0.130 % + 0.76 mW 0.086 % + 0.22 mW 0.070 % + 7.6 mW 0.070 % + 12 mW 0.078 % + 58 mW 0.078 % + 0.58 W</p>
<p>D18. High Voltage</p> <p>DC High Voltage (Source) (Lab/Site) 0 kV to 10 kV</p> <p>AC High Voltage (Source) (Lab/Site) 0 kV to 5 kV</p>	<p>Direct measurement with a Multiproduct Calibrator In-house Procedure MDCPE-16 : 2022</p> <p>Direct measurement with a AC DIGITAL HIGH VOLTMETER MDCPE-18 : 2022 50Hz to 60Hz</p>	<p>1.2 % + 6.0 V</p> <p>0.58 % + 3.5 V</p>
<p>D19. Insulation Tester/ High Ohm Tester/ Surface Resistivity Tester (Lab/Site)</p> <p>(1 to 10) kΩ (>10 to 100) kΩ (>0.1 to 1) MΩ (>1 to 10) MΩ (>10 to 100) MΩ (>0.1 to 1) GΩ (>1 to 10) GΩ (>10 to 100) GΩ</p>	<p>Direct measurement with a Standard Resistor MDCPE-19 : 2022</p>	<p>0.12 mΩ/Ω + 5.8 Ω 0.12 mΩ/Ω + 58 Ω 0.12 mΩ/Ω + 0.58 kΩ 1.2 mΩ/Ω + 5.8 kΩ 1.2 mΩ/Ω + 58 kΩ 1.2 mΩ/Ω + 0.58 MΩ 2.28 mΩ/Ω + 5.8 MΩ 3.5 mΩ/Ω + 58 MΩ</p>
<p>D20. LCR Meter Capacitance Measure @120 Hz to 100 kHz</p> <p>1 pF 10 pF 100 pF 1000 pF 10 nF 100 nF 1 uF</p>	<p>MDCPE-06 : 2022 Direct measurement with a Standard Air Capacitance</p>	<p>0.0012 pF 0.012 pF 0.12 pF 1.16 pF 0.012 nF 0.12 nF 0.0012 μF</p>

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Resistance Measure @120 Hz to 100 kHz 10 Ω 100 Ω 1 k Ω 10 k Ω 100 k Ω	Direct measurement with a Decade Resistance	0.12 m Ω / Ω + 0.0013 Ω 0.047 m Ω / Ω + 0.0013 Ω 0.035 m Ω / Ω + 0.13 Ω 0.035 m Ω / Ω + 0.13 Ω 0.070 m Ω / Ω + 1.4 Ω

* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95%.

NOTE : Direct conversion of the metric units to imperial units will be applied for imperial measurement

Approved Signatories:

Mr John Peh - Item A & Item B

Ms Peh Woon Teng - Item A, Item B, Item C & Item D

Ms Lee Siew Moy - Item A (1-12, 16, 19-21, 26-27, 29, 31-32, 34-36, 38, 41, 53)

Mr Kendrew Peh - Item B (1, 2, 5 & 11)

Mr Weerasak Jokthong - Item A, Item B, Item C & Item D

Mr Apichai Thepmaneerat - Item A (4, 12-16, 18, 24-25, 28, 34, 45-47, 49, 52, 58-60)

Mr Koo Chih Wei - Item A (1-42, 44-46, 48, 50-51, 53-56)Item B (1-4, 6-11, 13)

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment 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 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.