

# Schedule

Techsystems Services & Integration Asia Pte Ltd  
2 Loyang Lane #06-03  
Loyang Industrial Estate  
Singapore 508913

Certificate No. : LA-2000-0175-C

Issue No. : 27

Date : 11 May 2021

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FIELD OF TESTING : Calibration and Measurement

MEASURED QUANTITIES/INSTRUMENTS/RANGE TO BE CALIBRATED	METHOD/FREQUENCY	CALIBRATION AND MEASUREMENT CAPABILITY (CMC*)
1 DC Voltage		
1.1 Source	TS-08I	
0 ~ ± 100 mV	Direct measurement with	17 ppm + 0.35 µV
± 0.1 V ~ ± 1 V	Precision Multimeter	8 ppm + 0.35 µV
± 1 V ~ ± 10 V		8 ppm + 1.0 µV
± 10 V ~ ± 100 V		10 ppm + 36 µV
± 10 V ~ ± 1000 V		25 ppm + 0.20 mV
1.2 Measurement	TS-41A	
1 V	Comparison with a calibrated	9.8 µV
10 V	Standard Zener diode,	93 µV
	Potentiometric Measurement	
0 ~ ± 220 mV	TS-08I	8 ppm + 0.5 µV
± 0.22 V ~ ± 2.2 V	Direct measurement of DC	6 ppm + 1.0 µV
± 2.2 V ~ ± 11 V	Voltage sourced by Multifunction	4 ppm + 3.0 µV
± 11 V ~ ± 22 V	Calibrator	4 ppm + 6.0 µV
± 22 V ~ ± 220 V		6 ppm + 50 µV
± 220 V ~ ± 1000 V		7 ppm + 500 µV

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<p>2. AC Voltage</p> <p>2.1 Source</p> <p>30 mV</p> <p>30 mV</p> <p>0.3 V</p> <p>3 V</p> <p>3 V</p> <p>3 V</p> <p>30 V</p> <p>30 V</p> <p>300 V</p> <p>300 V</p> <p>1000 V</p> <p>1000 V</p> <p>1000 V</p> <p>1000 V</p> <p>1000 V</p> <p>1 mV ~ 10 mV</p> <p>10 mV ~ 100 mV</p>	<p>TS-42A</p> <p>Comparison with DC voltage Source through calibrated AD/DC transfer unit</p> <p>100 Hz</p> <p>500 kHz</p> <p>100 Hz</p> <p>10 Hz</p> <p>100 Hz</p> <p>500 kHz</p> <p>100 Hz</p> <p>100 kHz</p> <p>20 kHz</p> <p>100 kHz</p> <p>45 Hz</p> <p>100 Hz</p> <p>1 kHz</p> <p>5 kHz</p> <p>7 kHz</p> <p>TS-42A</p> <p>Direct measurement with Precision multimeter</p> <p>10 Hz ~ 20 Hz</p> <p>20 Hz ~ 40 Hz</p> <p>40 Hz ~ 100 Hz</p> <p>100 Hz ~ 20 kHz</p> <p>20 kHz ~ 50 kHz</p> <p>50 kHz ~ 100 kHz</p> <p>100 kHz ~ 250 kHz</p> <p>10 Hz ~ 20 Hz</p> <p>20 Hz ~ 40 Hz</p> <p>40 Hz ~ 100 Hz</p> <p>100 Hz ~ 20 kHz</p> <p>20 kHz ~ 50 kHz</p> <p>50 kHz ~ 100 kHz</p> <p>100 kHz ~ 250 kHz</p> <p>500 kHz ~ 1 MHz</p> <p>1 MHz ~ 2 MHz</p>	 <p>37 ppm</p> <p>190 ppm</p> <p>13 ppm</p> <p>16 ppm</p> <p>11 ppm</p> <p>19 ppm</p> <p>16 ppm</p> <p>26 ppm</p> <p>15 ppm</p> <p>61 ppm</p> <p>18 ppm</p> <p>14 ppm</p> <p>14 ppm</p> <p>27 ppm</p> <p>27 ppm</p> <p>(% reading + floor)</p> <p>0.47 % + 37 <math>\mu</math>V</p> <p>0.18 % + 29 <math>\mu</math>V</p> <p>0.07 % + 29 <math>\mu</math>V</p> <p>0.03 % + 29 <math>\mu</math>V</p> <p>0.18 % + 29 <math>\mu</math>V</p> <p>0.81 % + 41 <math>\mu</math>V</p> <p>4.7 % + 81 <math>\mu</math>V</p> <p>0.47 % + 0.024 mV</p> <p>0.18 % + 0.024 mV</p> <p>0.07 % + 0.012 mV</p> <p>0.03 % + 0.012 mV</p> <p>0.18 % + 0.047 mV</p> <p>0.69 % + 0.093 mV</p> <p>2.4 % + 0.58 mV</p> <p>6.0 % + 2.4 mV</p> <p>12 % + 6.0 mV</p>

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0.1 V ~ 1 V	10 Hz ~ 20 Hz	0.47 % + 0.25 mV
	20 Hz ~ 40 Hz	0.18 % + 0.24 mV
	40 Hz ~ 100 Hz	0.07 % + 0.12 mV
	100 Hz ~ 20 kHz	0.03 % + 0.12 mV
	20 kHz ~ 50 kHz	0.18 % + 0.47 mV
	50 kHz ~ 100 kHz	0.69 % + 0.93 mV
	100 kHz ~ 250 kHz	2.4 % + 5.8 mV
	250 kHz ~ 500 kHz	3.5 % + 7 mV
	500 kHz ~ 1 MHz	6.0 % + 24 mV
	1 MHz ~ 2 MHz	12 % + 60 mV
1 V ~ 10 V	10 Hz ~ 20 Hz	0.47 % + 2.4 mV
	20 Hz ~ 40 Hz	0.18 % + 2.4 mV
	40 Hz ~ 100 Hz	0.07 % + 1.2 mV
	100 Hz ~ 20 kHz	0.04 % + 1.2 mV
	20 kHz ~ 50 kHz	0.18 % + 4.7 mV
	50 kHz ~ 100 kHz	0.69 % + 9.3 mV
	100 kHz ~ 250 kHz	2.4 % + 58 mV
	250 kHz ~ 500 kHz	3.5 % + 70 mV
	500 kHz ~ 1 MHz	6.0 % + 240 mV
	1 MHz ~ 2 MHz	12 % + 600 mV
10 V ~ 100 V	10 Hz ~ 20 Hz	0.47 % + 0.024 V
	20 Hz ~ 40 Hz	0.18 % + 0.024 V
	40 Hz ~ 100 Hz	0.07 % + 0.012 V
	100 Hz ~ 20 kHz	0.04 % + 0.012 V
	20 kHz ~ 50 kHz	0.18 % + 0.047 V
	50 kHz ~ 100 kHz	0.69 % + 0.093 V
	100 kHz ~ 250 kHz	2.4 % + 0.58 V
100 V ~ 1000 V	250 kHz ~ 500 kHz	3.5 % + 0.7 V
	500 kHz ~ 1 MHz	6.0 % + 2.4 V
	10 Hz ~ 20 Hz	0.50 % + 0.35 V
	20 Hz ~ 40 Hz	0.20 % + 0.35 V
	40 Hz ~ 100 Hz	0.10 % + 0.24 V
	100 Hz ~ 20 kHz	0.07 % + 0.24 V
	20 kHz ~ 50 kHz	0.18 % + 0.47 V
	50 kHz ~ 100 kHz	0.69 % + 2.4 V

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2.2 Measurement	TS-08I Direct measurement of AC Voltage sourced by Multifunction Calibrator	
0.22 mV ~ 2.2 mV	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz 100 kHz ~ 300 kHz 300 kHz ~ 500 kHz 500 kHz ~ 1 MHz	0.024 % + 5.0 $\mu$ V 0.009 % + 5.0 $\mu$ V 0.008 % + 5.0 $\mu$ V 0.02 % + 5.0 $\mu$ V 0.05 % + 6.0 $\mu$ V 0.11 % + 11 $\mu$ V 0.14 % + 21 $\mu$ V 0.27 % + 21 $\mu$ V
2.2 mV ~ 22 mV	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz 100 kHz ~ 300 kHz 300 kHz ~ 500 kHz 500 kHz ~ 1 MHz	0.024 % + 5.0 $\mu$ V 0.009 % + 5.0 $\mu$ V 0.008 % + 5.0 $\mu$ V 0.020 % + 5.0 $\mu$ V 0.050 % + 6.0 $\mu$ V 0.11 % + 11 $\mu$ V 0.14 % + 21 $\mu$ V 0.27 % + 21 $\mu$ V
22 mV ~ 220 mV	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz 100 kHz ~ 300 kHz 300 kHz ~ 500 kHz 500 kHz ~ 1 MHz	0.024 % + 13 $\mu$ V 0.009 % + 8.0 $\mu$ V 0.008 % + 8.0 $\mu$ V 0.020 % + 8.0 $\mu$ V 0.046 % + 18 $\mu$ V 0.10 % + 21 $\mu$ V 0.14 % + 26 $\mu$ V 0.27 % + 46 $\mu$ V
0.22 V ~ 2.2 V	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz 100 kHz ~ 300 kHz 300 kHz ~ 500 kHz 500 kHz ~ 1 MHz	0.024 % + 41 $\mu$ V 0.0090 % + 16 $\mu$ V 0.0045 % + 9.0 $\mu$ V 0.0075 % + 11 $\mu$ V 0.011 % + 31 $\mu$ V 0.042 % + 81 $\mu$ V 0.10 % + 210 $\mu$ V 0.17 % + 310 $\mu$ V

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2.2 V ~ 22 V	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz 100 kHz ~ 300 kHz 300 kHz ~ 500 kHz 500 kHz ~ 1 MHz	0.024 % + 0.41 mV 0.0090 % + 0.16 mV 0.0045 % + 0.06 mV 0.0075 % + 0.11 mV 0.010 % + 0.21 mV 0.028 % + 0.70 mV 0.10 % + 2.1 mV 0.15 % + 3.3 mV
22 V ~ 220 V	10 Hz ~ 20 Hz 20 Hz ~ 40 Hz 40 Hz ~ 20 kHz 20 kHz ~ 50 kHz 50 kHz ~ 100 kHz	0.024 % + 4.1 mV 0.0090 % + 1.6 mV 0.0052 % + 0.70 mV 0.0080 % + 1.1 mV 0.015 % + 2.6 mV
250 V ~ 700 V	50 Hz ~ 1 kHz	0.0080 % + 20 mV
3. Resistance	TS-36F	
3.1 Measurement (specific value)	Measurement of calibrated resistance values from standard resistors	
1 mΩ		0.20 %
10 mΩ		0.020 %
100 mΩ		0.020 %
0.1 Ω		3.0 μΩ
1 Ω		4.0 μΩ
10 Ω		0.040 mΩ
100 Ω		0.46 mΩ
1 kΩ		0.0020 Ω
10 kΩ		0.030 Ω
100 kΩ		0.26 Ω
10 MΩ		0.014 MΩ
100 MΩ		0.30 MΩ
1 GΩ		0.0020 GΩ
10 GΩ		1.0 %
100 GΩ		0.80 %
1 TΩ		2.0 %

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1 $\Omega$ 1.9 $\Omega$ 10 $\Omega$ 19 $\Omega$ 100 $\Omega$ 190 $\Omega$ 1 k $\Omega$ 1.9 k $\Omega$ 10 k $\Omega$ 19 k $\Omega$ 100 k $\Omega$ 190 k $\Omega$ 1 M $\Omega$ 1.9 M $\Omega$ 10 M $\Omega$ 19 M $\Omega$ 100 M $\Omega$	Measurement of calibrated resistance values from multifunction calibrator	0.11 m $\Omega$ 0.20 m $\Omega$ 0.25 m $\Omega$ 0.55 m $\Omega$ 1.3 m $\Omega$ 2.1 m $\Omega$ 0.010 $\Omega$ 0.018 $\Omega$ 0.10 $\Omega$ 0.18 $\Omega$ 1.2 $\Omega$ 2.2 $\Omega$ 0.020 k $\Omega$ 0.041 k $\Omega$ 0.42 k $\Omega$ 0.0012 M $\Omega$ 0.012 M $\Omega$
3.2 Measurement (variable value) 0 ~ 11 $\Omega$ 11 $\Omega$ ~ 33 $\Omega$ 33 $\Omega$ ~ 1100 $\Omega$ 1.1 k $\Omega$ ~ 11 k $\Omega$ 11 k $\Omega$ ~ 110 k $\Omega$ 110 k $\Omega$ ~ 1100 k $\Omega$ 1.1 M $\Omega$ ~ 3.3 M $\Omega$ 3.3 M $\Omega$ ~ 11 M $\Omega$ 11 M $\Omega$ ~ 33 M $\Omega$ 33 M $\Omega$ ~ 110 M $\Omega$ 110 M $\Omega$ ~ 330 M $\Omega$ 330 M $\Omega$ ~ 1000 M $\Omega$	Measurement of resistance values generated by multifunction calibrator	47 ppm + 12 m $\Omega$ 35 ppm + 18 m $\Omega$ 33 ppm + 30 m $\Omega$ 33 ppm + 0.30 $\Omega$ 33 ppm + 2.0 $\Omega$ 37 ppm + 20 $\Omega$ 70 ppm + 0.20 k $\Omega$ 0.015 % + 0.30 k $\Omega$ 0.030 % + 3.0 k $\Omega$ 0.060 % + 3.5 k $\Omega$ 0.35 % + 0.20 M $\Omega$ 1.8 % + 0.70 M $\Omega$

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3.3 Source (specific value) 0.1 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ	Transfer of calibrated resistance standard resistors	6.0 ppm + 35 μΩ 6.0 ppm + 35 μΩ 6.0 ppm + 44 μΩ 4.0 ppm + 0.60 mΩ 3.0 ppm + 0.0016 Ω 3.0 ppm + 0.026 Ω 3.0 ppm + 0.26 Ω
3.4 Source (variable value) 0 Ω ~ 10 Ω 10 Ω ~ 100 Ω 100 Ω ~ 1 kΩ 1 kΩ ~ 10 kΩ 10 kΩ ~ 100 kΩ 100 kΩ ~ 1 MΩ 1 MΩ ~ 10 MΩ 10 MΩ ~ 100 MΩ 100 MΩ ~ 1 GΩ	Resistance value measured by Precision DMM	18 ppm + 60 μΩ 14 ppm + 0.60 mΩ 12 ppm + 0.60 mΩ 12 ppm + 7.0 mΩ 12 ppm + 0.060 Ω 18 ppm + 3.0 Ω 58 ppm + 0.20 kΩ 0.060 % + 1.2 kΩ 0.67 % + 0.2 MΩ
4. DC Current		
4.1 Source  1 A ~ 20 A  20 A ~ 50 A	TS-44A-C DC Current Source Measurement  TS-44-A DC Current Source Measurement	0.010 A  0.26A
4.2 Measurement 0 ~ ± 220 μA ± 0.22 mA ~ ± 2.2 mA ± 2.2 mA ~ ± 22 mA ± 22 mA ~ ± 220 mA ± 0.22 A ~ ± 1 A ± 1 ~ ± 2.2 A ± 2.2 A ~ ± 11 A ± 11 A ~ ± 20 A	TS-08J-N Measurement of current sourced by multifunction calibrator	41 ppm + 6.0 nA 36 ppm + 8.0 nA 36 ppm + 0.050 μA 46 ppm + 1.0 μA 81 ppm + 13 μA 81 ppm + 120 μA 0.060 % + 1.0 mA 0.12 % + 1.0 mA

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5. AC Current	TS-44A	
5.1 Source	Calibration of AC current using precision Multimeter	
10 $\mu$ A ~ 100 $\mu$ A	10 Hz – 20 Hz 20 Hz – 45 Hz 45 Hz – 100 Hz 100 Hz – 5 kHz	0.47 % + 0.035 $\mu$ A 0.18 % + 0.035 $\mu$ A 0.070 % + 0.035 $\mu$ A 0.070 % + 0.035 $\mu$ A
0.1 mA ~ 1 mA	10 Hz – 20 Hz 20 Hz – 45 Hz 45 Hz – 100 Hz 100 Hz – 5 kHz 5 kHz – 20 kHz	0.47 % + 0.24 $\mu$ A 0.18 % + 0.24 $\mu$ A 0.070 % + 0.24 $\mu$ A 0.040 % + 0.24 $\mu$ A 0.070 % + 0.24 $\mu$ A
1 mA ~ 10 mA	10 Hz – 20 Hz 20 Hz – 45 Hz 45 Hz – 100 Hz 100 Hz – 5 kHz 5 kHz – 20 kHz	0.47 % + 2.4 $\mu$ A 0.18 % + 2.4 $\mu$ A 0.070 % + 2.4 $\mu$ A 0.040 % + 2.4 $\mu$ A 0.070 % + 2.4 $\mu$ A
10 mA ~ 100 mA	10 Hz – 20 Hz 20 Hz – 45 Hz 45 Hz – 100 Hz 100 Hz – 5 kHz 5 kHz – 20 kHz	0.47 % + 24 $\mu$ A 0.18 % + 24 $\mu$ A 0.070 % + 24 $\mu$ A 0.040 % + 24 $\mu$ A 0.070 % + 24 $\mu$ A
0.1 A ~ 1 A	10 Hz – 20 Hz 20 Hz – 45 Hz 45 Hz – 100 Hz 100 Hz – 5 kHz 5 kHz – 20 kHz	0.47 % + 240 $\mu$ A 0.19 % + 240 $\mu$ A 0.10 % + 240 $\mu$ A 0.12 % + 240 $\mu$ A 0.35 % + 240 $\mu$ A
	TS-44A Transfer of calibrated current value	
3 A ~ 11 A	10 Hz ~ 100 Hz 100 Hz ~ 1 kHz 1 kHz ~ 5 kHz	0.070 % + 0.010 A 0.12 % + 0.010 A 3.5 % + 0.010 A



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11A ~ 20 A	10 Hz ~ 100 Hz 100 Hz ~ 1 kHz 1 kHz ~ 5 kHz	0.14 % + 0.030 A 0.17 % + 0.020 A 3.5 % + 0.020 A
5.2 Measurement	TS-44A Measurement of AC current generated by Multifunction Calibrator	
10 $\mu$ A ~ 220 $\mu$ A	10 Hz - 20 Hz 20 Hz - 40 Hz 40 Hz - 1 kHz 1 kHz - 5 kHz 5 kHz - 10 kHz	250 ppm + 17 nA 160 ppm + 11 nA 120 ppm + 9.0 nA 280 ppm + 13 nA 0.11 % + 66 nA
0.22 mA ~ 2.2 mA	10 Hz - 20 Hz 20 Hz - 40 Hz 40 Hz - 1 kHz 1 kHz - 5 kHz 5 kHz - 10 kHz	250 ppm + 0.050 $\mu$ A 160 ppm + 0.040 $\mu$ A 120 ppm + 0.040 $\mu$ A 200 ppm + 0.12 $\mu$ A 0.11 % + 0.66 $\mu$ A
2.2 mA ~ 22 mA	10 Hz - 20 Hz 20 Hz - 40 Hz 40 Hz - 1 kHz 1 kHz - 5 kHz 5 kHz - 10 kHz	250 ppm + 0.50 $\mu$ A 160 ppm + 0.40 $\mu$ A 120 ppm + 0.40 $\mu$ A 200 ppm + 0.60 $\mu$ A 0.11 % + 5.1 $\mu$ A
22 mA ~ 220 mA	10 Hz - 20 Hz 20 Hz - 40 Hz 40 Hz - 1 kHz 1 kHz - 5 kHz 5 kHz - 10 kHz	250 ppm + 5.0 $\mu$ A 160 ppm + 4.0 $\mu$ A 120 ppm + 3.0 $\mu$ A 200 ppm + 4.0 $\mu$ A 0.11 % + 11 $\mu$ A

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0.22 A ~ 2.2 A	20 Hz - 1 kHz 1 kHz - 5 kHz 5 kHz - 10 kHz	260 ppm + 40 $\mu$ A 450 ppm + 90 $\mu$ A 0.70 % + 170 $\mu$ A
3 A ~ 11 A	45 Hz ~ 100 Hz 100 Hz ~ 1 kHz 1 kHz ~ 5 kHz	0.070 % + 10 mA 0.12 % + 10 mA 3.5 % + 10 mA
11 A ~ 20 A	45 Hz ~ 100 Hz 100 Hz ~ 1 kHz 1 kHz ~ 5 kHz	0.14 % + 10 mA 0.17 % + 10 mA 3.5 % + 10 mA
6. Capacitance Measurement		
100 pF	TS-36F	0.060 pF
1 nF	Direct measurement at 1 kHz	0.60 pF
10 nF	using standard capacitors	3.0 pF
100 nF		29 pF
1 $\mu$ F		0.20 nF
0.19 nF ~ 3.3 nF	Direct measurement	0.04 nF
3.3 nF ~ 33 nF	using Reference Calibrator	0.23 nF
33 nF ~ 330 nF		1.6 nF
0.33 $\mu$ F ~ 3.3 $\mu$ F		0.020 $\mu$ F
3.3 $\mu$ F ~ 33 $\mu$ F		0.24 $\mu$ F
33 $\mu$ F ~ 330 $\mu$ F		2.3 $\mu$ F
0.33 mF ~ 3.3 mF		0.030 mF
3.3 mF ~ 33 mF		0.34 mF
33 mF ~ 110 mF		1.7 mF

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<p>7. Inductance Measurement</p> <p>100 <math>\mu</math>H 1 mH 10 mH 100 mH 1 H 5 H</p>	<p>TS-36F</p> <p>Direct measurement at 1 kHz using standard inductors</p>	<p>0.38 <math>\mu</math>H 2.1 <math>\mu</math>H 13 <math>\mu</math>H 93 <math>\mu</math>H 0.93 mH 5.4 mH</p>
<p>8. Frequency</p> <p>10 MHz Timebase Frequency Output</p> <p>0.1 Hz 1 kHz 1 MHz 100 MHz 225 MHz 1000 MHz – 26.5 GHz</p>	<p>TS-01J</p> <p>Comparison with Frequency Standard</p>	<p>5.8 E-10</p> <p>1.3 E-02 1.4 E-09 8.7 E-08 8.7 E-06 6.9 E-10 1.2 E-07</p>
<p>9. High Voltage</p> <p>1 kV to 10 kV</p>	<p>TS-06E</p> <p>Direct Measurement with a calibrated HV meter</p> <p>DC AC 50 Hz</p>	<p>0.60 % + 5.0 V 1.2 % + 7.0 V</p>

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<p>10. Oscilloscope</p> <p>a. Vertical Deflection</p> <p>1 mV to 10 V **</p> <p>1 mV to 60 V **</p> <p>b. Horizontal Deflection</p> <p>10 msec (2 ns to 20 ms)</p> <p>100 msec (50 ms to 5 s)</p> <p>c. Vertical Bandwidth (Cut-off Frequency at 3 dB Bandwidth)</p> <p>50 kHz to 100 MHz</p> <p>100 MHz to 300 MHz</p> <p>300 MHz to 500 MHz</p> <p>500 MHz to 600 MHz</p>	<p>TS-11G</p> <p>DC Voltage output from Scope Calibrator</p> <p>50 Ω Input</p> <p>1 MΩ Input</p> <p>TS-11G</p> <p>Time Marker output from Scope Calibrator</p> <p>TS-11G</p> <p>Levelled Sine output from Scope Calibrator</p>	<p>0.90 % + 0.050 mV</p> <p>1.2 % + 0.030 mV</p> <p>8.3 ppm</p> <p>3.4 ppm</p> <p>4.0 %</p> <p>5.0 %</p> <p>8.0 %</p> <p>9.0 %</p>
<p>11. Temperature</p> <p>11.1 Thermocouple Thermometer</p> <p><u>Type K</u></p> <p>-200 °C ~ -100 °C</p> <p>-100 °C ~ 120 °C</p> <p>120 °C ~ 1000 °C</p> <p>1000 °C ~ 1300 °C</p> <p><u>Type J</u></p> <p>-210 °C ~ -100 °C</p> <p>-100 °C ~ 760 °C</p> <p>760 °C ~ 1200 °C</p>	<p>TS-26M-E (i)</p> <p>Measurement of temperature by simulation via Reference Calibrator</p>	<p>0.45 °C</p> <p>0.30 °C</p> <p>0.40 °C</p> <p>0.50 °C</p> <p>0.45 °C</p> <p>0.25 °C</p> <p>0.30 °C</p>

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<u>Type E</u> -250 °C ~ -100 °C -100 °C ~ 650 °C 650 °C ~ 1000°C	TS-26M-E (ii) Measurement of simulated temperature sourced by UUT	0.65 °C	
		0.25 °C	
		0.30 °C	
<u>Type T</u> -250 °C ~ -150 °C -150 °C ~ 0 °C 0 °C ~400 °C		0.80 °C	
		0.35 °C	
		0.30 °C	
11.2 Temperature Calibrator			
<u>Type K</u> -200 °C ~ -100 °C -100 °C ~ 120 °C -120 °C ~ 1000 °C 1000 °C ~ 1300 °C		0.40 °C	
		0.25 °C	
		0.35 °C	
		0.50 °C	
<u>Type J</u> -210 °C ~ -100 °C -100 °C ~ 760 °C 760 °C ~ 1200 °C		0.35 °C	
	0.25 °C		
	0.30 °C		
<u>Type E</u> -250 °C ~ -100 °C -100 °C ~ 650 °C 650 °C ~ 1000 °C	0.65 °C		
	0.25 °C		
	0.30 °C		
<u>Type T</u> -250 °C ~ -150 °C -150 °C ~ 0 °C 0 °C ~ 400 °C	0.80 °C		
	0.35 °C		
	0.35 °C		

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11.3 RTD Thermometer -190 °C ~ 500 °C	TS-26M-D Measurement of RTD resistance and convert to temperature based on ITS90	0.06 °C
11.4 RTD Simulator / Calibrator  -190 °C ~ -50 °C -50 °C ~ 50 °C 50 °C ~ 190 °C 190 °C ~ 500 °C	TS-26M-C Measurement of RTD simulated temperature based on ITS90 or simulator formula	0.004 °C 0.005 °C 0.007 °C 0.012 °C

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

## Approved signatories:

Mr Lim Beng Soon -Electrical: 1 to 9 items only.  
-Temperature: all items under category 11

Mr Bernard Chew Lit Min -Electrical: 8 to 10 items only

Mr Randy Gee Chen Loong -Electrical:1 to 7 items only  
-Temperature: all items under category 11

## 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