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Accreditation No.	JCSS0056
Date of Initial Accreditation	1995-06-21
Latest Date of Issue	2018-11-22
Name and Address of Accredited Organization	MEASUREMENT & CALIBRATION CENTER BUSINESS DIV. Toyota Technical Development Corporation 1, Toyota-cho, Toyota-shi, Aichi 471-8571, Japan JCN 7180301018923
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Accreditation Standards	ISO/IEC 17025:2005 (Calibration)
Accreditation Scope	As attached

*JCN : Japan Corporate Number

General Field of Calibration : Length

Date of Initial Accreditation of the Field : 2007-05-24

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %) (L(mm):Nominal length)
Length Measuring Instrument	Gauge Blocks (Comparison method)	From 0.5 mm up to 100 mm	0.07 μm
		More than 100 mm up to 500 mm	$(0.15+0.00077 \cdot L) \mu\text{m}$
	Calipers	Up to 200 mm	0.02 mm
	Height gauges	Up to 600 mm	0.03 mm
	Depth gauges	Up to 150 mm	0.02 mm
	Micrometers	Up to 100 mm	2 μm
	Calibration testers for dial gauges	Up to 25 mm	1.0 μm
	Dial gauges	Up to 5 mm	1.1 μm
		More than 5 mm up to 50 mm	2.0 μm
		More than 50 mm up to 100 mm	3.1 μm
	Dial test indicators	Up to 1 mm	1.0 μm
	Ring gauges	From 6 mm less than 15 mm	0.5 μm
		From 15 mm up to 315 mm	0.8 μm
	Plug gauges	From 2 mm up to 100 mm	0.9 μm
	Rules (Starting Point of Edge)	Up to 1000 mm	0.05 mm
	Steel Tape Measures	Up to 1 m	0.07 mm
More than 1 m up to 100 mm		Add 0.07 mm to the value above for every 1 m	

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration : Mass

Date of Initial Accreditation of the Field : 2008-11-06

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Weight	Weight	1 mg	0.0046 mg
		2 mg	0.0045 mg
		5 mg	0.0045 mg
		10 mg	0.0048 mg
		20 mg	0.0052 mg
		50 mg	0.011 mg
		100 mg	0.012 mg
		200 mg	0.012 mg
		500 mg	0.013 mg
		1 g	0.014 mg
		2 g	0.020 mg
		5 g	0.045 mg
		10 g	0.049 mg
		20 g	0.067 mg
		50 g	0.072 mg
		100 g	0.095 mg
		200 g	0.16 mg
		500 g	0.33 mg
		1 kg	0.81 mg
		2 kg	1.2 mg
	5 kg	6.7 mg	
	10 kg	9.5 mg	
	20 kg	15 mg	
	Weight (Deadweight)	From 100 g up to 200 g	1.2 mg
		More than 200 g up to 500 g	1.3 mg
		More than 500 g up to 1 kg	2.7 mg
		More than 1 kg up to 2 kg	3.3 mg
More than 2 kg up to 5 kg		59 mg	
More than 5 kg up to 10 kg		60 mg	
	More than 10 kg up to 20 kg	63 mg	

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Permanent Laboratory/On-site Calibration : Permanent Laboratory, On-site Calibration

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)	
			Permanent Laboratory	On-site Calibration
Scale	Non-Automatic Electronic Weighing Instruments	1 mg	0.0030 mg	0.0030 mg
		2 mg	0.0030 mg	0.0030 mg
		5 mg	0.0030 mg	0.0030 mg
		10 mg	0.0037 mg	0.0037 mg
		20 mg	0.0040 mg	0.0040 mg
		50 mg	0.0047 mg	0.0047 mg
		100 mg	0.0055 mg	0.0055 mg
		200 mg	0.0070 mg	0.0070 mg
		500 mg	0.009 mg	0.009 mg
		From 1 g up to 2 g	0.023 mg	0.024 mg
		More than 2 g up to 5 g	0.077 mg	0.077 mg
		More than 5 g up to 10 g	0.080 mg	0.080 mg
		More than 10 g up to 20 g	0.088 mg	0.089 mg
		More than 20 g up to 50 g	0.12 mg	0.12 mg
		More than 50 g up to 100 g	0.16 mg	0.18 mg
		More than 100 g up to 200 g	0.29 mg	0.32 mg
		More than 200 g up to 500 g	0.72 mg	0.80 mg
		More than 500 g up to 1 kg	1.5 mg	3.7 mg
		More than 1 kg up to 2 kg	2.9 mg	7.2 mg
		More than 2 kg up to 5 kg	13 mg	36 mg
More than 5 kg up to 10 kg	25 mg	71 mg		
More than 10 kg up to 20 kg	50 mg	0.15 g		
More than 20 kg up to 30 kg	0.14 g	0.25 g		

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General Field of Calibration : Time & Frequency & Rotational speed

Date of Initial Accreditation of the Field : 2018-11-22

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Time & Frequency Counter, etc.	Frequency Standard	10 MHz	2.4×10^{-8}
	Frequency Generator	From 1 Hz less than 10 Hz	2.4×10^{-8}
		From 10 Hz less than 100 Hz	2.4×10^{-8}
		From 100 Hz less than 1 kHz	2.4×10^{-8}
		From 1 kHz less than 10 kHz	2.4×10^{-8}
		From 10 kHz less than 100 kHz	2.4×10^{-8}
		From 100 kHz less than 1 MHz	2.4×10^{-8}
		From 1 MHz up to 10 MHz	2.4×10^{-8}
		More than 10 MHz up to 30 MHz	2.4×10^{-8}

Note: The values in the CMC column include sources of uncertainty attributed to a unit under test.

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General Field of Calibration : Temperature

Date of Initial Accreditation of the Field : 2009-10-30

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)	
Contact Type Thermometer	Resistance thermometer (Comparison calibration)	Platinum Resistance thermometer with 4-wires (100 Ω)	From -40 °C up to 150 °C	0.048 K
			More than 150 °C up to 300 °C	0.11 K
	Temperature sensors with display unit (Comparison calibration)	Platinum Resistance Thermometer	From -40 °C up to 150 °C	0.038 °C
		Thermocouple Thermistor	More than 150 °C up to 300 °C	0.095 °C

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General Field of Calibration : AccelerationDate of Initial Accreditation of the Field : 2016-12-08Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Vibration Acceleration Measuring Equipment ,etc.	Reference Accelerometer (Charge Sensitivity)	20 Hz	1.1 %
		25 Hz	1.1 %
		31.5 Hz	1.1 %
		40 Hz	1.1 %
		50 Hz	1.1 %
		63 Hz	1.1 %
		80 Hz	1.1 %
		100 Hz	0.9 %
		125 Hz	0.9 %
		160 Hz	0.9 %
		200 Hz	1.1 %
		250 Hz	1.3 %
		315 Hz	1.3 %
		400 Hz	1.5 %
		500 Hz	1.1 %
		630 Hz	1.1 %
		800 Hz	1.1 %
		1000 Hz	1.2 %
		1250 Hz	1.2 %
		1600 Hz	1.2 %
2000 Hz	1.5 %		
2500 Hz	2.0 %		
3150 Hz	3.0 %		
4000 Hz	3.0 %		
5000 Hz	3.0 %		

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration : Electricity (Direct Current & Low Frequency)

Date of Initial Accreditation of the Field : 1995-06-21

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	DC Resistor	From 10 mΩ less than 100 mΩ	0.69 %
		100 mΩ	14 ppm
		More than 100 mΩ less than 1 Ω	0.69 %
		1 Ω	20 ppm
		More than 1 Ω less than 10 Ω	0.012 %
		10 Ω	10 ppm
		More than 10 Ω less than 100 Ω	79 ppm
		100 Ω	7.8 ppm
		More than 100 Ω less than 1 kΩ	18 ppm
		1 kΩ	4.5 ppm
		More than 1 kΩ less than 10 kΩ	19 ppm
		10 kΩ	4.4 ppm
		More than 10 kΩ less than 100 kΩ	18 ppm
		100 kΩ	4.6 ppm
		More than 100 kΩ less than 1 MΩ	45 ppm
		1 MΩ	14 ppm
	More than 1 MΩ less than 10 MΩ	0.020 %	
	10 MΩ	65 ppm	
	DC Resistance Measuring Equipment	100 mΩ	17 ppm
		1 Ω	3.5 ppm
		10 Ω	3.8 ppm
		100 Ω	3.6 ppm
		1 kΩ	3.7 ppm
		10 kΩ	3.6 ppm
		100 kΩ	3.8 ppm
		1 MΩ	3.9 ppm
	10 MΩ	8.4 ppm	
	DC Voltage Source	From 10 mV less than 50 mV	48 ppm
		From 50mV up to 100 mV	15 ppm
		More than 100 mV less than 1 V	9.1 ppm
		1 V	2.4 ppm
		1.018 V	2.4 ppm
		More than 1 V less than 10 V	5.4 ppm
10 V		2.4 ppm	
More than 10 V up to 100 V		11 ppm	
More than 100 V up to 1 kV	22 ppm		

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	DC Voltage Measuring Equipment	From 10 mV up to 50 mV	65 ppm
		More than 50 mV up to 200 mV	18 ppm
		More than 200 mV up to 2 V	10 ppm
		More than 2 V less than 10 V	6 ppm
		10 V	2.4 ppm
		More than 10 V up to 20 V	5 ppm
		More than 20 V up to 200 V	8 ppm
		More than 200 V up to 1 kV	9 ppm
	Direct Current Source	From 10 μ A up to 100 μ A	62 ppm
		More than 100 μ A up to 1 mA	62 ppm
		More than 1 mA up to 10 mA	64 ppm
		More than 10 mA up to 100 mA	63 ppm
		More than 100 mA up to 1 A	63 ppm
		More than 1 A up to 10 A	85 ppm
		More than 10 A up to 20 A	83 ppm
	Direct Current Measuring Equipment	More than 10 μ A less than 100 μ A	0.061 %
		100 μ A	0.012 %
		More than 100 μ A less than 200 μ A	0.012 %
		200 μ A	93 ppm
		More than 200 μ A less than 1 mA	92 ppm
		1 mA	73 ppm
		More than 1 mA less than 2 mA	75 ppm
		2 mA	75 ppm
		More than 2 mA less than 10 mA	91 ppm
		10 mA	74 ppm
		More than 10 mA less than 20 mA	74 ppm
		20 mA	74 ppm
		More than 20 mA less than 100 mA	0.022 %
		100 mA	87 ppm
		More than 100 mA less than 200 mA	87 ppm
		200 mA	84 ppm
		More than 0.2 A less than 1 A	0.015 %
		1 A	0.011%
	More than 1 A less than 2 A	0.014 %	
	2 A	0.014 %	
	AC Voltage Source	10 Hz	300 mV
10 V			0.018 %
200 V			0.018 %
20 Hz		10 V	94 ppm
		50 Hz	10 mV
30 mV			0.024 %
100 mV			0.011 %
300 mV			59 ppm
1 V			45 ppm
3 V			48 ppm
10 V	47 ppm		

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	AC Voltage Source	50 Hz	20 V	45 ppm
			30 V	52 ppm
			60 V	45 ppm
			100 V	48 ppm
			200 V	48 ppm
			300 V	63 ppm
			700 V	62 ppm
			1 kV	53 ppm
		60 Hz	10 mV	0.045 %
			30 mV	0.024 %
			100 mV	0.011 %
			300 mV	59 ppm
			1 V	45 ppm
			3 V	48 ppm
			10 V	46 ppm
			30 V	52 ppm
			100 V	47 ppm
			300 V	63 ppm
			1 kV	53 ppm
			1 kHz	10 mV
		30 mV		0.024 %
		33 mV		0.024 %
		100 mV		0.011 %
		300 mV		59 ppm
		330 mV		66 ppm
		1 V		40 ppm
		2 V		38 ppm
		3 V		46 ppm
		3.3 V		47 ppm
		6 V		39 ppm
		10 V		42 ppm
		20 V		41 ppm
		30 V		50 ppm
		33 V		49 ppm
		60 V		44 ppm
		100 V		43 ppm
		200 V		44 ppm
		300 V		60 ppm
		330 V		60 ppm
		700 V	60 ppm	
		1 kV	51 ppm	
		10 kHz	300 mV	59 ppm
			1 V	41 ppm
2 V	40 ppm			
3 V	45 ppm			
6 V	40 ppm			
20 V	41 ppm			

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	AC Voltage Source	10 kHz	30 V	50 ppm
			60 V	42 ppm
			200 V	44 ppm
			300 V	61 ppm
			1 kV	52 ppm
		20 kHz	300 mV	59 ppm
			1 V	42 ppm
			3 V	46 ppm
			10 V	42 ppm
			30 V	50 ppm
		50 kHz	300 V	61 ppm
			300 mV	75 ppm
			1 V	58 ppm
			3 V	72 ppm
			10 V	52 ppm
			30 V	75 ppm
		100 kHz	100 V	68 ppm
			300 V	0.019 %
			300 mV	0.015 %
			1 V	92 ppm
		200 kHz	10 V	91 ppm
	200 V		0.011 %	
	1 V		0.022 %	
	500 kHz	10 V	0.024 %	
		300 mV	0.081 %	
	1 MHz	1 V	0.077 %	
		1 V	0.30 %	
	AC Voltage Measuring Equipment	10 Hz	300 mV	0.042 %
			10 V	0.033 %
			200 V	0.031 %
		20 Hz	10 V	0.029 %
			10 mV	0.066 %
		50 Hz	30 mV	0.038 %
100 mV			0.018 %	
300 mV			90 ppm	
1 V			66 ppm	
3 V			85 ppm	
10 V			66 ppm	
20 V			63 ppm	
30 V			87 ppm	
60 V			75 ppm	
100 V			74 ppm	
200 V			72 ppm	
300 V			0.034 %	
700 V			0.031 %	
1 kV			0.030 %	

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	AC Voltage Measuring Equipment	60 Hz	10 mV	0.066 %
			30 mV	0.038 %
			100 mV	0.018 %
			300 mV	90 ppm
			1 V	66 ppm
			3 V	76 ppm
			10 V	65 ppm
			30 V	86 ppm
			100 V	73 ppm
			300 V	99 ppm
		1 kHz	1 kV	87 ppm
			10 mV	0.066 %
			30 mV	0.038 %
			33 mV	0.036 %
			100 mV	0.018 %
			300 mV	90 ppm
			330 mV	93 ppm
			1 V	63 ppm
			2 V	59 ppm
			3 V	75 ppm
			3.3 V	74 ppm
			6 V	63 ppm
			10 V	63 ppm
			20 V	60 ppm
			30 V	85 ppm
			33 V	83 ppm
			60 V	74 ppm
			100 V	71 ppm
			200 V	70 ppm
			300 V	97 ppm
		330 V	97 ppm	
		700 V	93 ppm	
		1 kV	86 ppm	
		10 kHz	300 mV	90 ppm
			1 V	64 ppm
			2 V	60 ppm
			3 V	74 ppm
			6 V	64 ppm
			20 V	60 ppm
			30 V	85 ppm
			60 V	73 ppm
		20 kHz	200 V	70 ppm
300 mV	90 ppm			
1 V	64 ppm			
3 V	75 ppm			
10 V	63 ppm			
30 V	85 ppm			

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		CMC (Level of Confidence Approximately 95 %)
Direct Current & Low Frequency Measuring Equipment, etc.	AC Voltage Measuring Equipment	50 kHz	300 mV	0.013 %
			1 V	99 ppm
			3 V	0.013 %
			10 V	95 ppm
			30 V	0.014 %
			100 V	0.011 %
		100 kHz	300 mV	0.026 %
			1 V	0.017 %
			10 V	0.015 %
			200 V	0.019 %
		200 kHz	1 V	0.054 %
			10 V	0.042 %
	500 kHz	300 mV	0.20 %	
		1 V	0.16 %	
	1 MHz	1 V	0.50 %	
	Alternating Current Source	60 Hz	10 mA	0.011 %
			100 mA	0.011 %
			1 A	0.013 %
Alternating Current Measuring Equipment	60 Hz	10 mA	0.018 %	
		100 mA	0.018 %	
		1 A	0.031 %	

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration : Force

Date of Initial Accreditation of the Field : 2014-03-20

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range		CMC (Level of Confidence Approximately 95 %)
Force-proving Instruments	Applying JIS B 7721	Compression	From 39.23 N up to 100 N	0.20 %
			From 0.1 kN up to 100 kN	0.10 %
		Tension	From 39.23 N up to 100 N	0.20 %
			From 0.1 kN up to 100 kN	0.10 %

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General Field of Calibration : TorqueDate of Initial Accreditation of the Field : 2018-11-22Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Torque testing machines	Torque wrench testers	Clockwise Torque and Counterclockwise Torque From 5 N·m up to 1000 N·m	0.79 %(*)

(*) : The case of recognizing only the increasing torque as calibration results.

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration : PressureDate of Initial Accreditation of the Field : 2009-03-04Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Pressure Gauge	Mechanical Type Pressure Gauges	Gas Gauge Pressure	From -90 kPa up to -25 kPa 0.05 kPa
			From 20 kPa up to 700 kPa 2 kPa
	Pressure Gauges (Digital Pressure Gauges)	Gas Absolute Pressure	From 20 kPa up to 130 kPa 0.015 kPa
		Gas Gauge Pressure	From -90 kPa up to -25 kPa 0.018 kPa
			From 20 kPa up to 100 kPa 0.02 kPa
			More than 100 kPa up to 1050 kPa 0.12 kPa

#All Calibration Procedures are in-house procedures developed by this laboratory.

General Field of Calibration : Acoustics & UltrasoundDate of Initial Accreditation of the Field : 2016-09-08Permanent Laboratory/On-site Calibration : Permanent Laboratory

Calibration Procedures# and Type of Instruments/Materials to be calibrated		Range	CMC (Level of Confidence Approximately 95 %)
Acoustic Measuring Equipment, etc.	Sound Calibrator	94 dB, 1 kHz	0.13 dB
		114 dB, 250 Hz	0.12 dB
		124 dB, 250 Hz	0.13 dB

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