

Name of Accreditation Program	JCSS Accreditation Program
Accreditation No.	JCSS0029
Date of Initial Accreditation	1994-05-02
Latest Date of Issue	2017-08-03
Name and Address of Accredited Organization	Measurement and Calibration Center, Japan Quality Assurance Organization 4-4-4, Minamiosawa, Hachioji-shi, Tokyo 192-0364, Japan JCN 9010005016585
Inquiry Point	Sales Division Tel: +81-42-679-0144      FAX: +81-42-679-0187
Accreditation Standards	ISO/IEC 17025:2005 (Calibration)
Accreditation Scope	As attached

\*JCN : Japan Corporate Number

General Field of Calibration : LengthDate of Initial Accreditation of the Field : 1994-05-02Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %) (L (mm): Nominal Length)
Laser Wavelength	Frequency stabilized laser in the 633 nm region		$4.2 \times 10^{-11}$
Length Measuring Instrument	Gauge Blocks (Interferometry method)	From 0.1 mm up to 100 mm	0.02 $\mu\text{m}$
		More than 100 mm up to 250 mm	$(0.01+L/3500) \mu\text{m}$
		More than 250 mm up to 400 mm	$(0.02+L/3400) \mu\text{m}$
		More than 400 mm up to 800 mm	$(0.02+L/3200) \mu\text{m}$
		More than 800 mm up to 1000 mm	$(0.02+L/3100) \mu\text{m}$
	Gauge Blocks (Comparison method)	From 0.1 mm up to 100 mm	0.07 $\mu\text{m}$
		More than 100 mm up to 500 mm	$(0.005+L/1800) \mu\text{m}$
		More than 500 mm up to 1000 mm	$(0.025+L/1800) \mu\text{m}$
	End Gauges with flat ends (Comparison method)	From 0.1 mm up to 1010 mm	$(0.2+L/650) \mu\text{m}$
	Standard Scale	up to 300 mm	0.4 $\mu\text{m}$
		More than 300 mm up to 1000 mm	$(0.2+L/1500) \mu\text{m}$
	Calibration apparatus for extensometers	up to 25 mm	0.3 $\mu\text{m}$
		More than 25 mm up to 50 mm	0.4 $\mu\text{m}$
More than 50 mm up to 75 mm		0.5 $\mu\text{m}$	
More than 75 mm up to 100 mm		0.6 $\mu\text{m}$	
Extensometers	up to 100 mm	The larger one of the two 0.15 % or 0.70 $\mu\text{m}$	
	More than 100 mm up to 600 mm	The larger one of the two 0.15 % or 0.01 mm	
Dimensional Measuring Instrument	One Dimensional Grating	From 97 nm up to 1000 nm	0.03 nm

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

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)
Length Measuring Instrument	Extensometers	up to 100 mm	The larger one of the two 0.15 % or 0.70 $\mu\text{m}$
		More than 100 mm up to 600 mm	The larger one of the two 0.15 % or 0.01 mm

General Field of Calibration : Mass

Date of Initial Accreditation of the Field : 1996-11-14

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)		
			One by one comparison		A method except One by one comparison
			Conventional mass	True mass	Conventional mass
Weight	Weight and Deadweight	50 kg	0.30 g	12 µg/g	—
		More than 20 kg less than 50 kg	4.0 µg/g	11 µg/g	—
		20 kg	7.0 mg	11 µg/g	6.0 mg
		More than 10 kg less than 20 kg	4.0 µg/g	11 µg/g	—
		10 kg	3.0 mg	4.0 µg/g	2.1 mg
		More than 5 kg less than 10 kg	4.0 µg/g	4.0 µg/g	—
		5 kg	1.8 mg	4.0 µg/g	1.1 mg
		More than 3 kg less than 5 kg	4.0 µg/g	4.0 µg/g	—
		3 kg	1.5 mg	4.0 µg/g	—
		More than 2 kg less than 3 kg	4.0 µg/g	4.0 µg/g	—
		2 kg	0.60 mg	4.0 µg/g	0.42 mg
		More than 1 kg less than 2 kg	4.0 µg/g	4.0 µg/g	—
		1 kg	0.20 mg	4.0 µg/g	0.16 mg
		More than 500 g less than 1 kg	4.0 µg/g	4.0 µg/g	—
		500 g	0.11 mg	4.0 µg/g	0.085 mg
		More than 300 g less than 500 g	4.0 µg/g	4.0 µg/g	—
		300 g	0.15 mg	4.0 µg/g	—
		More than 200 g less than 300 g	4.0 µg/g	4.0 µg/g	—
		200 g	0.060 mg	4.0 µg/g	0.035 mg
		More than 100 g less than 200 g	4.0 µg/g	4.0 µg/g	—
		100 g	0.030 mg	4.0 µg/g	0.019 mg
		More than 50 g less than 100 g	4.0 µg/g	4.0 µg/g	—
		50 g	0.020 mg	4.1 µg/g	0.010 mg
		More than 30 g less than 50 g	5.0 µg/g	4.7 µg/g	—
		30 g	0.026 mg	5.4 µg/g	—
		More than 20 g less than 30 g	8.0 µg/g	9.0 µg/g	—
		20 g	0.015 mg	8.7 µg/g	0.0080 mg
		More than 10 g less than 20 g	9.0 µg/g	10 µg/g	—
		10 g	0.010 mg	15 µg/g	0.0060 mg
		More than 5 g less than 10 g	15 µg/g	17 µg/g	—
5 g	0.0080 mg	25 µg/g	0.0050 mg		
More than 3 g less than 5 g	32 µg/g	35 µg/g	—		
3 g	0.013 mg	56 µg/g	—		
More than 2 g less than 3 g	25 µg/g	28 µg/g	—		
2 g	0.0060 mg	60 µg/g	0.0040 mg		
More than 1 g less than 2 g	40 µg/g	60 µg/g	—		
1 g	0.0050 mg	81 µg/g	0.0030 mg		
More than 500 mg less than 1 g	50 µg/g	90 µg/g	—		

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)		
			One by one comparison		A method except One by one comparison
			Conventional mass	True mass	Conventional mass
Weight	Weight and Deadweight	500 mg	0.0040 mg	0.15 mg/g	0.0025 mg
		More than 200 mg less than 500 mg	80 µg/g	0.15 mg/g	—
		200 mg	0.0030 mg	0.17 mg/g	0.0020 mg
		More than 100 mg less than 200 mg	0.16 mg/g	0.20 mg/g	—
		100 mg	0.0025 mg	0.22 mg/g	0.0015 mg
		More than 50 mg less than 100 mg	0.25 mg/g	0.30 mg/g	—
		50 mg	0.0020 mg	0.30 mg/g	0.0012 mg
		More than 20 mg less than 50 mg	0.45 mg/g	0.45 mg/g	—
		20 mg	0.0016 mg	0.70 mg/g	0.0010 mg
		More than 10 mg less than 20 mg	0.90 mg/g	0.90 mg/g	—
		10 mg	0.0012 mg	1.1 mg/g	0.00080 mg
		More than 5 mg less than 10 mg	1.6 mg/g	1.6 mg/g	—
		5 mg	0.0011 mg	1.8 mg/g	0.00060 mg
		More than 2 mg less than 5 mg	3.2 mg/g	3.2 mg/g	—
		2 mg	0.0011 mg	4.3 mg/g	0.00060 mg
		More than 1 mg less than 2 mg	6.0 mg/g	6.0 mg/g	—
1 mg	0.0011 mg	9.0 mg/g	0.00060 mg		

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

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)	
			Permanent Laboratory	On-site Calibration
Scale	Non-Automatic Electronic Weighing Instruments	More than 150 kg up to 600 kg	16 µg/g	16 µg/g
		More than 20 kg up to 150 kg	9.6 µg/g	9.6 µg/g
		20 kg	3.0 µg/g	3.0 µg/g
		More than 100 g less than 20 kg	1.1 µg/g	1.1 µg/g
		100 g	0.97 µg/g	0.97 µg/g
		More than 50 g less than 100 g	1.8 µg/g	1.8 µg/g
		50 g	1.2 µg/g	1.2 µg/g
		More than 20 g less than 50 g	2.8 µg/g	2.8 µg/g
		More than 10 g up to 20 g	2.4 µg/g	2.4 µg/g
		10 g	3.6 µg/g	3.6 µg/g
		More than 5 g less than 10 g	8.8 µg/g	8.8 µg/g
		5 g	5.9 µg/g	5.9 µg/g
		More than 2 g less than 5 g	14 µg/g	14 µg/g
		More than 1 g up to 2 g	12 µg/g	12 µg/g
		1 g	18 µg/g	18 µg/g
		More than 500 mg less than 1 g	45 µg/g	45 µg/g
		500 mg	30 µg/g	30 µg/g
		More than 200 mg less than 500 mg	71 µg/g	71 µg/g
		More than 100 mg up to 200 mg	59 µg/g	59 µg/g
		100 mg	94 µg/g	94 µg/g
		More than 50 mg less than 100 mg	0.22 mg/g	0.22 mg/g
		50 mg	0.15 mg/g	0.15 mg/g
		More than 20 mg less than 50 mg	0.36 mg/g	0.36 mg/g
		More than 10 mg up to 20 mg	0.30 mg/g	0.30 mg/g
		10 mg	0.47 mg/g	0.47 mg/g
		More than 5 mg less than 10 mg	1.4 mg/g	1.4 mg/g
		5 mg	0.71 mg/g	0.71 mg/g
		More than 2 mg less than 5 mg	2.4 mg/g	2.4 mg/g
2 mg	1.8 mg/g	1.8 mg/g		
1 mg	3.6 mg/g	3.6 mg/g		

General Field of Calibration : TemperatureDate of Initial Accreditation of the Field :2014-11-13Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Contact Type Thermometer	Liquid-in-glass Thermometer	From 0 °C up to 50 °C		0.04 °C
	Temperature sensors with display unit (Comparison calibration)	From -40 °C less than 100 °C		0.030 °C
		100 °C		0.040 °C

General Field of Calibration : AngleDate of Initial Accreditation of the Field : 2006-03-01Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Angle Measuring Instrument	Rotary Encoder	0° to 360°	up to 225,000 points	0.04"
	Rotary Encoder Calibration System (Self-calibration System)	0° to 360°		0.03"

General Field of Calibration : Fluid flowDate of Initial Accreditation of the Field : 2001-02-20Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Anemometers	Anemometers (Low air speed)	From 0.05 m/s less than 0.30 m/s		0.017 m/s
		From 0.30 m/s less than 0.59 m/s		0.022 m/s
		From 0.59 m/s less than 0.88 m/s		0.028 m/s
		From 0.88 m/s less than 1.21 m/s		0.035 m/s
		From 1.21 m/s less than 1.50 m/s		0.042 m/s
	Anemometers (Medium air speed)	1.3 m/s		0.04 m/s
		More than 1.3 m/s up to 3 m/s		0.06 m/s
		More than 3 m/s up to 5 m/s		0.06 m/s
		More than 5 m/s up to 7 m/s		0.08 m/s
		More than 7 m/s up to 10 m/s		0.11 m/s
		More than 10 m/s up to 15 m/s		0.15 m/s
		More than 15 m/s up to 20 m/s		0.19 m/s
		More than 20 m/s up to 25 m/s		0.26 m/s
		More than 25 m/s up to 30 m/s		0.32 m/s
		More than 30 m/s up to 35 m/s		0.38 m/s
More than 35 m/s up to 40 m/s		0.44 m/s		

General Field of Calibration : Acceleration

Date of Initial Accreditation of the Field : 2005-02-21

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)
Accelerometer	Reference Accelerometer (Voltage sensitivity)	0.5 Hz	2 %
		0.63 Hz	2 %
		0.8 Hz	2 %
		1 Hz	1.1 %
		1.25 Hz	1.1 %
		1.6 Hz	1.1 %
		2 Hz	0.8 %
		2.5 Hz	0.8 %
		3.15 Hz	0.8 %
		4 Hz	0.8 %
		5 Hz	0.7 %
		6.3 Hz	0.7 %
		8 Hz	0.7 %
		10 Hz	0.7 %
		12.5 Hz	0.7 %
		16 Hz	0.7 %
		20 Hz	0.6 %
		25 Hz	0.6 %
		31.5 Hz	0.6 %
		40 Hz	0.6 %
		50 Hz	0.6 %
		63 Hz	0.6 %
		80 Hz	0.6 %
		100 Hz	0.4 %
		125 Hz	0.4 %
		160 Hz	0.4 %
		200 Hz	0.6 %
		250 Hz	0.7 %
		315 Hz	0.6 %
		400 Hz	0.6 %
		500 Hz	0.6 %
		630 Hz	0.6 %
		800 Hz	0.6 %
		1 kHz	0.6 %
1.25 kHz	0.6 %		
1.6 kHz	0.6 %		
2 kHz	0.9 %		
2.5 kHz	1.3 %		
3.15 kHz	2.0 %		
4 kHz	2.0 %		
5 kHz	2.0 %		
6.3 kHz	3 %		
8 kHz	3 %		
10 kHz	3 %		

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)
Accelerometer	Reference Accelerometer (Electric charge sensitivity)	20 Hz	0.7 %
		25 Hz	0.7 %
		31.5 Hz	0.7 %
		40 Hz	0.7 %
		50 Hz	0.6 %
		63 Hz	0.6 %
		80 Hz	0.6 %
		100 Hz	0.5 %
		125 Hz	0.5 %
		160 Hz	0.5 %
		200 Hz	0.7 %
		250 Hz	0.7 %
		315 Hz	0.7 %
		400 Hz	0.7 %
		500 Hz	0.7 %
		630 Hz	0.7 %
		800 Hz	0.7 %
		1 kHz	0.7 %
		1.25 kHz	0.7 %
		1.6 kHz	0.7 %
2 kHz	1.0 %		
2.5 kHz	1.3 %		
3.15 kHz	2.1 %		
4 kHz	2.1 %		
5 kHz	2.1 %		
6.3 kHz	3 %		
8 kHz	3 %		
10 kHz	3 %		



General Field of Calibration : Electricity(High Frequency) & Electromagnetic FieldsDate of Initial Accreditation of the Field : 1995-06-21Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Radio Frequency Measuring Equipments	RF Power Source	50 MHz	1 mW	0.45 %
		From 10 MHz up to 12 GHz	1 mW	1.2 %
RF Power Measuring Equipment	Coaxial 7 mm		From 10 pW less than 10 nW	1.8 %
		From 10 nW up to 100 mW	1.6 %	
		10 MHz, 30 MHz, 50 MHz, 70 MHz, 100 MHz, 300 MHz, 500 MHz, 700 MHz, 1 GHz, 2 GHz, 3 GHz, 4 GHz, 5 GHz, 6 GHz	1 mW	0.51 %
		7 GHz, 8 GHz	1 mW	0.76 %
		9 GHz, 10 GHz, 11 GHz, 12 GHz,	1 mW	0.88 %
		13 GHz	1 mW	0.92 %
		14 GHz, 15 GHz, 16 GHz, 17 GHz, 18 GHz	1 mW	1.4 %
		From 10 MHz up to 200 MHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
			More than 100 mW up to 180 W	2.2 %
		More than 200 MHz up to 400 MHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
			More than 100 mW up to 100 W	2.2 %
		More than 400 MHz up to 500 MHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
			More than 100 mW up to 60 W	2.2 %
		More than 500 MHz up to 1 GHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
			More than 100 mW up to 40 W	2.2 %
		More than 1 GHz up to 2 GHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
			More than 100 mW up to 20 W	2.5 %
		More than 2 GHz up to 6 GHz	1 mW	0.7 %
			1 $\mu$ W	0.8 %
			From 10 nW up to 100 mW	1.6 %
		More than 6 GHz up to 12 GHz	1 mW	1.0 %
			1 $\mu$ W	1.2 %
			From 10 nW up to 50 mW	1.6 %
		More than 12 GHz up to 18 GHz	1 mW	1.6 %
			1 $\mu$ W	2.0 %

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)	
Radio Frequency Measuring Equipments	RF Power Measuring Equipment (Continue)	Coaxial 2.9 mm	10 MHz, 30 MHz, 50 MHz, 70 MHz, 100 MHz, 300 MHz, 500 MHz, 700 MHz, 1 GHz, 2 GHz, 3 GHz, 4 GHz, 5 GHz, 6 GHz, 7 GHz, 8 GHz, 9 GHz, 10 GHz, 11 GHz, 12 GHz	1 mW	1.1 %
			13 GHz, 14 GHz, 15 GHz, 16 GHz, 17 GHz, 18 GHz, 19 GHz, 20 GHz, 21 GHz, 22 GHz, 23 GHz, 24 GHz, 25 GHz	1 mW	1.4 %
			26 GHz, 27 GHz, 28 GHz, 29 GHz, 30 GHz, 31 GHz, 32 GHz, 33 GHz, 34 GHz, 35 GHz, 36 GHz, 37 GHz, 38 GHz, 39 GHz, 40 GHz	1 mW	3.1 %
			From 10 MHz up to 12 GHz	1 mW	1.6 %
			More than 12 GHz up to 25 GHz	1 mW	2.3 %
			More than 25 GHz up to 40 GHz	1 mW	4.7 %
		RF Voltage Measuring Equipment	From 10 MHz up to 50 MHz		From 0.2 V up to 0.9 V
	More than 50 MHz up to 500 MHz		From 0.2 V up to 0.9 V	0.80 %	
	More than 500 MHz up to 1000 MHz		From 0.2 V up to 0.9 V	1.2 %	
	Attenuator (50 Ω)	30 MHz		From 0 dB up to 40 dB	0.007 dB
		From 10 MHz up to 2 GHz	From 0 dB up to 40 dB	0.008 dB	
			More than 40 dB up to 80 dB	0.013 dB	
		More than 2 GHz up to 12 GHz	From 0 dB up to 40 dB	0.009 dB	
			More than 40 dB up to 60 dB	0.015 dB	
			More than 60 dB up to 80 dB	0.032 dB	
		More than 12 GHz up to 18 GHz	From 0 dB up to 40 dB	0.016 dB	
	More than 40 dB up to 60 dB		0.028 dB		
	More than 18 GHz up to 40 GHz	From 0 dB up to 30 dB	0.066 dB		
	Attenuation Measuring Equipment	From 10 MHz up to 12 GHz		From 0 dB up to 40 dB	0.012 dB
More than 40 dB up to 80 dB				0.014 dB	

Type of Service		Calibration Scope			CMC (Level of Confidence Approximately 95 %)
Radio Frequency Measuring Equipments	RF Impedance (One Port)	Type-N 50 $\Omega$ Male	Reflection Coefficient  up to 0.1	From 9 kHz less than 40 MHz	Amplitude Um: 0.0015~0.0033 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0031~0.0038 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0036~0.0041 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0040~0.0054 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.0049~0.0068 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
			Reflection Coefficient  up to 0.3	From 9 kHz less than 40 MHz	Amplitude Um: 0.0022~0.0037 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0036~0.0046 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0042~0.0047 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0048~0.0060 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient))

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)	
Radio Frequency Measuring Equipments	RF Impedance (One Port)	Type-N 50 Ω Male	Reflection Coefficient  up to 0.3	More than 14 GHz up to 18 GHz	Amplitude Um: 0.0054~0.0074 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
			Reflection Coefficient  up to 0.5	From 9 kHz less than 40 MHz	Amplitude Um: 0.0028~0.0042 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0041~0.0056 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0049~0.0058 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0057~0.0076 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.0065~0.0093 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				Reflection Coefficient  up to 1.0	From 9 kHz less than 40 MHz
			From 40 MHz up to 4 GHz		Amplitude Um: 0.0072~0.011 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
			More than 4 GHz up to 8 GHz		Amplitude Um: 0.0084~0.011 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )

Type of Service		Calibration Scope			CMC (Level of Confidence Approximately 95 %)
Radio Frequency Measuring Equipments	RF Impedance (One Port)	Type-N 50 Ω Male	Reflection Coefficient  up to 1.0	More than 8 GHz up to 14 GHz	Amplitude Um: 0.011~0.015 (Amplitude step:0.001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.013~0.020 (Amplitude step:0.001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
		Type-N 50 Ω Female	Reflection Coefficient  up to 0.1	From 9 kHz less than 40 MHz	Amplitude Um: 0.0014~0.0033 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0031~0.0039 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0036~0.0045 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0040~0.0051 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.0045~0.0057 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				From 9 kHz less than 40 MHz	Amplitude Um: 0.0021~0.0037 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0035~0.0044 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )

Type of Service		Calibration Scope			CMC (Level of Confidence Approximately 95 %)
Radio Frequency Measuring Equipments	RF Impedance (One Port)	Type-N 50 Ω Female	Reflection Coefficient  up to 0.3	More than 4 GHz up to 8 GHz	Amplitude Um: 0.0043~0.0049 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0045~0.0058 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.0050~0.0068 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
			Reflection Coefficient  up to 0.5	From 9 kHz less than 40 MHz	Amplitude Um: 0.0027~0.0042 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				From 40 MHz up to 4 GHz	Amplitude Um: 0.0040~0.0054 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0050~0.0060 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
		More than 8 GHz up to 14 GHz		Amplitude Um: 0.0051~0.0070 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )	
		Reflection Coefficient  up to 1.0	From 9 kHz less than 40 MHz	More than 14 GHz up to 18 GHz	Amplitude Um: 0.0056~0.0084 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
					Amplitude Um: 0.0046~0.0075 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )

Type of Service		Calibration Scope			CMC (Level of Confidence Approximately 95 %)
Radio Frequency Measuring Equipments	RF Impedance (One Port)	Type-N 50 Ω Female	Reflection Coefficient  up to 1.0	From 40 MHz up to 4 GHz	Amplitude Um: 0.0069~0.010 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 4 GHz up to 8 GHz	Amplitude Um: 0.0085~0.011 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 8 GHz up to 14 GHz	Amplitude Um: 0.0084~0.013 (Amplitude step:0.0001) Phase[° ]: arcsin(Um/ Reflection Coefficient )
				More than 14 GHz up to 18 GHz	Amplitude Um: 0.011~0.017 (Amplitude step:0.001) Phase[° ]: arcsin(Um/ Reflection Coefficient )

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)	
Laser Power Measuring Equipments	Optical Beam Power Meter	405 nm Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 5 mW	0.29 %	
		488 nm Band 515 nm Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 200 mW	0.29 %	
		633 nm Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 10 mW	0.29 %	
		660 nm Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 7 mW	0.29 %	
		0.78 $\mu$ m Band 0.85 $\mu$ m Band 1.3 $\mu$ m Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 3 mW	0.29 %	
		1.05 $\mu$ m Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.36 %	
			From 100 $\mu$ W up to 10 mW	0.29 %	
	1.55 $\mu$ m Band	From 10 $\mu$ W less than 50 $\mu$ W	0.9 %		
		From 50 $\mu$ W less than 100 $\mu$ W	0.36 %		
		From 100 $\mu$ W up to 5 mW	0.29 %		
	Optical Fiber Power Meter	0.85 $\mu$ m Band	From 10 $\mu$ W less than 50 $\mu$ W	1.0 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.5 %	
			From 100 $\mu$ W up to 200 $\mu$ W	0.35 %	
		1.3 $\mu$ m Band From 1.52 $\mu$ m Up to 1.63 $\mu$ m	From 10 $\mu$ W less than 50 $\mu$ W	1.0 %	
			From 50 $\mu$ W less than 100 $\mu$ W	0.5 %	
			From 100 $\mu$ W up to 10 mW	0.35 %	
		Photodiode Type	1310 nm	1 mW	0.36 %
				100 $\mu$ W	0.40 %
				10 $\mu$ W	0.40 %
				1 $\mu$ W	0.40 %
				100 nW	0.41 %
				10 nW	0.41 %
From 1.28 $\mu$ m up to 1.34 $\mu$ m			1 nW	0.42 %	
			100 pW	0.45 %	
			10 pW	0.60 %	
	1 pW		1.9 %		
	1 mW		0.36 %		
	100 $\mu$ W		0.40 %		
10 $\mu$ W	0.40 %				
1 $\mu$ W	0.41 %				
100 nW	0.42 %				
10 nW	0.43 %				
1 nW	0.44 %				
100 pW	0.47 %				
10 pW	0.62 %				
1 pW	1.9 %				



Type of Service		Calibration Scope			CMC (Level of Confidence Approximately 95 %)
Laser Power Measuring Equipments	Optical Fiber Power Meter	Photodiode Type	1550 nm	1 mW	0.36 %
				100 $\mu$ W	0.39 %
				10 $\mu$ W	0.39 %
				1 $\mu$ W	0.39 %
				100 nW	0.39 %
				10 nW	0.40 %
				1 nW	0.40 %
				100 pW	0.45 %
				10 pW	0.50 %
			1 pW	1.5 %	
			From 1.52 $\mu$ m up to 1.63 $\mu$ m	1 mW	0.36 %
				100 $\mu$ W	0.42 %
				10 $\mu$ W	0.42 %
				1 $\mu$ W	0.43 %
				100 nW	0.43 %
				10 nW	0.43 %
				1 nW	0.43 %
				100 pW	0.48 %
	10 pW	0.54 %			
	1 pW	1.5 %			
	Photodiode Sensor	Optical Fiber Power Response Linearity (in dB unit relative to 0 dB (1 mW))	1310 nm	-10 dB	0.0091 dB
				-20 dB	0.0093 dB
				-30 dB	0.0096 dB
				-40 dB	0.0099 dB
				-50 dB	0.011 dB
				-60 dB	0.011 dB
				-70 dB	0.013 dB
				-80 dB	0.022 dB
				-90 dB	0.078 dB
			From 1.28 $\mu$ m up to 1.34 $\mu$ m	-10 dB	0.0093 dB
				-20 dB	0.0098 dB
				-30 dB	0.011 dB
				-40 dB	0.011 dB
				-50 dB	0.012 dB
				-60 dB	0.013 dB
				-70 dB	0.015 dB
				-80 dB	0.023 dB
				-90 dB	0.079 dB
			1550 nm	-10 dB	0.0088 dB
-20 dB				0.0089 dB	
-30 dB				0.0089 dB	
-40 dB				0.0090 dB	
-50 dB				0.0091 dB	
-60 dB				0.0093 dB	
-70 dB				0.013 dB	
-80 dB				0.017 dB	
-90 dB				0.062 dB	
From 1.52 $\mu$ m up to 1.63 $\mu$ m			-10 dB	0.011 dB	
			-20 dB	0.011 dB	
			-30 dB	0.011 dB	
	-40 dB	0.011 dB			
	-50 dB	0.011 dB			
	-60 dB	0.011 dB			
	-70 dB	0.015 dB			
	-80 dB	0.018 dB			
	-90 dB	0.063 dB			

General Field of Calibration : Force

Date of Initial Accreditation of the Field : 2010-09-03

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

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Uniaxial Testing Machines	According to JIS B 7721 (ISO 7500-1)	Compression	From 0.1 N up to 125 kN	0.10 %
			More than 125 kN up to 5 MN	0.20 %
	According to ASTM E4	Tension	From 0.1 N up to 125 kN	0.10 %
		Compression	From 0.1 N up to 2000 kN	0.40 %
		Tension	From 0.1 N up to 100 kN	0.30 %

General Field of Calibration : Acoustics & Ultrasound

Date of Initial Accreditation of the Field : 2005-02-21

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
Acoustic Measuring Equipment etc.	Measurement Microphone (Pressure Sensitivity Level Type LS1 Microphone)	From 20 Hz up to 8000 Hz		0.07 dB
		More than 8000 Hz up to 10000 Hz		0.17 dB
		More than 10000 Hz up to 12500 Hz		0.33 dB
	Measurement Microphone (Pressure Sensitivity Level Type LS2 Microphone)	From 20 Hz less than 50 Hz		0.10 dB
		From 50 Hz up to 16000 Hz		0.07 dB
		More than 16000 Hz up to 20000 Hz		0.15 dB
	Measurement Microphone (Free-field Sensitivity Level Type LS1 or WS1 Microphone)	From 20 Hz up to 4000 Hz		0.3 dB
		More than 4000 Hz up to 10000 Hz		0.4 dB
		More than 10000 Hz up to 12500 Hz		0.6 dB
	Measurement Microphone (Free-Field Sensitivity Level Type LS2 or WS2 Microphone)	From 20 Hz up to 4000 Hz		0.3 dB
		More than 4000 Hz up to 9000 Hz		0.4 dB
		More than 9000 Hz up to 16000 Hz		0.5 dB
		More than 16000 Hz up to 20000 Hz		0.9 dB
	Sound Level Meter (Free-Field Response Level Type LS1 Microphone)	From 20 Hz up to 50 Hz		0.4 dB
		More than 50 Hz up to 3150 Hz		0.3 dB
		More than 3150 Hz up to 8000 Hz		0.5 dB
		More than 8000 Hz up to 12500 Hz		0.6 dB
	Sound Level Meter (Free-Field Response Level Type LS 2 Microphone)	From 20 Hz up to 50 Hz		0.4 dB
		More than 50 Hz up to 3150 Hz		0.3 dB
		More than 3150 Hz up to 12500 Hz		0.5 dB
		More than 12500 Hz up to 20000 Hz		0.8 dB
	Sound Calibrator (Sound Pressure Level Type LS1 or WS1 Microphone)	250 Hz		0.08 dB
		1000 Hz		0.08 dB
	Sound Calibrator (Sound Pressure Level Type LS2 or WS2 Microphone)	31.5 Hz		0.11 dB
		63 Hz		0.09 dB
		125 Hz		0.09 dB
		250 Hz		0.09 dB
		500 Hz		0.09 dB
1000 Hz		0.09 dB		
2000 Hz		0.09 dB		
4000 Hz		0.09 dB		
8000 Hz		0.09 dB		
12500 Hz		0.09 dB		
16000 Hz		0.13 dB		
Audiometers (WS1 Microphone)	Sound Pressure Level	From 125 Hz up to 4000 Hz		0.6 dB
		More than 4000 Hz up to 8000 Hz		0.6 dB
Audiometers (WS2 Microphone)	Sound Pressure Level	From 125 Hz up to 4000 Hz		0.7 dB
		More than 4000 Hz up to 8000 Hz		0.9 dB

General Field of Calibration : Radiation & Radioactivity & Neutron

Date of Initial Accreditation of the Field : 1998-11-16

Permanent Laboratory/On-site Calibration : Permanent Laboratory

Type of Service		Calibration Scope	CMC (Level of Confidence Approximately 95 %)	
X-ray Measuring Equipment	Exposure Measuring Equipment (Soft X-Ray)	Range of Energy : From 10 keV(1.6 fJ) up to 30 keV(4.8 fJ)		
		Exposure	From 100 nC/kg up to 30 mC/kg	3.3 %
		Exposure Rate	From 2.5 $\mu\text{C}/(\text{kg}\cdot\text{h})$ less than 6 $\mu\text{C}/(\text{kg}\cdot\text{h})$	3.5 %
			From 6 $\mu\text{C}/(\text{kg}\cdot\text{h})$ up to 100 mC/(kg·h)	3.3 %
		Air Absorbed Dose	From 3.5 $\mu\text{Gy}$ up to 1.0 Gy	3.3 %
		Air Absorbed Dose Rate	From 90 $\mu\text{Gy}/\text{h}$ less than 210 $\mu\text{Gy}/\text{h}$	3.5 %
			From 210 $\mu\text{Gy}/\text{h}$ up to 3.5 Gy/h	3.3 %
		Air Kerma	From 3.5 $\mu\text{Gy}$ up to 1.0 Gy	3.3 %
		Air Kerma Rate	From 90 $\mu\text{Gy}/\text{h}$ less than 210 $\mu\text{Gy}/\text{h}$	3.5 %
	From 210 $\mu\text{Gy}/\text{h}$ up to 3.5 Gy/h		3.3 %	
	Dose Equivalent	From 1 $\mu\text{Sv}$ up to 100 mSv	5.2 %	
	Dose Equivalent Rate	From 25 $\mu\text{Sv}/\text{h}$ up to 500 mSv/h	5.5 %	
	Exposure Measuring Equipment (Medium Hard X-Ray)	Range of Energy : From 30 keV(4.8 fJ) up to 200 keV(32 fJ)		
		Exposure	From 100 nC/kg up to 60 mC/kg	3.3 %
		Exposure Rate	From 100 nC/(kg·h) less than 6 $\mu\text{C}/(\text{kg}\cdot\text{h})$	3.7 %
			From 6 $\mu\text{C}/(\text{kg}\cdot\text{h})$ up to 160 mC/(kg·h)	3.3 %
		Air Absorbed Dose	From 3.5 $\mu\text{Gy}$ up to 1.8 Gy	3.3 %
		Air Absorbed Dose Rate	From 3.5 $\mu\text{Gy}/\text{h}$ less than 210 $\mu\text{Gy}/\text{h}$	3.7 %
From 210 $\mu\text{Gy}/\text{h}$ up to 5.2 Gy/h			3.3 %	
Air Kerma		From 3.5 $\mu\text{Gy}$ up to 1.8 Gy	3.3 %	
Air Kerma Rate		From 3.5 $\mu\text{Gy}/\text{h}$ less than 210 $\mu\text{Gy}/\text{h}$	3.7 %	
	From 210 $\mu\text{Gy}/\text{h}$ up to 5.2 Gy/h	3.3 %		
Dose Equivalent	From 3 $\mu\text{Sv}$ up to 200 mSv	5.2 %		
Dose Equivalent Rate	From 3 $\mu\text{Sv}/\text{h}$ up to 1 Sv/h	5.5 %		

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)
$\gamma$ -ray Measuring Equipment	Exposure Measuring Equipment ( $^{137}\text{Cs}$ )	Exposure	From 250 nC/kg less than 880 nC/kg	3.8 %
			From 880 nC/kg up to 250 $\mu\text{C}/\text{kg}$	3.6 %
		Exposure Rate	From 250 (nC/kg)/h less than 800 (nC/kg)/h	4.0 %
			From 800 (nC/kg)/h less than 16 ( $\mu\text{C}/\text{kg}/\text{h}$ )	3.7 %
			From 16 ( $\mu\text{C}/\text{kg}/\text{h}$ ) up to 800 ( $\mu\text{C}/\text{kg}/\text{h}$ )	3.4 %
		Air Absorbed Dose	From 8 $\mu\text{Gy}$ less than 28 $\mu\text{Gy}$	3.8 %
			From 28 $\mu\text{Gy}$ up to 8 mGy	3.6 %
		Air Absorbed Dose Rate	From 8 $\mu\text{Gy}/\text{h}$ less than 25 $\mu\text{Gy}/\text{h}$	4.0 %
			From 25 $\mu\text{Gy}/\text{h}$ less than 500 $\mu\text{Gy}/\text{h}$	3.7 %
			From 500 $\mu\text{Gy}/\text{h}$ up to 25 mGy/h	3.4 %
		Air Kerma	From 8 $\mu\text{Gy}$ less than 28 $\mu\text{Gy}$	3.8 %
			From 28 $\mu\text{Gy}$ up to 8 mGy	3.6 %
		Air Kerma Rate	From 8 $\mu\text{Gy}/\text{h}$ less than 25 $\mu\text{Gy}/\text{h}$	4.0 %
			From 25 $\mu\text{Gy}/\text{h}$ less than 500 $\mu\text{Gy}/\text{h}$	3.7 %
			From 500 $\mu\text{Gy}/\text{h}$ up to 25 mGy/h	3.4 %
		Dose Equivalent	From 10 $\mu\text{Sv}$ less than 35 $\mu\text{Sv}$	5.6 %
			From 35 $\mu\text{Sv}$ up to 10 mSv	5.4 %
		Dose Equivalent Rate	From 10 $\mu\text{Sv}/\text{h}$ less than 30 $\mu\text{Sv}/\text{h}$	5.6 %
			From 30 $\mu\text{Sv}/\text{h}$ less than 600 $\mu\text{Sv}/\text{h}$	5.4 %
			From 600 $\mu\text{Sv}/\text{h}$ up to 30 mSv/h	5.3 %

General Field of Calibration : HardnessDate of Initial Accreditation of the Field : 2006-03-01Permanent Laboratory/On-site Calibration : Permanent Laboratory, On-site Calibration

Type of Service		Calibration Scope		CMC (Level of Confidence Approximately 95 %)		
				Permanent Laboratory	On-site Calibration	
Rockwell Hardness Testing Machines, etc.	Rockwell Hardness Testing Machines	From 20 HRC up to 25 HRC		0.55 HRC	0.55 HRC	
		More than 25 HRC up to 35 HRC		0.55 HRC	0.55 HRC	
		More than 35 HRC up to 45 HRC		0.55 HRC	0.55 HRC	
		More than 45 HRC up to 55 HRC		0.50 HRC	0.50 HRC	
		More than 55 HRC up to 65 HRC		0.40 HRC	0.40 HRC	
Vickers Hardness Testing Machines, etc.	Vickers Hardness Testing Machines	200 HV*	Test force 0.9807 N	16 %	16 %	
			Test force 4.903 N	7.0 %	7.0 %	
			Test force 9.807 N	5.1 %	5.1 %	
			Test force 49.03 N	2.7 %	2.7 %	
			Test force 98.07 N	2.6 %	2.6 %	
		400 HV*	Test force 0.9807 N	22 %	22 %	
			Test force 4.903 N	10 %	10 %	
			Test force 9.807 N	7.0 %	7.0 %	
			Test force 98.07 N	2.6 %	2.6 %	
			Test force 294.2 N	2.5 %	2.5 %	
		700 HV*	Test force 0.9807 N	30 %	30 %	
			Test force 4.903 N	15 %	15 %	
			Test force 9.807 N	9.1 %	9.1 %	
			Test force 98.07 N	5.0 %	5.0 %	
			Test force 294.2 N	2.7 %	2.7 %	
				From 100 HV up to 800 HV except for * marked points above. (Test force from 0.9807 N up to 294.2 N)	a) $d \leq 220 \mu\text{m}$ 576/d % b) $d > 220 \mu\text{m}$ 994/d %  Where: $d$ is the length of a diagonal line of the indentation ( $\mu\text{m}$ )	a) $d \leq 220 \mu\text{m}$ 576/d % b) $d > 220 \mu\text{m}$ 994/d %  Where: $d$ is the length of a diagonal line of the indentation ( $\mu\text{m}$ )

General Field of Calibration : Humidity

Date of Initial Accreditation of the Field : 2006-03-01

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

Type of Service	Calibration Scope		CMC (Level of Confidence Approximately 95 %)		
			Permanent Laboratory	On-site Calibration	
Humidity Measuring Instrument, etc.	Dew Point from -10 °C up to 50 °C		Dew Point 0.10 °C	-	
	Dew Point more than 50 °C up to 85 °C		Dew Point 0.11 °C	-	
	Dew point hygrometers	Temperature Point From 5 °C up to 60 °C	Relative humidity from 10 % up to 40 %	Relative humidity 0.5 %	-
			Relative humidity more than 40 % up to 70 %	Relative humidity 0.7 %	-
			Relative humidity more than 70 % up to 98 %	Relative humidity 1.0 %	-
	Aspirated psychrometers	Temperature Point From 5 °C up to 25 °C (Dew point is from -10 °C up to 50 °C)	Relative humidity from 10 % up to 98 %	Relative humidity 1.0 %	-
	Electronic hygrometers	Temperature Point From 5 °C up to 60 °C (Dew point is from -10 °C up to 50 °C)	Relative humidity from 10 % up to 40 %	Relative humidity 0.5 %	-
			Relative humidity more than 40 % up to 70 %	Relative humidity 0.7 %	-
			Relative humidity more than 70 % up to 98 %	Relative humidity 1.0 %	-
		Temperature Point From 50 °C up to 95 °C (Dew point is from -15 °C up to 85 °C)	Relative humidity from 10 % up to 98 %	Relative humidity 3.0 %	-
		Dew Point from -10 °C up to 50 °C		Dew Point 0.30 °C	-
	Thermal conductivity type hygrometers	Absolute humidity from 2.4 g/m <sup>3</sup> up to 82.8 g/m <sup>3</sup> (Where dew point is from -10 °C up to 50 °C)		Absolute humidity 2.2 g/m <sup>3</sup>	-
	Humidity generators	Dew Point from -10 °C up to 50 °C		Dew Point 0.10 °C	Dew Point 0.20 °C
		Temperature Point From 5 °C up to 60 °C (Dew point is from -10 °C up to 50 °C)	Relative humidity from 10 % up to 95 %	Relative humidity 0.4 %	Relative humidity 1.2 %
			Relative humidity more than 95 % up to 98 %	Relative humidity 0.4 %	Relative humidity 1.4 %