

Name: National Institute of Measurement and Testing Technology

Address: No. 10, Yushuang Road, Chengdu, Sichuan, China

Registration No. CNAS L0893

Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

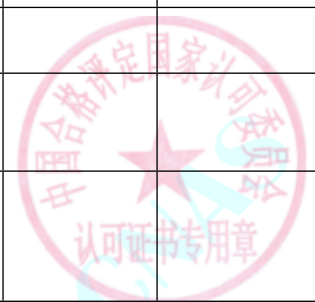
Effective Date: 2021-01-28 Expiry Date: 2024-11-10

CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT
SCHEDULE OF ACCREDITATION CERTIFICATE

SCHEDULE 5 ACCREDITED CALIBRATION AND MEASUREMENT CAPABILITY SCOPE

Note: The instruments with * represents onsite calibration can be performed.

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
一、几何量测量仪器							
1	Steel tape	Length	Verification Regulation of Steel Measuring Tapes JJG 4	(0~100)m	$U=((0.02+0.02L)\mu\text{m}) (L:\text{m})$		
2	Class 3 line ruler of metal	Length	Verification Regulation of Standard Metallic Scale(Grade III) JJG 71	(0~1000)mm	$U=(5+5L)\mu\text{m}(L:\text{m})$		
3	Standard steel tape	Length	Verification Regulation of Standard Steel Tapes JJG 741	(0~20)m	$U=(5+5L)\mu\text{m}(L:\text{m})$		
4	*Toolmaker's microscope	Length	Verification Regulation of Toolmaker's Microscope JJG 56	(1000×200)mm	$U=(0.3+L/300)\mu\text{m}(L:\text{mm})$		
5	Reading Microscope	Length	Verification Regulation of Reading Microscope and Measuring Microscope JJG 571	(0~8)mm	$U=1\mu\text{m}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	Measuring Microscope	Length	Verification Regulation of Reading Microscope and Measuring Microscope JJG 571	(0~50)mm	$U=(1+L/50) \mu m (L:mm)$		
7	Linear comparator	Length	Verification Regulation of Linear comparator JJG 72	(0~200)mm	$U=(0.2+2L) L:m$		
8	Steel rulers	Length	Verification Regulation of Steel Rule JJG 1	(0~2000)mm	$U=(0.02+0.02L)mm (L:m)$		
9	Projector Ruler	Length	Projector Ruler NIMTT(CM) 024	(0~200)mm	$U=(0.5+2.5L) \mu m(L:m)$		
10	Microscope Ruler	Length	Microscope Ruler NIMTT(CM) 021	(0~10)mm	$U=(0.5+L) \mu m(L:m)$		
11	Cable Length Meter	Length	Verification Regulation of Cable Length Meter JJG 987	(1~1000)m	$U_{rel}=0.05\%$		
12	*Projector	Length	Calibration Specification for Projectors JJF 1093	200×100mm	$U=(1+L/200) \mu m(L:mm)$		
13	633nm Frequency Stabilized Lasers	Wavelength	633nm Frequency Stabilized Lasers JJG 353	633nm	$U_{rel}=5 \times 10^{-10}$		
14	Micrometer for outside dimension	Length	Calibration Specification for Micrometers with Measuring Range from 500mm to 3000mm JJF 1088	(500~3000)mm	$U=(1+L/200) \mu m L:mm$		
15	Height Caliper	Length	Verification Regulation of Height Caliper JJG 31	(0~2000)mm	$U=(0.01+0.01L)mm (L:m)$		
16	Micrometer for inside dimension	Length	Calibration Specification for Micrometers for Measuring Inside Dimension JJF 1411	(5~200)mm	$U=(1+L/200) \mu m L:mm$		
17	Micrometer	Length	Verification Regulation of Micrometer JJG 21	(0~500)mm	$U=(0.5+L/200) \mu m L:mm$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
18	Current Calipers	Length	Verification Regulation of Current Calipers JJG 30	(0~2000) mm	$U=(0.01+0.01L)\text{mm}$ (L:m)		
19	Instruction sheet	Length	Verification Regulation of Dial Gauges(dial and digital) JJG 34	(0~10)mm/Dividing : 0.001mm	$U=1.6 \mu\text{m}$		
				(0~50)mm reading 0.01mm	$U=4 \mu\text{m}$		
20	Dial indicator gauges	Length	Verification Regulation of Tester for Dial Indicator Gauges JJG 201	(0~50)mm	$U=(0.3+L/40) \mu\text{m}$ L:mm		
21	Portable Vertical Deviation Measuring Instrument	Length	Verification Regulation of Vertical Metal Tank Diametrical Deviation Measuring Instrument JJG 988	(0~300)mm	$U=0.02\text{mm}$		
22	Wide Range Dauge Reading in 0.01mm	Length	Verification Regulation of Wide Range Dauge Reading in 0.01mm JJG 379	(0~100)mm	$U=(0.005+0.1L)\text{mm}$ L:m		
23	Thickness Gauges	Length	Calibration Specification for Thickness Gauges JJF 1255				
24	Depth Micrometers	Length	Depth Micrometers JJG 24	(0~300)mm	$U=1.5 \mu\text{m}$		
25	Micrometers with Dial Comparator and Indication Snap Gauge	Length	Verification Regulation of Micrometers with Dial Comparator and Indication Snap Gauge JJG 26	Indication Snap Gauge(0~200)mm	$U=0.3 \mu\text{m}$		
				Micrometers with Dial Comparator(0~100)mm	$U=1 \mu\text{m}$		
26	Internal Micrometers	Length	Verification Regulation of Internal Micrometers JJG 22	(50~6000)mm	$U=(2+L/250) \mu\text{m}$ (L:mm)		
27	Dial Test Indicator	Length	Verification Regulation of Dial Test Indicator JJG 35	(0~1)mm	$U=1 \mu\text{m}$		



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28	Depth Dial Gauge	Length	Verification Regulation of Depth Dial Gauge JJG 830	(0~300)mm	$U=2 \mu\text{m}$		
29	Bore Dial Indicators	Length	Calibration Specification for Bore Dial Indicators JJF 1102	Bore dial indicators for 0.001(10~400)mm	$U=1.6 \mu\text{m}$		
				Bore dial indicators for 0.01(2~450)mm	$U=3 \mu\text{m}$		
30	Micro-alignment Telescopes	Length	Calibration Specification of Micro-alignment Telescopes JJF 1077	(-1.2~+1.2)mm	$U=3 \mu\text{m}$		
31	Gauge Blocks	central length	Gauge Blocks JJG 146	(0.5~100)mm	$U=0.02 \mu\text{m}+0.2 \times 10^{-6}L(k=2.7)$		
		central length		(0.5~1000)mm	$U=0.05 \mu\text{m}+0.5 \times 10^{-6}L(k=2.7)$		
32	*Gear Degree dais	Angle	Verification Regulation of Precise Angle Dividing Table JJG 472	$0^\circ \sim 360^\circ$	$U=0.06''$		
33	*Measure angle instrument	Angle	Verification Regulation of Goniometers JJG 97	$0^\circ \sim 360^\circ$	$U=0.5''$		
34	*Small Angle Tester	Angle	Verification Regulation of Small Angle Testers JJG 300	(0~40)'	$U=0.3''$		
35	Angle gauge blocks	Angle	Verification Regulation of Angle Gauge Blocks JJG 70	$10^\circ \sim 100^\circ$	$U=1''$		
36	Angular polygon	Angle	Verification Regulation of Angular Polygon JJG 283	$0^\circ \sim 360^\circ$	$U=0.2''$		
37	Optical clinometer	Angle	Calibration Specification for Optical Clinometers JJF 1083	$0^\circ \sim 240^\circ$	$U=6''$		
38	Electronic level	Angle	Verification Regulation of Electronic levels and Coincidence levels JJG 103	(-10mm/m~+10mm/m)	$U=0.001\text{mm/m}$		
39	Taper Mandrel	Length	Verification gauge of optometer NIMTT(CM) 004	(0~450)mm	$U=0.5 \mu\text{m}$		



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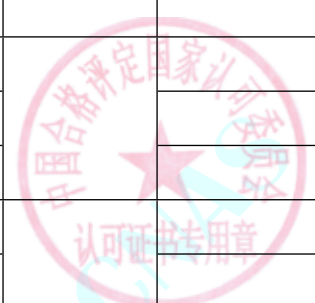
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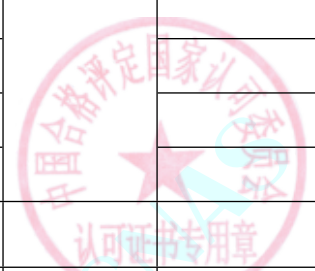
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Angle		高度 (0~500)mm	$U=1'$		
		Straightness		Φ :(0~400)mm	$U=0.2 \mu\text{m}$		
		Surface roughness		Ra(0.02~10) μm	$U_{\text{rel}}=5\%$		
		Beating		D:(0~400)mmH: (0~500)mm	$U=(0.02+0.05L) \mu\text{m(L:m)}$		
		cylindricity		D: (0~400)mmH: (0~500)mm	$U=(0.02+0.05L) \mu\text{m(L:m)}$		
		Coaxiality		D: (0~400)mmH:(0~500)mm	$U=(0.02+0.05L) \mu\text{m(L:m)}$		
		Flatness		D: (0~400)mmH: (0~500)mm	$U=(0.02+0.05L) \mu\text{m(L:m)}$		
		Roundness		D: (0~400)mmH: (0~500)mm	$U=(0.02+0.05L) \mu\text{m(L:m)}$		
40	Dividing head	Angle	Verification Regulation of Optical Digital Dividing Head JJG 57	$0^\circ \sim 360^\circ$	$U=1''$		
41	Optics-electricity angle coded senso	Angle	Calibration Specification for Photoelectric Shaft Encoders JJF 1115	$0^\circ \sim 360^\circ$	$U=0.25''$		
42	Universal bevel protractors	Angle	Verification Regulation of Universal Bevel Protractors JJG 33	$0^\circ \sim 360^\circ$	$U=1'$		
43	Autocollimator	Angle	Verification Regulation of Autocollimator JJG 202	$(0\sim 10)'$	$U=0.1''$		
44	Angle gauges	perpendicularity	Verification Regulation of Squares JJG 7	H:(63~1000)mm	$U=(1+H/500) \mu\text{m H:mm}$		
45	Coincidence level	Angle	Verification Regulation of Electronic Levels and Coincidence Levels JJG 103	$(0\sim 20)\text{mm/m}$	$U=0.005\text{mm/m}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
46	Frame levels and shaft levels	Angle	Calibration Specification for Frame Levels and Shaft Levels JJF 1084	(0~20)mm/m	$U_{rel}=6\%$		
47	Right-angle Edge	Straightness	Verification Regulation of Squares JJG 7	H:(50~200)mm	$U=1 \mu m$		
48	*Square Testers	perpendicularity	Calibration Specification for Square Testers JJF 1140	H:(63~1000)mm	$U=0.8 \mu m$		
49	*Optical Comparators for Angle Measurement	Angle	Calibration Specification for Optical Comparators for Angle Measurement JJF 1078	(0~60)'	$U=2''$		
50	*Calibrators for the Levels	Angle	Verification Regulation of Calibrators for the Level JJG 191	(0.001~1.5)mm/m	$U_{rel}=2\%$		
51	Square Gauge	Perpendicularity	Verification Regulation of Square Gauge JJG 1046	(100~500)mm	$U=0.3 \mu m$		
52	*Optical rotary table	Angle	Calibration Specification for Optical & Digital Dividing Table JJF 1114	(0~360)°	$U=1''$		
53	Milling Straight Edges	Flatness	Verification Regulation of Milling Straight Edges JJG 740	(200~500)mm	$U=0.05 \mu m$		
54	Straight Edge	Straightness	Verification Regulation of Straight Edge JJG 63	75mm	$U=0.4 \mu m$		
				(75~225)mm	$U=0.7 \mu m$		
				(225~500)mm	$U=1.3 \mu m$		
55	Taper gauges	Angle	Taper gauges JJG 177	(0~45)°	$U= 2''$		
		Straightness		L:(0~200)mm	$U=1 \mu m$		
56	Sine bars	Angle	Sine bars JJG 37	(0~30)°	$U= 2''$		



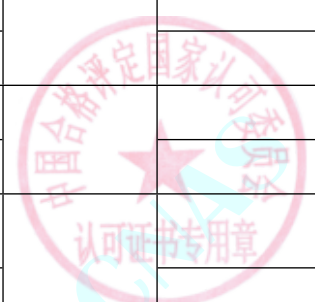
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		Flatness		(0~200)mm	U=1 μm		
57	Theodolites	Angle	Optical Theodolites JJG 414	Horizontal angle:(0~360)° Vertical angle:±31°	U=0.2"		
58	Level	Angle	Verification Regulation of Levels JJG 425	±25" (2m~∞)	U=2.0"		
59	Plumb Instruments	Angle	Calibration Specification for Plumb Instruments JJF 1081	±1'	U=1.2"		
60	Electronic Theodolite	Angle	Verification Regulation of Electronic Tachometer Total Station JJG 100	Horizontal angle:(0~360)° Vertical angle:±31°	U=0.2"		
61	Height Measuring Instrument with Digital Display	Length	Calibration Specification for Height Measuring Instrument with Digital Display JJF 1254	(0~1000)mm	U=(1+L/1000) μm(L:mm)		
62	*Theodolite Verification Device	Angle	Verification Regulation of Theodolite Verification Devices JJG 949	(0~360)°	U=0.1"		
63	Gear Helix Master	Length	Gear Helix Master JJG 408	rb (20~50) mm	U=2.0 μm		
				rb (50~100) mm	U=2.3 μm		
				rb (100~150) mm	U=2.5 μm		
				rb (150~300) mm	U=2.8 μm		
64	Screw Templates	Length	Screw Templates JJG 60	(0.4~6)mm	U=(3+L/100) μm(L:mm)		
	Instruments of Thread Inspection	Length	Calibration Specification for Instruments of Thread Inspection of	briquette (0.1~300) mm	U=(1+L/100) μm(L:mm)		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Casing, Tubing, Line Pipe and New Rotary Shouldered Connection		Casing, Tubing, Line Pipe and New Rotary Shouldered Connection JJF 1063	dial (0~50) mm	$U=0.5 \mu m$		
66	Bearing Inside and Outside Diameter Testers	Length	Bearing Inside and Outside Diameter Testers JJG 471	(0.1~100)mm	$U=0.7 \mu m$		
67	*The universer involute gear teste	Length	Calibration Specification for Gear involute Measuring instrument JJF 1124	rb(0.05~3)m	$U=2 \mu m$		
68	*Lead Tester of gear	Length	Calibration Specification for Gear Helix Measuring Instruments JJF 1122	rb(0.05~3)m	$U=2 \mu m$		
69	*Gear Pitch Measuring Instruments	Length	Calibration Specification for Gear Pitch Measuring Instruments JJF 1209	(0~100)mm	$U=1 \mu m$		
70	Micrometers with Prismatically Arranged Measuring Faces	Length	Verification Regulation of Micrometers with Prismatically Arranged Measuring Faces JJG 182	(1~100)mm	$U=(1+L/100) \mu m$ (L: mm)		
71	*Measuring Instrument for Axial Clearance of Ball Bearings	Length	Verification Regulation of Measuring Instrument for Axial Clearance of Ball Bearings JJG 626	(9~250)mm	$U=2 \mu m$		
72	Common Normal Micrometer	Length	Verification Regulation of Common Normal Micrometer JJG 82	(0~150)mm	$U=2 \mu m$		
73	Screw Thread Micrometers	Length	Verification Regulation of Screw Thread Micrometers JJG 25	(0~200)mm	$U=2 \mu m$		
74	*Concentricity Tester	Length	Calibration Specification for Concentricity Tester JJF 1109	L:1000mm	$U=2 \mu m$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
75	*Base Circle Pitch Comparator	Length	Calibration Specification for Base circle pitch comparator JJF 1123	gear modulus m(2~20)	U=1 μm		
76	*Gear Dual-flank Meshing Measuring Instrument	Length	Calibration Specification for Gear Dual-flank Meshing Measuring Instrument JJF 1233	(50~200) mm	U=3 μm		
77	*OCTG Thread Working Gauges	pitch diameter	C.S for OCTG Thread Working Gauges JJF 1108, Threading, Gauging, and Inspection of Casing, Tubing, and Line Pipe Threads API API Spec5B, Threading and Gauging of Rotary Shouldered Connections API Spec7-2	(0~500) mm	U= (3.3+L/400) μm (L:mm)		
		taper		(0~5) mm	U=1 μm		
		pitch		(0.5~10) mm	U= (3.3+L/400) μm (L:mm)		
		Standoff		(5~20) mm	U=8 μm		
		Angle		(0~45)°	U=3'		
78	Gear InvoluteMasters	Length	Verification Regulation of Gear Involute Masters JJG 332	rb (20~50) mm	U=2.0 μm		
				rb (50~100) mm	U=2.3 μm		
				rb (100~150) mm	U=2.5 μm		
				rb (150~300) mm	U=2.8 μm		
79	Test sieves	Length	Calibration Specification for Test Sieves JJF 1175	(0.02~5)mm	U=2 μm		
				(5~125)mm	U=0.03mm		
80	Spline Gauges	Length	Calibration Specification for Straight Cylindrical Involute Spline Gauges JJF 1557	gear modulus m (0.3~1.5)	U=2.1 μm		
				gear modulus m (1.5~3.0)	U=2.4 μm		

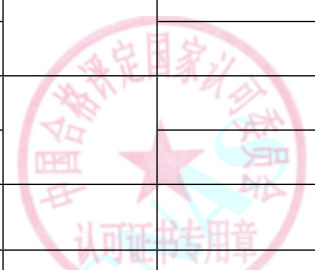


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				gear modulus m (3.0~5.0)	U=2.6 μm		
				gear modulus m (5.0~8.0)	U=2.8 μm		
81	*System of coordinate Teste	Length	Calibration Specification for Coordinate Measuring Machine JJF 1064	(0~6)m 6~20)m	U=(0.2+L/1000) μm (L:mm) U=(1+0.2L) μm (L:m)		
82	*Flatness Interferometer with Parallel Light Brightening	Plane degree	Calibration Specification for Flat Equal Thickness Interferometers JJF 1100	D: 150mm	U=0.01 μm		
83	Optical flat	Flatness	Optical flat JJG 28	Plane Optical flats:D(30~200)mm Plane Optical flats:H(15~91) mm Long Optical flats::210mm、310mm	U=0.007 μm U=0.014 μm U=0.007 μm		
84	Magnetic and Eddy Current Measuring Instrument for Coating Thickness	Length	Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG 818	(0.01~0.05)mm (0.05~10) mm (0.01~1.2)mm	U=0.1 μm U=(0.6%×H/2) μm(H: μm) U=0.2%H(H:mm)		
85	Ultrasonic Thickness Instruments	Length	Calibration Specification for Ultrasonic Thickness Instruments JJF 1126	(0.1~10) mm (10~200) mm	U=0.02mm U=(0.003+H/600)mm(H:mm)		
86	Fineness of Grind Gage	Length	Fineness of Grind Gage JJG 905	(0~150) μm	U=(0.5+L/500) μm(L: μm)		
87	Roundness Flick Calibration Standard	Length	Calibration Specification for Roundness Flick Calibration Standard JJF 1485	(0.2~50) μm	U _{rel} =2%		



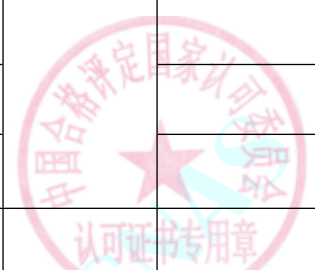
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88	*Extensometer	Length	Extensometer JJG 762	(0~0.3)mm	$U=0.5 \mu m$		
				(0.3~25)mm	$U_{rel}=0.15\%$		
89	Coulomb Thickness Measurement Instrument	Length	Calibration Specification for Electrolytic (Coulometric) Coating Instruments Thickness JJF 1707	(0.5~50) μm	$U_{rel}=3\%$		
90	Coordinate Measuring Spheres	Length	C.S. for Coordinate Measuring Spheres JJF 1422	Roundness: ϕ (5~100)mm	$U=0.02 \mu m+5 \times 10^{-8}D$		
				Diameter: ϕ (5~100)mm	$U=0.2 \mu m+5 \times 10^{-7}D$		
91	Single score Speumen	Length	C. S.for single score Speumen NIMTT(CM) 001	(0.1~0.5) μm	$U_{rel}=5\%$		
				(>0.5~1.5) μm	$U_{rel}=3\%$		
				(>1.5~50) μm	$U_{rel}=2\%$		
92	Standard Ring Gauge	Length	V.R.of Standard ring gauge JJG 894	$D:(1\sim 400)mm$	$U=0.35 \mu m+3 \times 10^{-6}D$		
93	Radius Gauge	Length	V.R.of Radius Gauge JJG 58	$R:(1\sim 25)mm$	$U=2 \mu m+10^{-4}L$		
94	*Length measuring machine	Length	C.S. for Length Measuring Machine JJF 1066	Decimeter scale:(0~6000)mm	$U=0.3 \mu m+4 \times 10^{-6}L$		
				Millimeter scale:(0~100)mm	$U=0.1 \mu m+4 \times 10^{-6}L$		
				Micron scale::(-100~+100) μm	$U=0.09 \mu m$		
95	Light-section Microscope	Roughness	C. S.for Light-Section Microscopes JJF 1092	(1.0~80) μm	$U_{rel}=5\%$		
96	Interferal microscope	Roughness	V.R.of Interference Microscopes JJG 77	(0.01~1.0) μm	$U_{rel}=5\%$		



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97	Contact (Stylus) Instruments of Surface Roughness Measurement by the Profile Method	Roughness	C.S.for Contact (Stylus) Instruments of Surface Roughness Measurement by the Profile Method JJF 1105	Ra:(0.025~25) μ m	$U_{rel}=4\%$		
98	*Measurement Standard instrument of roundness and cylindricity	Roundness	V.R.of Measurement Standard Instrument of Roundness and Cylindricity JJG 429	(50~500)mm	$U_{rel}=2\%$		
99	standard sphere and standard hemisphere	Roundness	V. R. for standard sphere and standard hemisphere GJB 8627	Standard Hemisphere: Φ (25~50)mm	$U=0.02 \mu m+5 \times 10^{-8}L$		
100	Torsional comparator	Length	V.R.of Microcator JJG 118	(-100~+100) μ m	$U=0.2 \mu m$		
101	*Spherometer	Length	V.R.of Spherometer JJG 401	(-15~+15)mm	$U=0.4 \mu m$		
102	*Pneumatic Measuring Instrument for Micrometers	Length	V.R.of Pneumatic Measuring Instrument for Micrometers JJG 356	(0~60) μ m	$U=0.4 \mu m$		
103	Wedge-feet Calibrator for Micrometers	Length	V.R.of Wedge-feet Calibrator for Micrometers JJG 525	(0~2)mm	$U=0.1 \mu m+1 \times 10^{-4}L$		
104	*Flatness interferometer with Isoclinic Circle Fring	Length	V.R.of Flatness Interferometer with Isoclinic Circle Fringe JJG 661	(0~500)mm	$U=0.009 \mu m$		
105	*Capacitance Comparators	Length	V.R.of Capacitance Comparators JJG 570	(0~2)mm	$U=(0.1+0.1L) \mu m(L:mm)$		
106	Dial Snap Gauges	Length	C.S.for Dial Snap Gauges JJF 1253	(5~100)mm	$U=(5~15) \mu m$		



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107	*Laser Diameter Measuring Gauges	Length	C.S.for Laser Diameter Measuring Gauges JJF 1250	(0.1~30)mm	$U=0.3 \mu m$		
108	Measuring Instrument for Laser Paralleism of Micrometers	Length	C.S. for Measuring Instrument for Laser Paralleism of Micrometers JJF 1252	(150~2000)mm	$U=0.7mm$		
109	Precision Bore Diameter Measuring Instrument	Length	V.R.of Precision Bore Diameter Measuring Instrument JJG 467	(1~50)mm	$U=0.2 \mu m$		
110	Inductive Micrometers	Length	C.S. for Inductive Micrometers JJF 1331	(-1000~+1000) μm	$U_{rel}=0.1\%$		
111	Reinforced Concrete Covermeter and Floorslab Thickness Tester	Length	C.S.for reinforced concrete covermeter and floorslab thickness tester JJF 1224	(10~200)mm	$U=0.7mm$		
				Reinforcing Bar Shield block:(6~200)mm	$U=0.1mm$		
				Slab thickness block:(50~200)mm	$U=0.1mm$		
112	Feeler Gauges	Length	V.R.of Feeler Gauges JJG 62	(0.02~3.00)mm	$U=2 \mu m$		
113	*Measuring System of Coordinate Position	Length	C.S. for Measuring System of Coordinate Position JJF 1251	(0~20)m	$U=0.1 \mu m+1 \times 10^{-7}L$		
114	*Contact type inter-ferometer	Length	V.R.of Contact-type interferometer JJG 101	(-10~+10) μm	$U=0.01 \mu m$		
115	*Optimerer	Length	V.R.of Optimerer JJG 45	(-100~+100) μm	$U=0.02 \mu m$		
116	*Horizontal metro-scope	Length	C.S. for Length Measuring Instrument JJF 1189	(0~500)mm	$U=0.2 \mu m+2 \times 10^{-6}L$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
117	Calibration Specification for Grating Micrometers	Length indication error	C.S. for Grating Micrometers JJF1682	(0~100)mm	$U=0.1 \mu m+2 \times 10^{-6}L$		
118	Calibrator of Extensometers	Length	C. S. for Calibrator of Extensometers JJF1096	(0~0.3)mm (>0.3~50)mm	$U=0.2 \mu m$ $U_{rel}=0.04\%$		
119	Callipers for Welding Inspection	Length	V. R. of Callipers for Welding Inspection JJG704	(0~60)mm	$U=0.02mm$		
120	*Surface Plates	Flatness	V. R. of Surface Plates JJG 117	(160×160~5000×3000)mm	$U=0.8 \mu m+1 \times 10^{-6}L$		
121	*Straight Edges	Straightness	C.S. for Straight Edges JJF 1097	(300~6300)mm	$U=0.4 \mu m+3 \times 10^{-7}L$		
122	Multiple score Specimen	Roughness	C.S. for multiple score Specimen NIMTT(CM) 002	(0.01~100) μm	$U_{rel}=5\%$		
123	Roughness Comparison Specimens	Roughness	C.S. for Roughness Comparison Specimens JJF 1099	$R_a:(0.012 \sim 25) \mu m$	$U_{rel}=6\%$		
124	Smooth limit gauge	Length	V.R. of Smooth limit gauge JJG 343	Outside Size:(0.9~500)mm Inside Size:(20~500)mm	$U=0.35 \mu m+3 \times 10^{-6}L$ $U=1.0 \mu m+3 \times 10^{-6}L$		
125	Cylindrical Measuring Pin	Length	C.S for Cylindrical Measuring Pin JJF 1207	Pin gauge:(0.1~25)mm Three stitches:(0.118~6.585)mm	$U=0.4 \mu m$ $U=0.4 \mu m$		
126	Cylindrical Thread Gauges	Length	C.S for Cylindrical Thread Gauges JJF 1345	Thread Ring Gauge:(1.2~500)mm Thread Plug Gauge:(1~500)mm	$U=2.8 \mu m+2 \times 10^{-6}L$ $U=2.8 \mu m+2 \times 10^{-6}L$		

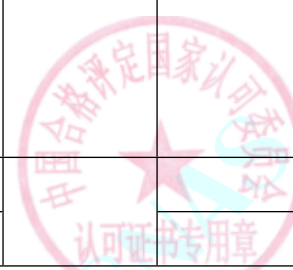


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Angle		Dental Angle:(29~60)°	U=3'		
127	Step gauges	Length	C. S. for Step Gauges JJF 1258	(10~1000)mm	U=0.4 μ m+1.2×10 ⁻⁶ L		
128	*Articulated Arm Coordinate Measuring Machine	length	C.S. for Articulated Arm Coordinate Measuring Machine JJF 1408	(30~5000)mm	U=23 μ m		
129	Standard Grid Plate	Length	V. R. of Standard glass grid plate JJG 832	(0~400)mm	U=1 μ m		
130	Master Gears	Length	V. R. of Master Gears JJG 1008	Diameter of dividing circled:(20~280)mm	U=2.2 μ m		
131	*Orifice Plate Comprehensive Measurement System	Length	C. S. for Orifice Plate Comprehensive Measurement System NIMTT(CM) 033	(12.5~300)mm	U _{rel} =2%		
132	*Optical 3D measuring systems - Optical systems based on area scanning	Geometric Quantity	C. S. for Optical 3D measuring systems Optical systems based on area scanning VDI/VDE 2634 Blatt 2	(16~1500)mm	U=5 μ m		
133	*Clearance Detector of Rolling Stock Gauge for Standard Gauge Railway	length	V. R. of Clearance Detector of Rolling Stock Gauge for Standard Gauge Railway JJG (tiedao) 180	(0~5)m	U=0.6mm		
134	Laser Interferometers	Angle	V. R. of Laser Interferometers JJG 739-2005 JJG 739	(0~360)°	U=0.3"		
		Length		Wavelength:633nm	U _{rel} =2.5×10 ⁻⁸		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
135	*self-calibration measuring instrument with automobile model cutting system	Length	C.S.for self-calibration measuring instrument with automobile model cutting system NIMTT(CM) 138	(0~40)m	$U=3 \mu m+1.6 \times 10^{-6}L$		
136	Moulds	Roughness	C.S. for Moulds JJF 1307	$Ra:(1.6 \sim 3.2) \mu m$	$U_{rel}=6\%$		
		Length		(100~600)mm	$U=0.30mm$		
137	Standard stick of Measuring spheres	Length	V.R.for Standard stick of Measuring spheres JJG (jun gong) 177-2019	(0~2000)mm	$U=3.0\mu m$		
138	*Equator	Length	C. S. for Equator NIMTT(CM) 147	(0~1000)mm	$U=1.2 \mu m+1.5 \times 10^{-6}L$		
139	*Scanning Probe Microscopes	Length	C.S. for Scanning Probe Microscopes JJF 1351	(0~200) μm	$U=5nm$		
140	3D Optial Area Sanning Measurement Instrments	Length	C.S. for 3D Optial Area Sanning Measurement Instrments JJF(jun gong) 116	(16~1500)mm	$U=5 \mu m$		
141	Pi Tapes	Length	C.S.for Pi Tapes JJF 1423	(0.009~16)m	$U=0.02mm+1 \times 10^{-5}D$		
142	Wedge-Shape Filler Gauges	Length	C.S.for Wedge-Shape Filler Gauges JJF 1548	(1~60)mm	$U=11 \mu m$		
143	Calibration Specification for Linear Displacement Sensors	length	C.S.for Linear Displacement Sensors JJF 1305	(0~3000)mm	$U=0.08\%FS$	Calibration only for linear displacement sensors with direct digital output length	



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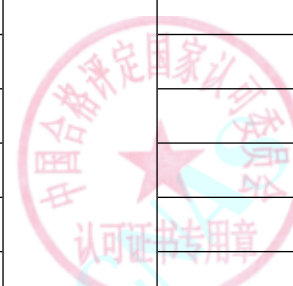
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
144	Calibration Specification for Calibration Devices of Four-wheel Aligner	Angle	C.S.for Calibration Devices of Four-wheel Aligner JJF 1489	(-30~+30)°	$U=28''$		
145	Crack width measuring instrument	length	C.S. for Concrete Width and Depth Measuring Instruments JJF 1334	0.01~10mm (20~500)mm	$U=3\mu\text{m}$ $U_{\text{rel}}=0.2\%$		
146	Image measuring instrument	length	C.S. for Imaging Probe Measuring Machines JJF 1318	(0~1000)mm	$U=1\mu\text{m}+1\times 10^{-3}L$		
147	Tread depth ruler	length	C.S.for Tire Tread Depth Gauges JJF 1477	(0~100)mm	$U=0.01\text{mm}$		
148	Borehole inclinometer	Angle	C.S.for Borehole Clinometers JJF 1550	(-30~+30)°	$U=0.008\%\text{FS}$		
149	Block comparator	length	C.S.for Gauge Block JJF 1304	(0~1)mm	$U=0.017\mu\text{m}$		
150	*White Light Interference Profiler	Length	C. S. for White Light Interference Profiler JJF(jungong) 201	(0~300)mm	$U=8\text{nm}$		
151	Step Profiler	Length	C.S. for Step Profiler JJF(jungong) 129	0.1 μm ~5mm	$U=3\text{nm}$		
152	Pipe Robot	length	C. S. for Pipe Robot Mobile Positioning NIMTT(CM) 144	(0~100)m	$U=0.59\text{mm}+9\times 10^{-2}L$	Calibration only for Mobile Positioning	
		angle		(0~90)°	$U=0.51^\circ$		
153	Ultrasonic test block	Length	C.S. for Blocks used in Ultrasonic Testing JJF 1487	(0~1000)mm	$U=0.020\text{mm}$		
		Roughness		Ra:(0.025~10) μm	$U_{\text{rel}}=6\%$		
154	Taper Thread Gauges	Length	C. S. for Taper Thread Gauges NIMTT(CM) 135	Thread Ring Gauge:(5~500) mm	$U=2.8\mu\text{m}+2\times 10^{-6}L$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Thread Plug Gauge:(1~500) mm	$U=2.8 \mu\text{m}+2 \times 10^{-6}L$		
		Angle		(0~45)°	$U=3'$		
155	Laser Marker	angle	C. S. for Laser Marker JJF (jin) 01	(-8.5~+8.5)°	$U=6.6''$		
		Length		(0~10)mm	$U=0.3\text{mm}$		
156	three-dimensional spherical center distance calibrator	Length	C.S. for three-dimensional spherical center distance calibrator NIMTT(CM) 137	Center distance:(0~1)m	$U=1.2 \mu\text{m}$		
				Diameter:(0~100)m	$U=0.5 \mu\text{m}$		
				Roundness:(0~100)m	$U=0.7 \mu\text{m}$		
157	*digital laser plane interferometer	Length	C. S. for digital laser plane interferometer GJB 8704	D:150mm	$U=0.06 \mu\text{m}$		
158	Total station	angle	V. R. of Electronic Tachometer Total Station JJG100, V. R. of Industrial Measurement Total Stations JJG1152	Horizontal :(0~360)°	$U=0.3''$	Length: Just calibrate Point-to-point Length error	
				Horizontal :(-60~+60)°	$U=0.3''$		
		Length		(0~14)m	$U=0.2\text{mm}$		
159	Global Positioning System(GPS)Receiver	Length	C. S. for Global Positioning System(GPS)Receiver JJF 1118	Geodesic type: (0~8.5)m	$U=0.8\text{mm}$ (Phase Center consistency of antenna)		
				Navigation type:(0~8.5)m	$U=0.8\text{mm}$		
160	Two-dimensional Optics Calibration Target	length	C.S. for Two-dimensional Optics Calibration Target NIMTT(CM) 140	(20~400)mm	$U=1.0 \mu\text{m}+2 \times 10^{-5}L$		
161	Calibration Specification for Paint Film Scriber	Length	C. S. for Paint Film Scriber JJF (ji) 137	Knife spacing:(1~3)mm	$U=2 \mu\text{m}$		
		Angle		(20~30)°	$U=0.1^\circ$		
162	Metallographic microscope	length	V.R. for metallographic microscope JJG (教委) 012	Objective Lens:(1~100)X	$U=1.2\%$		

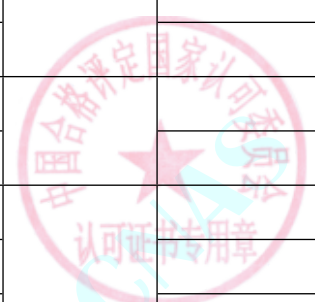


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
163	Biological microscope	length	C.S. for Biological Microscopes JJF 1402	Objective Lens:(1~100)X	U=1.2%		
二、热学测量仪器							
1	*Temperature and Humidity Standard Chambers	Temperature	Calibration Specification for Temperature and Humidity Standard Chambers JJF1564	uniformity:(5~50)°C	U=0.05°C		
		Humidity		fluctuation:(5~50)°C	U=0.02°C		
				uniformity:10%RH~90%RH	U=0.5%RH		
				fluctuation:10%RH~90%RH	U=0.1%RH		
2	Heat Water Meters	flow	Verification Regulation of Heat Meters JJG 225	(0.004~50)m³/h, DN(15~50)	U _{rel} =0.7%		
3	*Moving coil indicators and controllers for measuring temperature	Temperature	Verification regulation of moving coil indicators and step-indication Controllers associated for measuring temperature JJG 186	Pt100: (-200~850)°C	U=0.6°C		
				K: (0~1200)°C	U=1.2°C		
				S: (0~1600)°C	U=(1.6~1.4)°C		
				E: (0~1000)°C	U=0.8°C		
4	*recorders for industrial-process measurement	Temperature	Verification regulation of the recorders for industrial-process measurement JJG 74	RTD: (-200~850)°C	U=(0.10~0.15)°C		
				K、N、J:(-200~0)°C	U=(0.18~0.12)°C		
				K、N、J:(0~1200)°C	U=(0.12~0.19)°C		
				S:(0~1600)°C	U=(0.7~0.4)°C		
				B:(800~1800)°C	U=(0.5~0.4)°C		
				T: (-200~400) °C	U=(0.27~0.11) °C		
				E: (-200~1000) °C	U=(0.21~0.12) °C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
5	*Digital temperature indicators and/controllers	Temperature	Verification regulation of digital temperature indicators and controller JJG 617	RTD: (-200~850)°C	U=(0.10~0.15)°C		
				K、N、J:(-200~0)°C	U=(0.18~0.12)°C		
				K、N、J:(0~1200)°C	U=(0.12~0.19)°C		
				S:(0~1600)°C	U=(0.7~0.4)°C		
				B:(800~1800)°C	U=(0.5~0.4)°C		
				T:(-200~400)°C	U=(0.27~0.11)°C		
				E: (-200~1000) °C	U= (0.21~0.12) °C		
6	*Temperature transmitter	Temperature	Calibration specification of the temperature transmitter JJF 1183	RTD: (-200~850)°C	U=(0.08~0.20)°C		
				K: (-200~1200) °C	U=0.5°C		
				E: (-200~1000) °C	U=0.4°C		
				S: (0~1600) °C	U=(0.9~0.6)°C		
				Match RTD:(-60~300)°C	U=(0.1~0.2)°C		
				Match S:(300~1100)°C	U=1.3°C		
				Match K,N(-40~1200)°C	U=(0.5~1.5)°C		
7	Temperature itinerant detecting instrument	Temperature	Calibration specification for temperature itinerant detecting instrument JJF 1171	(-60~100)°C	U=0.08°C		
				(100~300)°C	U=0.11°C		
8	Standard platinum-30% rhodium/platinum-6%rhodium thermocouple	Temperature	Verification regulation of the standard platinum-30% rhodium/platinum-6% rhodium thermocouple JJG 167	1100°C	U=2.0°C		
				1200°C	U=1.9°C		
				1300°C	U=1.9°C		

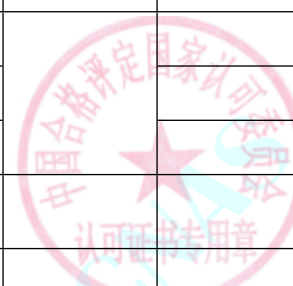


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1400℃	U=1.9℃		
				1500℃	U=1.9℃		
9	Standard platinum-10% rhodium/platinum thermocouple	Temperature	verification regulation of the standard platinum-10% rhodium/platinum thermocouple JJG 75	419.527℃ 660.323℃ 1084.62℃	U=0.24℃ U=0.26℃ U=0.29℃		
10	The working noble metal thermocouples	Temperature	Verification regulation of the working noble metal thermocouples JJG 141	S: 419.527℃ S: 660.323℃ S: 1084.62℃ B:1100℃ B:1300℃ B:1500℃	U=0.48℃ U=0.49℃ U=0.55℃ U=2.0℃ U=2.0℃ U=2.0℃		
11	Digital temperature and humidity meter	Humidity	Calibration Specification of the Temperature Transmitter JJF 1076	10%RH~95%RH	U=0.6%RH		
12	Standard Lamps of Distribution Temperature	Distribution Temperature	Standard lamps for Distribution(Colour) Temperature JJG 213	(2042~2353)K (2353~2856)K (2856~3200)K	U=(5.0~6.5)K U=(6.5~9.0)K U=(9.0~14)K		
13	*Thermal imagers	Temperature	Calibration Specification for Thermal Imagers JJF 1187	(-20~2000)℃	U=(0.3~4.6)℃		
14	Standard platinum resistance thermometer	Temperature	Verification regulation of standard platinum resistance thermometer JJG 160	(83.8058 ~273.16)K • (83.8058~273.16)K	U=3.4mK (83.8058K) U=1.6mK (234.3156K)		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(83.8058~273.16)K	U=1.0mK (273.16K)		
				(273.16 ~933.473)K	U=2.3mK (505.078K)		
				(273.16~933.473)K	U=3.5mK (692.677K)		
				(273.16~933.473)K	U=4.5mK (933.473K)		
15	Industry platinum copper resistance thermometers	Temperature	Verification Regulation of industry platinum and copper resistance thermometers JJG 229	(-80~+300) °C	U= (0.02~0.05) °C		
16	Standard clinical thermometer	Temperature	Verification regulation of standard clinical thermometer JJG 881	(35~45)°C	U=0.018°C		
17	Temperature Indication Controller	Temperature	Temperature Indication Controller JJG 874	(-60~300)°C	U=(0.4~0.8)°C		
18	*On-line Temperature Measuring System	Temperature	Calibration Specification for On-line Temperature Measuring System JJF (Chuan) 143	(-30~300)°C	U=0.1 °C		
				(300~650)°C	U=1.0°C		
19	Temperature Calibration Devices for Polymerase Chain Reaction Analyzers	Temperature	Calibration Specification of Temperature Calibration Devices for Polymerase Chain Reaction Analyzer JJF 1821	(0~110)°C	U=0.04°C		
20	Clinical Electronic Thermometers	Temperature	Verification Regulation of Clinical Electronic Thermometers JJG 1162	(35.0~41.3) °C	U=0.03°C		



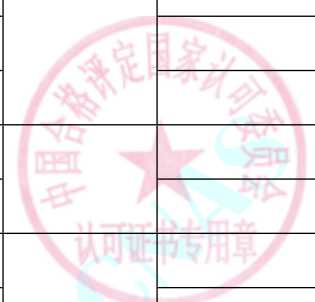
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
21	*Blood culture system	Temperature	Calibration Specification for Blood Culture system NIMTT(CM) 027	(20~50)°C	U=0.2°C		
22	*hot aging test chambers	Temperature	Calibration Specification of Hot Aging Test Chambers JJF (Chuan) 162	(30~100)°C	U=0.3°C		
				(100~300)°C	U=0.5°C		
		air change rate		(300~500)°C	U=1.3°C		
				(5~200) times/h	U _{rel} =5%		
23	*Temperature Controller for Transformers	Temperature	Calibration Specification of Temperature Controller for Transformers JJF (Chuan) 151	(-20~160)°C	U=0.4°C		
24	*Passive Medical Cold Boxes	Temperature	Calibration Specification for Temperature Parameter of Passive Medical Cold Boxes JJF 1676	(-20~20)°C	U=0.16°C		
25	*Environmental testing equipment	Temperature	Calibration Specification for Environmental Testing Equipment for Temperature and Humidity Parameters JJF 1101	(-80~0)°C	U=0.2°C		
				(0~100)°C	U=0.1°C		
				(100~300)°C	U=0.3°C		
		Humidity		20%RH~95%RH	U=1.5%RH		
26	Electric Ventilation Psychrometer	Temperature	Meteorological Ventilation Psychrometer JJG 993	(5~50)°C	U=0.07°C		
		Humidity		10%RH~90%RH	U=0.8%RH		
27	Meteorological Ventilation Psychrometer	air speed	Electric Ventilation Psychrometer JJG 204	(2~5)m/s	U=0.6m/s		
		Time		(4~8)min	U=0.2s		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
28	Mechanical Thermo - hygrometers	Humidity	Mechanical Thermo - hygrometers JJG 205	30%RH~95%RH	U=1%RH		
		Temperature		(5~50)°C	U=0.07°C		
29	Precision Dew-point Hygrometers	Temperature	Precision Dew-point Hygrometers JJG 499	Dew-point: (-80~+20) °C	U=(0.2~0.4)°C		
30	Resistance and Capacitance Dew Point Hygrometer	Temperature	Calibration Specification for Resistance and Capacitance Dew Point Hygrometer JJF 1272	Dew-point: (-80~+20) °C	U=(0.2~0.4)°C		
31	Electrolytic hygrometers	Moisture	Electrolytic Hygrometers JJG 500	(0.1~1000) μ L/L	U _{rel} =4.4%~0.5%		
32	Secondary Standard Divided Flow Humidity Generator	Humidity	Secondary Standard Divided Flow Humidity Generator JJG 826	10%RH~95%RH	U=0.8%RH		
33	Temperature and Humidity Generator	Humidity	Temperature and humidity generator NIMTT(CM) 121	10%RH~95%RH	U=0.8%RH		
		temperature		(5~50) °C	U=0.1 °C		
34	Index detector	Temperature	WBGT index thermometer calibration specification JJF 1407	(5~50)°C	U=0.07°C		
35	*Blackbody radiators at the 500K~1000K	Temperature	Verification Regulation of Blackbody Radiators at the 500K~1000K JJG 309	(500~1000)K	U=(0.4~1.3)K		
		Emissivity		0.5~1.0	U _{rel} =0.6%		
36	*Blackbody radiators in -50 °C~+90 °C	Temperature	Calibration Specification of Blackbody Radiators in -50 °C~+90 °C JJF 1080	(-50~+90) °C	U=(0.15~0.20) °C		
		Emissivity		0.5~1.0	U _{rel} =0.6%		
37	*Blackbody radiators	Temperature	Calibration specification of Blackbody Radiators NIMTT(CM) 112	(-50~3000) °C	U=(0.15~5.9) °C		



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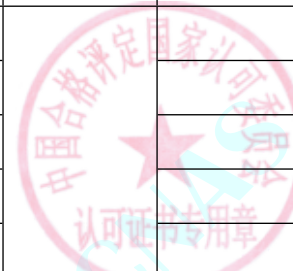
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Emissivity		0.5~1.0 (Range: -50℃~1600℃)	$U_{rel}=0.6\%$		
38	*Blackbody radiation sources of radiation thermometry from -10℃ to 200℃r	Temperature	Calibration Specification for Blackbody Radiation Sources of Radiation Thermometry from -10℃ to 200℃ JJF 1552	(-10~200)℃	$U=(0.15\sim0.4)$ ℃		
39	*Blackbody radiators for radiation thermometry calibration from 200℃~1000℃	Temperature	Calibration Specification of Blackbody Radiators for Radiation Thermometry Calibration from 200℃~1000℃ JJF(Jun Gong) 37	(200~1000)℃	$U=(0.4\sim1.5)$ ℃		
40	*Radiation temperature of 800℃~3000℃ blackbody radiators	Temperature	Calibration Specification for Radiation Temperature of 800℃~3000℃ Blackbody Radiators JJF (Jun Gong) 16	(800~3000)℃	$U=(1.2\sim5.9)$ ℃		
41	*Radiation thermometers	Temperature	Verification Regulation of Radiation Thermometers JJG 856	(-50~3000)℃	$U=(0.3\sim8.1)$ ℃		
42	Standard photoelectric pyrometers	Temperature	Verification Regulation of Standard Photoelectric Pyrometers JJG 1032	(800~3200)℃	$U=(0.9\sim5.9)$ ℃		
43	Standard tungsten ribbon lamps	Temperature	Verification Regulation of Standard Tungsten Ribbon Lamps JJG 110	(800~2000)℃	$U=(1.5\sim2.8)$ ℃		
44	Base metal thermocouples	Temperature	Calibration Specification for Base Metal Thermocouples JJF 1637	K、N:(-40~1200)℃	$U=(0.26\sim1.2)$ ℃		
				E:(-40~900)℃	$U=(0.26\sim0.80)$ ℃		



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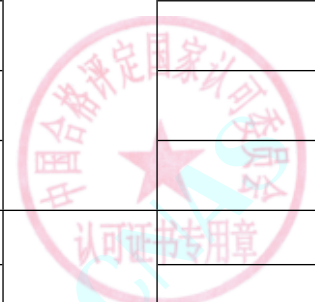
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				J: (-40~750)°C	U=(0.26~0.70)°C		
45	Standard Mercury-in-Glass thermometers	Temperature	Verification regulation of standard mercury-in-glass thermometers JJG 161	(-60~300)°C	U=(0.03~0.05)°C		
46	Beckman thermometers	Temperature	Verification regulation of beckman thermometers JJG 114	(-20~125)°C	U=0.008°C		
47	Liquid-in-Glass thermometers for working	Temperature	Verification regulation of liquid-in-glass thermometer for working JJG 130	High precision: (0~150)°C	U=(0.012~0.024)°C		
				Working: (-60~300)°C	U=(0.05~0.09)°C		
48	*Bimetallic thermometers	Temperature	Verification regulation of bimetallic thermometers JJG 226	(-60~300)°C	U=0.3°C		
49	Filled system thermometers	Temperature	Verification regulation of filled system thermometers JJG 310	(-60~300)°C	U=0.4°C		
50	*Thermocouple calibration furnaces	Temperature	Testing Specification of temperature uniformity in thermocouple calibration furnaces JJF 1184	(300~1500)°C	U=0.3°C		
51	Temperature data collector	Temperature	Calibration specification for temperature data collector NIMTT(CM) 018	RTD: (-200~850)°C	U=(0.01~0.03)°C		
				K,N,J: (-200~1200)°C	U=(0.12~0.19)°C		
				S: (0~1600)°C	U=(0.7~0.4)°C		
				E: (-200~1000)°C	U=(0.21~0.11)°C		
				B: (800~1800)°C	U=(0.5~0.4)°C		
52	The standard copper/copper-	Temperature	Verification regulation of the standard copper/copper-	-196°C	U=0.15°C		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	nickelthermocouple		nickel thermocouple JJG 115	(-60~100)°C	U=(0.14~0.12)°C		
53	*Thermostatic bath	Temperature	Measurement and Test Norm of Thermostatic Bath's Metrological Characteristics JJF 1030	Uniformity:(-100~40)°C	U=(0.006~0.004)°C		
				Uniformity:(40~300)°C	U=(0.002~0.005)°C		
				Volatility:(-100~300)°C	U=0.003°C		
				Industry platinum resistance:0°C	U=0.05°C		
				Industry platinum resistance:100°C	U=0.07°C		
				Base metal thermocouples:(300~1200)°C	U=(0.9~1.1)°C		
54	*Auto-measuring system of thermocouples and resistance thermometers	Temperature	Calibration Specification for Auto-measuring System of Thermocouples and Resistance Thermometers JJF 1098	Working noble metal thermocouples419.527°C	U=0.70°C		
				Working noble metal thermocouples660.323°C	U=0.72°C		
				Working noble metal thermocouples1084.62°C	U=0.80°C		
				Standard thermocouples419.527°C	U=0.50°C		
				Standard thermocouples660.323°C	U=0.60°C		
				Standard thermocouples1084.62°C	U=0.60°C		
55	*Temperature block calibrators	Temperature	Calibration guideline of the temperature block calibrators JJF 1257	(-80~660)°C	U=(0.03~0.36)°C		
				(660~1300)°C	U=(0.5~1.2)°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
56	*Fixed-Point Devices for Standard Platinum Resistance Thermometer	Temperature	Calibration specification of fixed-point devices for standard platinum resistance thermometer JJF 1178	83.8058K	U=2.0mK		
				234.3156K	U=1.2mK		
				273.16K	U=0.35mK		
				302.9146K	U=1.2mK		
				505.078K	U=1.7mK		
				692.677K	U=2.0mK		
				933.473K	U=4.5mK		
57	*The Triple Point of Water Cell (Cell comparison)	Temperature	Calibration Specification of The Triple Point of Water Cell (Cell comparison) NIMTT(CM) 017	273.16K	U=0.30mK		
58	*Box-type Resistance Furnace	Temperature	Calibration Specification for Box-type Resistance Furnace JJF 1376	(300~1100)°C	U=(1.2~1.5)°C		
59	Temperature Data Acquisition Instruments	Temperature	Calibration Specification of Temperature Data Acquisition Instruments JJF 1366	(-80~300) °C	U=0.08°C		
60	*Thermometers of Clinic Autoclave	Temperature	Calibration Specification for Thermometers of Clinic Autoclave JJF 1308	(25~140)°C	U=0.4°C		
		Pressure		(101~400)kPa	U=2.8kPa		
61	Digital Thermometer	Temperature	Calibration Specification for Digital Thermometer JJF (Chuan) 139	(-196~660.323)°C	U=(0.010~0.018)°C		
				(660.323~1200) °C	U=1.2°C		
62	Sheathed Thermocouples	Temperature	Calibration specification for sheathed thermocouples JJF 1262	K、N:(-40~1100)°C	U=(0.26~1.2)°C		

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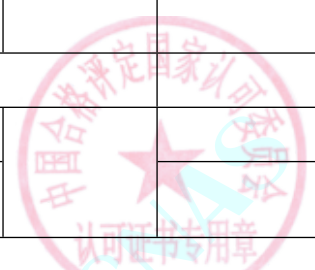
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				E: (-40~900)°C	U=(0.26~0.80)°C		
				J: (-40~750)°C	U=(0.26~0.70)°C		
63	Device of verification and measurement of temperature meter	Temperature	Calibration specification of temperature indicators and simulators by electrical simulation and measurement JJF 1309	RTD: (-200~850)°C	U=(0.01~0.03)°C		
				K、N、J: (-200~1200)°C	U=(0.08~0.05)°C		
				S: (0~1600)°C	U=(0.09~0.06)°C		
				E: (-200~1000)°C	U=(0.08~0.05)°C		
				T: (-200~400)°C	U=0.05°C		
				B: (800~1800)°C	U=(0.08~0.06)°C		
64	*UV pretreatment test chamber of photovoltaic module	Distribution of UV spectrum radiation	Calibration Specification for UV Preconditioning Test of Photovoltaic Module NIMTT(CM) 143	(250~400) nm	U _{rel} =12%		
		Nonuniformity of UV irradiance		(0.1~40) mW/cm ²	U _{rel} =8%		
		UV irradiance		(0.1~40)mW/cm ²	U _{rel} =15%		
三、力学测量仪器							
1	Speed and mileage meter for motor vehicles	mileage	Verification Regulation of Speed and mileage meter for non-disintegrated cars JJG 750	(1~999)km	U _{rel} =1.0%		
		speed		(1~120) km/h	U _{rel} =3.2%		

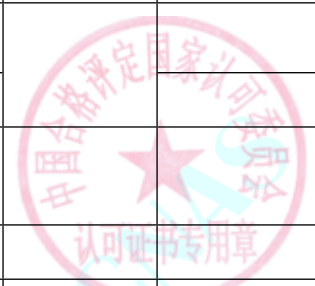


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	Test Equipment for Vehicle Speed Radar Measurement Meters	Frequency	Verification Regulation of Test Equipment for Vehicle Speed Radar Measurement Meters JJG 771	(1~40000) Hz	$U=0.56\text{Hz}$		
3	Verification Regulation of Standard Equipment for Taximeter	rotational speed	Verification Regulation of Standard Equipment for Taximeter JJG 738	(50~10000)r/min	$U_{\text{rel}}=0.12\%$		
		rotational number		(1~999999)r	$U_{\text{rel}}=0.03\%$		
		rotational number		(1~999999)r	$U_{\text{rel}}=0.03\%$		
		speed		40km/h	$U_{\text{rel}}=0.4\%$		
		noise		(1~500)mm	$U_{\text{rel}}=0.1\%$		
4	Vehicles radar measuring speedometers	Simulation speed	Mobile Radar Vehicle Speed Measurement Device JJG 528, Fixed Radar Vehicle Speed Measurement Device JJG 527	(0~180) km/h	$U=0.7\text{km/h}$		
		Field speed		(10~180) km/h	$U=(1.0\sim 2.3)\text{km/h}$		
		Microwave emission frequency		(0~40)GHz	$U=2.0\text{MHz}$		
5	Speed and mileage meter for motor vehicles	speed	Speed and mileage meter for motor vehicles JJG 559	(20~240)km/h	$U=(1.0\sim 1.5)\text{km/h}$		
		mileage		(3~1000)km	$U=0.01\text{km}$		
6	Standard Equipment for Revolution Speed		Standard Equipment for Revolution Speed JJG 326	(30~40000)r/min	$U_{\text{rel}}=0.01\%$		
7	Tachometer		Tachometer JJG 105	(20~33000)r/min	$U_{\text{rel}}=0.02\%$		
8	*Mixer	Revs	Verification Regulation of Mixer for cement paste	(0~300)r/min	$U=1.7\text{r/min}$		



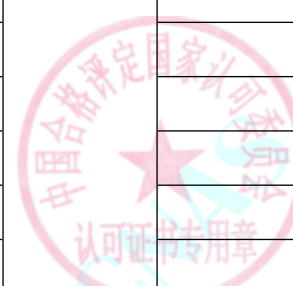
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time	JJG(Building materials) 104	(0~6000)s	U=0.33s		
		Interval		(0~300)mm	U=0.33mm		
9	*Weights	The conventional value of mass	Weights JJG 99	E ₁ :1mg~500mg	U=0.0004mg~0.0006mg		
				E ₁ :1g~500g	U=0.0008mg~0.02mg		
				E ₁ :1kg~20kg	U=0.04mg~1.1mg		
				E ₂ :(1~500)mg	U=0.0006mg~0.0008mg		
				E ₂ :1g~500g	U=0.0012mg~0.024mg		
				E ₂ :1kg~20kg	U=0.04mg~1.5mg		
				F ₁ :1mg~500mg	U=0.001mg~0.0012mg		
				F ₁ :1g~500g	U=0.0016mg~0.026mg		
				F ₁ :1kg~20kg	U=0.04mg~1.7mg		
				F ₂ :1mg~500mg	U=0.001mg~0.0012mg		
				F ₂ :1g~500g	U=0.0084mg~0.026mg		
				F ₂ :1kg~500kg	U=0.04mg~1.2g		
				M ₁ :1mg~500mg	U=0.0084mg		
				M ₁ :1g~500g	U=0.0084mg~0.44mg		
				M ₁ :1kg~20kg	U=0.44mg~1.9mg		
				M ₂ :100m~500mg	U=0.05mg~0.06mg		
				M ₂ :1g~500g	U=0.08mg~1.0mg		

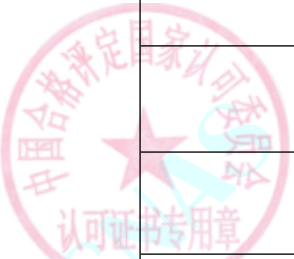


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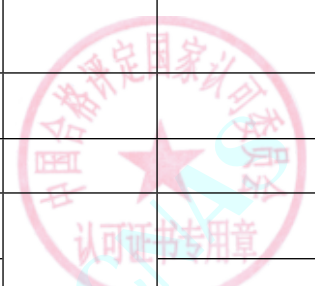
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				M ₂ :1kg~20kg	U=2.6mg~50mg		
				M ₃ :1g~500g	U=0.46mg~2.6mg		
				M ₃ :1kg~20kg	U=5.0mg~0.1g		
10	*Mechanical Balance	Quality	Mechanical Balance JJG 98	Max:(0~20)g d=0.01mg			
				Max:(0~200)g d=0.1mg			
				Max:(0~20)kg d>0.1mg			
11	*Electronic Balance	Quality	Electronic Balance JJG 1036	Max:(0~500) g e=0.001mg~0.1mg,(0~5 × 10 ⁴)e	U=4.4 μ g~0.15mg		
				Max:(0~500) g e=0.001mg~0.1mg,(5 × 10 ⁴ ~2 × 10 ⁵)e	U=11 μ g~0.18mg		
				Max:(0~500) g e=0.001mg~0.1mg,(>2 × 10 ⁵)e	U=7.4 μ g~0.19mg		
				Max:500g~5kg e=1mg~10mg,(0~5 × 10 ⁴)e	U=0.44mg~0.62mg		
				Max:500g~5kg e=1mg~10mg (5 × 10 ⁴ ~2 × 10 ⁵)e	U=0.57mg~16mg		
				Max:500g~5 kg e=1mg~10mg (>2 × 10 ⁵)e	U=1.5mg~18mg		
				Max:(5~20) kg e=20mg~50mg (0~5 × 10 ⁴)e	U=1.4mg~2.0mg		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Max:(5~20) kg e=20mg~50mg (>2×10 ⁵)e	U=2.5mg~32mg		
				Max:(20~100) kg (e=0.1g~0.2g) (0~5×10 ⁴)e	U=(0.0047~0.046)g		
				Max:(20~100) kg (e=0.1g~0.2g) (5×10 ⁴ ~2×10 ⁵)e	U=(0.0061~0.18)g		
				Max:(20~100) kg (e=0.1g~0.2g) (>2×10 ⁵)e	U=(0.015~0.18)g		
				Max:(100~3000) kg (e=1g~10g) (0~5×10 ⁴)e	U=(0.20~1.8)g		
				Max:(100~3000) kg (e=1g~10g) (5×10 ⁴ ~2×10 ⁵)e	U=(0.21~2.2)g		
				Max:(100~3000) kg (e=1g~10g) (>2×10 ⁵)e	U=(0.32~2.4)g		
12	*Calibration Specification for Mass Comparators	Quality	Calibration Specification for Mass Comparators JJF1326	Max:(0~3000) kg e=0.1 μg~50g	U=0.002mg~11g		
13	*Relative Density Balance for Liquid	Quality	Relative Density Balance for Liquid JJG 171	0.001~2.0000	U _{rel} =0.043%		
14	*Table Balances	Quality	Table Balances JJG 156	(0~20)kg	U=(0.1~10)g		
15	*Non-self-indicating Weighing Instruments	Quality	Non-self-indicating Weighing Instruments JJG 14	Max:(0~100) kg (e=5g~50g) (0~500)e	U=0.69g~7.0g		
				Max:(0~100) kg (e=5g~50g) (500~2000)e	U=0.77g~9.0g		



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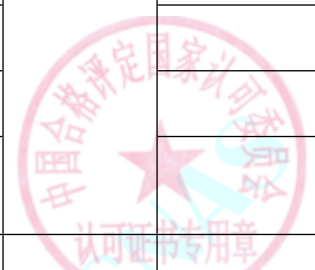
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Max:(0~100) kg (e=5g~50g) (2000~10000)e	U=0.8g~8.0g		
				Max:(100~1000) kg (e=50g~500g) (0~500)e	U=7.0g~70g		
				Max:(100~1000) kg (e=50g~500g) (500~2000)e	U=9.0g~89g		
				Max:(100~1000) kg (e=50g~500g) (2000~10000)e	U=9.0g~92g		
				Max:(1~30) t (e=1kg~10kg) (0~500)e	U=90g~0.21kg		
				Max:(1~30) t (e=1kg~10kg) (500~2000)e	U=92g~0.34kg		
				Max:(1~30) t (e=1kg~10kg) (2000~10000)e	U=95g~0.41kg		
				16	*Digital Indicating Weighing Instruments		
Max:(0~30) kg e=1g~10g (500~2000)e	U=(0.06~1.2)g						
Max:(0~30) kg e=1g~10g (2000~10000)e	U=(0.15~2.0)g						
Max:(30~1000) kg e=20g~500g (0~500)e	U=1.4g~31g						
Max:(30~1000) kg e=20g~500g (500~2000)e	U=1.4g~54g						
Max:(30~1000) kg e=20g~500g (2000~10000)e	U=(1.8~57)g						



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Max:(1~30) t e=1kg~10kg (0~500)e	U=(0.07~1.2)kg		
				Max:(1~30)t e=1kg~10kg (500~2000)e	U=(0.07~1.4)kg		
				Max:(1~30) t e=1kg~10kg (2000~10000)e	U=(0.10~2.0)kg		
				Max:(30~150) t e=10kg~50kg (0~500)e	U=(1.0~4.2)kg		
				Max:(30~150) t e=10kg~50kg (500~2000)e	U=(1.2~5.3)kg		
				Max:(30~150) t e=10kg~50kg (2000~10000)e	U=(2.1~6.4)kg		
17	*Analogue Indicating Weighing Instruments	Quality	Analogue Indicating Weighing Instruments JJG 13	Max:(0~10) kg e=10g~50g (0~50)e	U=(1.0~5.7)g		
				Max:(0~10) kg e=10g~50g (50~200)e	U=(1.3~6.3)g		
				Max:(0~10) kg e=10g~50g (200~1000)e	U=(1.4~6.4)g		
				Max:(10~120) kg e=100g~500g (0~50)e	U=(10~53)g		
				Max:(10~120) kg e=100g~500g (50~200)e	U=(14~61)g		
				Max:(10~120) kg e=100g~500g (200~1000)e	U=(16~65)g		
18	*Automatic Gravimetric Filling Instruments	Quality	Automatic Gravimetric Filling Instruments JJG 564	10g~100t	U _{rel} =0.09%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
19	*Continuous Totalizing Automatic Weighing Instruments (Belt Weigher)	Quality	Continuous Totalizing Automatic Weighing Instruments (Belt Weigher) JJG 195	(0.2~1000)t/h	$U_{rel}=0.09\%$		
20	*Discontinuous Totalizing Automatic Weighing Instruments	Quality	Discontinuous Totalizing Automatic Weighing Instruments JJG 648	0.1t~1t	$U_{rel}=0.08\%$		
				>1t~10t	$U_{rel}=0.05\%$		
				>10t~200t	$U_{rel}=0.07\%$		
21	*Automatic Instruments for Weighing Road Vehicles in Motion	Quality	Automatic Instruments for Weighing Road Vehicles in Motion JJG 907	(1~150)t	$U_{rel}=0.36\%$		
22	Digital Weighing Indicators (Weighing Indicators)	Quality	Digital Weighing Indicators (Weighing Indicators) JJG 649	n:100~10000	$U_{rel}=0.001\%~0.14\%$		
23	*Taking Blood Electronic Scale	Quality	Taking Blood Electronic Scale JJG 815	Max:(0~600) g d=1g (0~50)d	$U=0.12g$		
				Max:(0~600) g d=1g (50~200)d	$U=0.14g$		
				Max:(0~600) g d=1g (>200)d	$U=0.26g$		
				Max:(0~1000) g d=2g (0~50)d	$U=0.24g$		
				Max:(0~1000) g d=2g (50~200)d	$U=0.26g$		
				Max:(0~1000) g d=2g (>200)d	$U=0.48g$		



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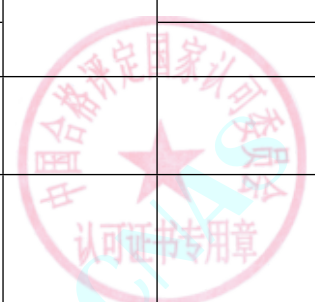
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Dynamic:200g	$U_{rel}=0.1\%$		
				Dynamic:400g	$U_{rel}=0.1\%$		
24	*Steelyard Scales	Quality	Steelyard Scale JJG 17	Max:(0~500) g e=(1~2)g	$U=(0.14\sim 0.28)g$		
25	Load Cell	mass	Load Cell JJG 669	(10g~1kg)	$U_{rel}=0.01\%$		
				(1kg~1t)	$U_{rel}=0.01\%$		
				(1t~100t)	$U_{rel}=0.03\%$		
				(100~200)t	$U_{rel}=0.05\%$		
26	Working Glass Hydrometers	Density	Verification Regulation of Working Glass Hydrometers JJG 42	(650~2000)kg/m ³	$U=(0.08\sim 0.20)kg/m^3$		
		alcohol		q:(0~100)%	$U=0.04\%$		
		latex		(1010~1040)kg/m ³	$U=0.10kg/m^3$		
		Baume		(0~70)Bh	$U=0.04BH$		
		sugar		P:(0~80)%	$U=0.03\%$		
27	Standard Glass Hydrometers	Density	Verification Regulation of Standard Glass Hydrometers JJG 86	(650~1500) kg/m ³	$U=0.08 kg/m^3$		
		alcohol		q:(0~100)%	$U=0.04\%$		
28	Digital Liquid Density Meter-Weighed Method	Density	Verification Regulation of Digital Liquid Density Meter-Weighed Method JJG 999	(650~2000)kg/m ³	$U=(0.08\sim 0.20)kg/m^3$		
29	Laboratory Oscillation-type Liquid Density meters	Density	Verification Regulation of Laboratory Oscillation-type Liquid Density meters JJG 1058	(650~2000)kg/m ³	$U=(0.08\sim 0.20)kg/m^3$		
30	Working Glass Container	Capacity	Working Glass Container JJG 196	(0.001~0.1)ml	$U=0.00006ml$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(>0.1~25)ml	U=0.002ml		
				(>25~100)ml	U=0.005 ml		
				(>100~500)ml	U=0.03 ml		
				(>500~2000)ml	U=0.09ml		
				(>2000~20000)ml	U=0.16 ml		
31	Standard Capacity MeasUres(glass)	Capacity	Standard Capacity MeasUres(glass) JJG 20	(0.001~0.1)ml	U=0.00006ml		
				(>0.1~25)ml	U=0.002 ml		
				(>25~100)ml	U=0.005 ml		
				(>100~500)ml	U=0.03 ml		
				(>500~2000)ml	U=0.09ml		
				(>2000~20000)ml	U=0.16 ml		
32	Syringes for Medical Use	Capacity	Syringes for Medical Use JJG 18	(0.25~25)ml	U=0.002ml		
				(>25~100)ml	U=0.005 ml		
33	Color Tubes	Capacity	Color Tubes JJG 10	(0.001~0.1)ml	U=0.00006ml		
				(>0.1~25)ml	U=0.002 ml		
				(>25~100)ml	U=0.005 ml		
				(>100~500)ml	U=0.03 ml		
				(>500~2000)ml	U=0.09ml		
				(>2000~20000)ml	U=0.16 ml		



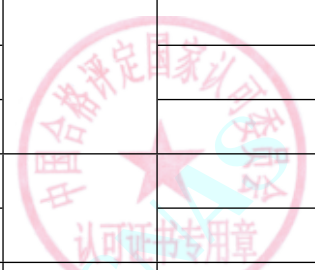
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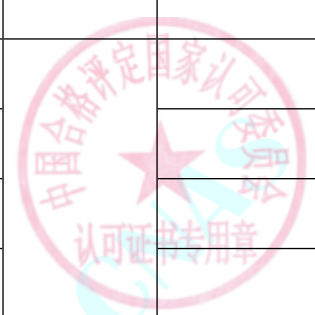
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
34	Locomotive pipette	Capacity	Locomotive pipette JJG 646	(0.1~20) μL	U=0.006 μL		
				(>20~10000) μL	U=0.12 μL		
				(>10~100)ml	U=0.005 ml		
				(>100~250)ml	U=0.03 ml		
35	Special capacity	Capacity	Special capacity self-calibration specification NIMTT(CM) 111	(0.0001~0.1)ml	U=0.00006ml		
				(>0.1~25)ml	U=0.002 ml		
				(>25~100)ml	U=0.005 ml		
				(>100~500)ml	U=0.03 ml		
				(>500~2000)ml	U=0.09ml		
			(>2000~20000)ml	U=0.16 ml			
36	*Standard Metal Tank	capacity	Verification Regulation of Standard Metal Tank JJG 259	(10~2500)L	U _{rel} =0.86×10 ⁻⁴		
37	*Tank Cars Capacity	capacity	Verification Regulation of Tank Cars Capacity JJG 133	(3~40)m ³	U _{rel} =0.21%		
38	*Vertical Metal Tank	Capacity (Volume)	Verification Regulation of Vertical Metal Tank Capacity JJG 168	(20~100) m ³	U _{rel} =(2.8×10 ⁻³ ~1.3×10 ⁻³)		
				(>100~700) m ³	U _{rel} =(1.3×10 ⁻³ ~9.8×10 ⁻⁴)		
				(>700 ~200000) m ³	U _{rel} =(9.8×10 ⁻⁴ ~4.2×10 ⁻⁴)		
39	Diaphragm Gas Meters	flow	Verification Regulation of Diaphragm Gas Meters JJG 577	(0.016~40)m ³ /h	U _{rel} =0.56%~0.47%		
				(40~160)m ³ /h	U _{rel} =0.47%~0.50%		
40	*Cold Potable Water Meters	flow	Verification Regulation of Cold Potable Water Meters JJG 162	DN15~DN50,(0.004~50)m ³ /h water flow standard device	U _{rel} =0.58%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				DN15~DN300, (1~780)m ³ /h standard meter method	$U_{rel}=0.60\% \sim 0.47\%$		
				DN50~DN1600, (2~50000)m ³ /h ultrasonic flowmeter	$U_{rel}=1.2\%$		
41	*Float Meter	flow	Verification Regulation of Float Meter JJG 257	DN2~DN100, (0.0001~0.3)L/min(Gas)	$U_{rel}=0.92\% \sim 0.60\%$		
				DN2~DN100, (0.3~6)L/min(Gas)	$U_{rel}=0.60\% \sim 0.98\%$		
				DN2~DN100, (0.2~40)m ³ /h(Gas)	$U_{rel}=0.68\% \sim 0.54\%$		
				DN2~DN100, (40~240)m ³ /h(Gas)	$U_{rel}=0.54\% \sim 0.55\%$		
				DN2~DN100, (250~2000)kg/h(Gas)	$U_{rel}=1.5\%$		
				DN2~DN100, (0.004~50)m ³ /h(liquid)	$U_{rel}=0.3\%$		
42	*Standard Bell Porvers of Gas Flow	volume	Verification Regulation of Standard Bell Porvers of Gas Flow JJG 165	(10~10000)L	$U_{rel}=0.12\%$		
43	Thermal Mass Gas Flowmeters	flow	Verification Regulation of Thermal Mass Gas Flowmeters JJG 1132	DN2~DN100, (0.01~10)m ³ /h	$U_{rel}=0.48\%$		
				DN2~DN100, (0.0001~0.3)L/min	$U_{rel}=0.92\% \sim 0.60\%$		
				DN2~DN100, (0.3~6)L/min	$U_{rel}=0.60\% \sim 0.98\%$		
				DN2~DN100, (0.2~40)m ³ /h	$U_{rel}=0.49\% \sim 0.30\%$		

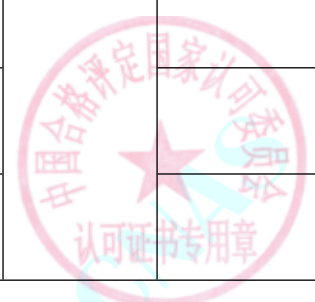


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				DN2~DN100, (40~240)m ³ /h	U _{rel} =0.30%~0.36%		
44	*Goriolis Mass Flow meters	flow	Verification Regulation of Goriolis Mass Flow meters JJG 1038	DN2~DN200, (0.024~0.5)t/h	U _{rel} =0.051%~0.042%		
		flow		DN2~DN200, (0.5~5)t/h	U _{rel} =0.051%~0.046%		
		flow		DN2~DN200, (5~20)t/h	U _{rel} =0.041%~0.046%		
		flow		DN2~DN200, (20~180)t/h	U _{rel} =0.051%~0.050%		
		flow		DN2~DN200, (0.0001~6) L/min, (0.00012~7.2) g/min	U _{rel} =0.6%~0.92%		
		flow		DN2~DN200, (0.005~50) L/min, (0.006~60) g/min	U _{rel} =0.32%		
		flow		DN2~DN200, (0.2~60) L/min, (0.22~66) g/min	U _{rel} =0.15%~0.3%		
		flow		DN2~DN200, (0.01~1.2)m ³ /h, (0.011~1.3) kg/h	U _{rel} =0.51%~0.42%		
		flow		DN2~DN200, (0.2~40)m ³ /h, (1.3~44) kg/h	U _{rel} =0.42%~0.25%		
flow	DN2~DN200, (40~240)m ³ /h, (44~260) kg/h	U _{rel} =0.25%~0.32%					

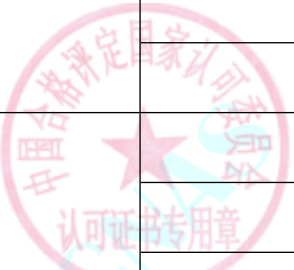


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		flow		DN2~DN200, (0.5~1000)m ³ /h, (0.55~1100) kg/h	$U_{rel}=0.32\%$		
45	*Liquid Positive Displacement Flowmeter	flow	Verification Regulation of Liquid Positive Displacement Flowmeter JJG 667	DN10~DN300, (0.6~20)m ³ /h	$U_{rel}=0.10\%~0.08\%$		
				DN10~DN300, (20~60)m ³ /h	$U_{rel}=0.10\%~0.08\%$		
				DN10~DN300, (1~780)m ³ /h	$U_{rel}=0.21\%~0.16\%$		
				DN10~DN300, (0.024~0.5)m ³ /h	$U_{rel}=0.076\%~0.070\%$		
				DN10~DN300, (0.5~5)m ³ /h	$U_{rel}=0.076\%~0.072\%$		
				DN10~DN300, (5~20)m ³ /h	$U_{rel}=0.072\%~0.069\%$		
				DN10~DN300, (20~180)m ³ /h	$U_{rel}=0.076\%~0.075\%$		
46	Gas Displacement Meters	flow	Verification Regulation of Gas Displacement Meters JJG 633	DN10~DN100, (0.01~1.2)m ³ /h	$U_{rel}=0.51\%~0.42\%$		
				DN10~DN100, (1.2~40)m ³ /h	$U_{rel}=0.42\%~0.25\%$		
				DN10~DN100, (40~240)m ³ /h	$U_{rel}=0.25\%~0.32\%$		
47	Differential Pressure Flowmeters	flow	Verification Regulation of Differential Pressure Flowmeters JJG 640	DN10~DN100, (0.01~1.2)m ³ /h(Gas)	$U_{rel}=0.85\%~0.64\%$		
				DN10~DN100, (1.2~40)m ³ /h(Gas)	$U_{rel}=0.64\%~0.39\%$		
				DN10~DN100, (40~240)m ³ /h(Gas)	$U_{rel}=0.39\%~0.32\%$		

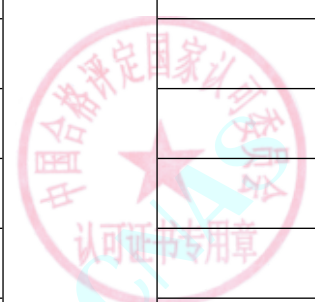


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				DN4~DN300, (1~780)m ³ /h(liquid)	$U_{rel}=0.21\% \sim 0.16\%$		
		Surface roughness		Ra:(0.1~25) μm	$U_{rel}=6\%$		
		Length		d:(12.5~300)mm	$U=(3+L/100) \mu m(L:mm)$		
48	Vortex-shedding Flowmeter	flow	Verification Regulation of Vortex-shedding Flowmeter JIG 1029	DN10~DN100, (0.01~5)m ³ /h(Gas)	$U_{rel}=0.49\% \sim 0.28\%$		
				DN10~DN100, (5~40)m ³ /h(Gas)	$U_{rel}=0.28\% \sim 0.22\%$		
				DN10~DN100, (40~240)m ³ /h(Gas)	$U_{rel}=0.22\% \sim 0.29\%$		
				DN15~DN300, (1~780)m ³ /h(liquid)	$U_{rel}=0.21\% \sim 0.16\%$		
49	*Verification Regulation of Soap Film Flow meter	flow	Verification Regulation of Soap Film Flow meter JIG 586	(0.0001~6) L/min	$U_{rel}=0.6\% \sim 0.92\%$		
		flow		(0.005~50) L/min	$U_{rel}=0.32\%$		
		flow		(0.2~60) L/min	$U_{rel}=0.15\% \sim 0.3\%$		
50	*Electromagnetic Flowmeters	flow	Verification Regulation of Electromagnetic Flowmeters JIG 1033	DN4~DN300, (0.024~0.5)m ³ /h	$U_{rel}=0.13\% \sim 0.12\%$		
				DN4~DN300, (0.5~5)m ³ /h	$U_{rel}=0.13\% \sim 0.12\%$		
				DN4~DN300, (5~20)m ³ /h	$U_{rel}=0.12\%$		
				DN4~DN300, (20~180)m ³ /h	$U_{rel}=0.13\%$		
				DN4~DN300, (1~780)m ³ /h	$U_{rel}=0.24\% \sim 0.17\%$		
				DN50~DN1600, (2~50000)m ³ /h	$U_{rel}=1.2\%$		



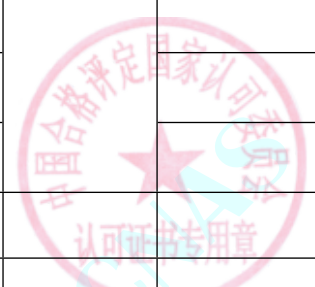
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
51	*Ultrasonic Flowmeters	flow	Verification Regulation of Ultrasonic Flowmeters JJG 1030	DN15~DN100,(0.01~1)m ³ /h(Gas)	U _{rel} =0.40%~0.26%		
				DN15~DN100,(1~40)m ³ /h(Gas)	U _{rel} =0.26%~0.22%		
				DN15~DN100,(40~240)m ³ /h(Gas)	U _{rel} =0.22%~0.23%		
				DN15~DN300,(0.024~0.5)m ³ /h(liquid)	U _{rel} =0.17%~0.16%		
				DN15~DN300,(0.5~5)m ³ /h(liquid)	U _{rel} =0.17%~0.16%		
				DN15~DN300,(5~20)m ³ /h(liquid)	U _{rel} =0.16%		
				DN15~DN300,(20~180)m ³ /h(liquid)	U _{rel} =0.17%		
				DN15~DN300,(1~780)m ³ /h(liquid)	U _{rel} =0.26%~0.20%		
52	Velocity Flow Meter	flow	Verification Regulation of Velocity Flow Meter JJG 198	DN25~DN100, (250~475)kg/h	U _{rel} =1.1%~0.68%		
				DN25~DN100, (475~950)kg/h	U _{rel} =1.3%~0.74%		
				DN25~DN100, (950~2000)kg/h	U _{rel} =1.0%~0.90%		
53	Water Gas Meters	flow	Calibration Specification for Water Gas Meters JJF 1357	(0.01~10)m ³ /h	U _{rel} =0.15%		
54	Gas Laminar Flow Transducers	flow	Verification Regulation of Gas Laminar Flow Transducers JJG 736	(0.0001~0.3)L/min	U _{rel} =0.92%~0.60%		
				(0.3~6)L/min	U _{rel} =0.60%~0.98%		

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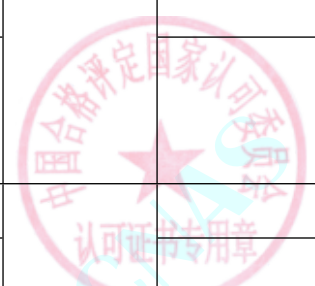
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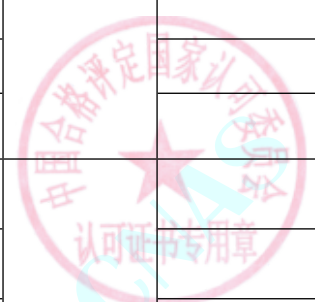
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(6~60)L/min	$U_{rel}=0.60\% \sim 0.98\%$		
55	Target Flowmeter	flow	Verification Regulation of Target Flowmeter JJG 461	DN15~DN100,(0.01~5)m ³ /h	$U_{rel}=0.59\% \sim 0.36\%$		
				DN15~DN100,(5~40)m ³ /h	$U_{rel}=0.36\% \sim 0.29\%$		
				DN15~DN100,(40~240)m ³ /h	$U_{rel}=0.29\% \sim 0.25\%$		
56	Hot meters	flow	Verification Regulation of Hot water meters JJG 686	DN15~DN50,(0.004~50)m ³ /h DN(15~50)mm	$U_{rel}=0.62\%$		
57	*Standard Facilities for Liquid Flowrate	volumemass	Verification Regulation of Standard Facilities for Liquid Flowrate JJG 164	(10~25000)L	$U_{rel}=0.05\%$		
				(10~50000)kg	$U_{rel}=0.02\%$		
58	*Vretical Facility for Water meters	volume	Verification Regulation of Vretical Facility for Water meters JJG 1113	(10~10000)L	$U_{rel}=0.1\%$		
59	*Pipe Prover	volume	Verification Regulation of Pipe Prover JJG 209	(10~10000)L	$U_{rel}=0.02\% \sim 0.04\%$		
60	*Flow Integration Meters	flow	Verification Regulation of Flow Integration Meters JJG 1003	(1~999999)Flow engineering unit; frequency: (>0~10)kHz	$U_{rel}=0.01\%$		
				electricity: (>0~20)mA, voltage: (>0~10)V, resistance: (50~1000)Ω	$U_{rel}=0.05\%$; (with pressure temperature feedback)		
61	Critical Flow Venturi Nozzle	flow	Verification Regulation of Critical Flow Venturi Nozzle JJG 620	(0.01~10)m ³ /h	$U_{rel}=0.09\%$		
				(0.016~1.6) m ³ /h	$U_{rel}=0.20\%$		
62	*Flow Standard	flow	Verification Regulation of Flow Standard Facilitise by	(0.01~10)m ³ /h	$U_{rel}=0.23\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Master Meter Method		Master Meter Method JJG 643	DN2~DN1000, (0.01~50000)m ³ /h	U _{rel} =0.1%		
63	*Gas Flow Calibration Facility by Means of Critical Flow Venturi Nozzles	flow	Calibration Specification for Gas Flow Calibration Facility by Means of Critical Flow Venturi Nozzles JJF 1240	(0.01~10)m ³ /h	U _{rel} =0.23%		
				DN2~DN600, (0.01~50000)m ³ /h	U _{rel} =0.2%		
64	*Weirs and Flumes for Flow Measurement	flow	Verification Regulation of Weirs and Flumes for Flow Measurement JJG 711	(0.1 × 10 ⁻³ ~1300)m ³ /s	U _{rel} =(3~5)%		
65	Vortex Prcession Flowmeters	flow	Verification Regulation of Vortex Prcession Flowmeters JJG 1121	DN15~DN300,(1~780)m ³ /h(liquid)	U _{rel} =0.26%		
				DN15~DN100,(0.01~1.2)m ³ /h(Gas)	U _{rel} =0.40%~0.25%		
		DN15~DN100,(1.2~40)m ³ /h(Gas)		U _{rel} =0.25%~0.21%			
		DN15~DN100,(40~240)m ³ /h(Gas)		U _{rel} =0.21%~0.26%			
66	*Syringe Pump and Infusion Pump	flow	Calibration Specification for Syringe Pumps and Infusion Pumps JJF 1259	(5~20)mL/h	U= 0.84 mL/h		
				(>20~200) mL/h	U= 0.27 mL/h		
		(>200~1000) mL/h		U=12 mL/h			
		occlusion pressure		(40~106.7) kPa	U= 4.9 kPa		
67	*Velocity Flow Meter	flow	Verification Regulation of Velocity Flow Meter JJG 198	DN25~DN100,(250~475)kg/h	U _{rel} =1.1%~0.68%		
				DN25~DN100,(475~950)kg/h	U _{rel} =1.3%~0.74%		
				DN25~DN100,(950~2000)kg/h	U _{rel} =1.0%~0.90%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
68	*Turbine Flowmeter	flow	Verification Regulation of Turbine Flowmeter JJG 1037	DN15~DN100,(0.01~1.2)m ³ /h(Gas)	U _{rel} =0.40%~0.25%		
				DN15~DN100,(1.2~40)m ³ /h(Gas)	U _{rel} =0.25%~0.21%		
				DN15~DN100,(40~240)m ³ /h(Gas)	U _{rel} =0.21%~0.26%		
				DN50~DN3000,(1~50000)m ³ /h(liquid)	U _{rel} =1.2%		
				DN10~DN300,(1~780)m ³ /h(liquid)	U _{rel} =0.26%		
				DN10~DN300,(0.024~180) m ³ /h(liquid)	U _{rel} =0.17%		
				DN15~DN100,(0.01~5)m ³ /h(Gas)	U _{rel} =0.43%~0.22%		
				DN15~DN100,(5~40)m ³ /h(Gas)	U _{rel} =0.22%~0.21%		
				DN15~DN100,(40~240)m ³ /h(Gas)	U _{rel} =0.21%~0.26%		
				DN4~DN300,(1~780)m ³ /h(liquid)	U _{rel} =0.21%~0.16%		
				DN4~DN300,(0.024~0.5)m ³ /h(liquid)	U _{rel} =0.13%~0.12%		
				DN4~DN300,(0.5~5)m ³ /h(liquid)	U _{rel} =0.13%~0.12%		
				DN4~DN300,(5~20)m ³ /h(liquid)	U _{rel} =0.12%		
				DN4~DN300,(20~180)m ³ /h(liquid)	U _{rel} =0.13%		



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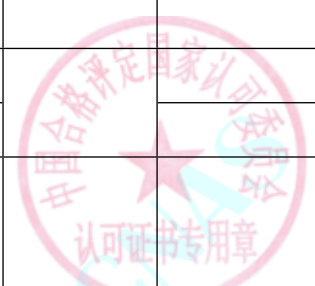
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
69	*Compressed Natural Gas Dispensers	Flow	Verification Regulation of Compressed Natural Gas Dispensers JJG 996	(1~80) kg/min	$U_{rel}=0.22\%$		
70	*Liquefied Natural Gas Dispensers	Flow	Verification Regulation of Liquefied Natural Gas Dispensers JJG 1114	(1~80) kg/min	$U_{rel}=0.32\%$		
71	*Compressed Hydrogen Dispensers	Flow	Calibration Specification of Compressed Hydrogen Dispensers NIMTT(CM) 013	(0.1~10) kg/min	$U_{rel}=0.66\%$		
72	Impression Tonometers	mass	V.R.of Impression Tonometers JJG 574	(0~100)g	$U=0.012g$		
		Press depth Indication		(0~5) mm	$U=0.013mm$		
73	Pressure Transducer	Pressure	V.R. of Pressure Transducer(static) JJG 860	(-0.1~100)MPa	$U=0.016\%FS$		
				(100~250)MPa	$U_{rel}=0.027\%$		
74	Compensated Micro-manometer	Pressure	V.R.of Compensated Micro-manometer JJG 158	-2.5kPa~2.5kPa	$U=0.018\%FS$		
75	Tilting Tube Micro-manometers	Pressure	V.R.of Tilting Tube Micro-manometers JJG 172	(0~2000)Pa	$U=0.15\%FS$		
76	Pressure Transmitter	Pressure	V. R. of Pressure Transmitter JJG 882	(-0.1~100)MPa	$U=0.016\%FS$		
				(100~250) MPa	$U_{rel}=0.027\%$		
77	Aneroid Barometer & Aneroid Barograph	Pressure	V.R.of Aneroid Barometer & Aneroid Barograph JJG 272	(500~1060)hPa	$U=0.85hPa$		
78	Piston Gauge	Pressure	V.R.of Piston Gauge JJG 59	(0.02~250)MPa	$U_{rel}=0.012\%$		
79	Pneumatic Piston Gauge	Pressure	V.R.of Pneumatic Piston Gauge JJG 1086	(0.0015~10)MPa	$U_{rel}=0.012\%$		
80	Precise Pressure Gauge	Pressure	V.R.of Elastic Element Precise Pressure Gauges and	(-0.1~0)MPa	$U=0.11\%FS$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Vacuum Gauges JJG 49	(0~250)MPa	U=0.14%FS		
81	Pressure Gauge	Pressure	V.R.of Elastic Element Precise Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG 52	(-0.1~250)MPa	U=0.6%FS		
82	Sphygmomanometer	Pressure	V.R.of Sphygmomanometer JJG 270	(0~40)kPa	U=0.6%FS		
83	Tyre Pressure Gauges	Pressure	V.R.of Tyre Pressure Gauges JJG 927	(0~6)MPa	U=0.6%FS		
84	Record Pressure Gauges	Pressure	V.R.of Record Pressure Gauges, Pressure Vacuum Gauges and Vacuum Gauges JJG 926	(-0.1~250)MPa	U=0.6%FS		
85	Liquid Manometers for Working	Pressure	V. R. of Liquid Manometers for Working JJG 540	(0~2.5)kPa	U=0.27%FS		
				(2.5~25) kPa	U _{rel} =0.55%		
86	Digital Pressure Gauges	Pressure	V. R. of Digital Pressure Gauges JJG 875	(-0.1~100)MPa	U=0.008%FS		
				(100~250) MPa	U _{rel} =0.021%		
87	Piston Pressure Vacuum Gauge	Pressure	V.R.of Piston Pressure Vacuum Gauges JJG 236	-0.1MPa~-10kPa	U _{rel} =0.015%		
				10kPa~0.6MPa	U _{rel} =0.015%		
88	Piston Pressure-Vacuum Gauge with Equilibrium Liquid Column	Pressure	V.R.of Piston Pressure-Vacuum Gauge with Equilibrium Liquid Column JJG 51	-0.1MPa~0.4MPa	U=0.015%FS		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
89	Standard Dual Piston Pressure Vacuum Gauge	Pressure	V.R.of Standard Dual Piston Pressure Vacuum Gauge JJG 159	-0.1MPa~1MPa	$U=0.015\%FS$		
90	Ball Pneumatic Dead Weight Testers	Pressure	V.R.of Ball Pneumatic Dead Weight Testers JJG 942	2kPa~10MPa	$U_{rel}=0.015\%$		
91	Pressure Controllers	Pressure	V.R.of Pressure Controllers JJG 544	(-0.1~250) MPa	$U=0.8\%FS$		
92	Precision Liquid Manometer for Cistern	Pressure	V.R.of Precision Liquid Manometer for Cistern and U-tube JJG 241	(-40~40) kPa	$U=0.4\%FS$		
93	Digital Measuring Device for Optical Interference Methane Detector	Pressure	V.R.of Digital Measuring Device for Optical Interference Methane Detector JJG 1040	(0~100)kPa	$U=0.033\%FS$		
94	Liquid Level Gauges	Pressure	V.R of Liquid Level Gauges JJG 971	(0~10)MPa	$U=0.023\%FS$		
95	Pressure SF6 Gas Density Monitors	Pressure	V.R.of Pressure Type SF6 Gas Density Monitors JJG 1073	(-0.1~0.9)MPa	$U=0.6\%FS$		
96	*Ionization Vacuum Gauge	Pressure	Calibration Specification of Ionization Vacuum Gauge JJF 1062	$(3 \times 10^{-7} \sim 1)Pa$	$U_{rel}=16\% \sim 1.5\%$		
				$(>1 \sim 20)Pa$	$U_{rel}=4.2\%$		
97	*Thermal Conductivity Vacuum Gauge	Pressure	Calibration Specification of Working Thermal Conductivity Vacuum Gauge JJF 1050	$(1 \times 10^{-1} \sim 3 \times 10^3)Pa$	$U_{rel}=5.3\% \sim 3.9\%$		
				$(3 \times 10^3 \sim 1 \times 10^5)Pa$	$U_{rel}=3.9\% \sim 4.9\%$		
98	*Piezoresistive Vacuum Gauge	Pressure	Verification Regulation of Piezoresistive Vacuum Gauge JJG 932	$(1 \times 10^2 \sim 1 \times 10^5)Pa$	$U_{rel}=0.9\% \sim 0.6\%$		

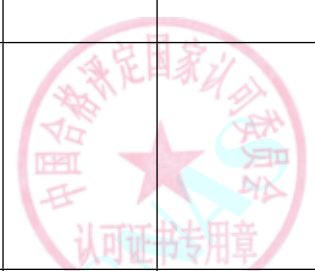


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
99	*Capacitance Diaphragm Vacuum Gauges	Pressure	Calibration Specification for Capacitance Diaphragm Vacuum Gauges JJF 1503	$(1 \times 10^{-1} \sim 1 \times 10^5) \text{Pa}$	$U_{\text{rel}}=2.6\% \sim 0.02\%$	MPE: $\pm 0.5\%$ for field calibration only	
100	*Reference Leaks for Gases	leak rate	Non Destructive Testing - Leak Testing - Calibration of Reference Leaks for Gases ISO 20486, Calibration Specification for Vacuum Helium Leaks JJF 1833	$(1 \times 10^{-10} \sim <1 \times 10^{-3}) \text{Pa} \cdot \text{m}^3/\text{s}$	$U_{\text{rel}}= (7.6\% \sim 0.88\%)$	Calibration by comparison and calibration by pressure change in a known volume only for ISO 20486	
101	*Mass Spectrometer Leak Detector	leak rate	Calibration Specification of Helium Mass Spectrometer Leak Detector JJF (军工) 186, Calibration Specification of Helium Mass Spectrometer Leak Detector NIMTT (CM) 119	$(1 \times 10^{-10} \sim <1 \times 10^{-5}) \text{Pa} \cdot \text{m}^3/\text{s}$	$U_{\text{rel}}= (14\% \sim 12\%)$		
102	Pressure Reference Leaks	leak rate	Calibration Specification for Reference Leaks by Soap Film Flowmeter JJF 1627, Calibration Specification for Pressure Reference Leaks NIMTT(CM) 012	$(5 \times 10^{-7} \sim 50) \text{Pa} \cdot \text{m}^3/\text{s}$	$U_{\text{rel}}=6.2\% \sim 0.7\%$		
103	Standand Leak	flow	Verification Regulation of Standand Leak JJG 793	$(0.0001 \sim 0.3) \text{L}/\text{min}$	$U_{\text{rel}}=(0.92 \sim 0.60)\%$		



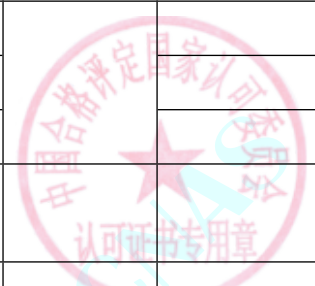
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(≥0.3~6)L/min	$U_{rel}=(0.60\sim0.98)\%$		
104	Tensiometer	Force	Calibration Specification for Interface Tensiometers JJF 1464	(0.1~100)N	$U_{rel}=0.2\%$		
		Length		(0.1~25)mm	$U=(1+L/100)\mu m(L:mm)$		
105	Dynamic Force Sensors	Dynamic Force	Dynamic Force Sensors JJG 632	200N~10kN	$U_{rel}=5.0\%$		
106	Working Force Measuring Machines for Special Purposes	Force value	Calibration Specification for Working Force Measuring Machines for Special Purposes JJF1134	(0.5~15)N	$U_{rel}=0.1\%$		
107	Standard Dynamometers	Force	Standard Dynamometers JJG 144	(0.1N~10N)	$U_{rel}=0.01\%$		
				(10N~10kN)	$U_{rel}=0.01\%$		
				(10~3600)kN	$U_{rel}=0.03\%$		
108	Force Transducers	Force	Force Transducers JJG 391	(0.1N~10N)	$U_{rel}=0.01\%$		
				(10N~10kN)	$U_{rel}=0.01\%$		
				(10~3600)kN	$U_{rel}=0.03\%$		
109	Dynamometer	Force	Working Dynamometer JJG 455	(0.1N~10N)	$U_{rel}=0.01\%$		
				(10N~10kN)	$U_{rel}=0.01\%$		
				(10~3600)kN	$U_{rel}=0.03\%$		
110	*Deadweight Force Standard Machine	Force	Force standard machine JJG 734	(10N~1MN)	$U_{rel}=0.003\%$		
111	*Hydraulic Force Standard Machine	Force	Hydraulic-amplification Force Standard machine JJG 1117	(10N~1MN)	$U_{rel}=0.003\%$		
				(1MN~3MN)	$U_{rel}=0.01\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
112	*Lever Force Standard Machine	Force	Force standard machine JIG 734	(10N~1MN)	$U_{rel}=0.003\%$		
				(1MN~3MN)	$U_{rel}=0.01\%$		
113	*Building-up Force Machine	Force	Building-up Force Standard machine JIG 1116	(10N~1MN)	$U_{rel}=0.003\%$		
				(1MN~3MN)	$U_{rel}=0.01\%$		
				(3~3.6)MN	$U_{rel}=0.03\%$		
				(3.6~10)MN	$U_{rel}=0.1\%$		
				(10~30)MN	$U_{rel}=0.3\%$		
114	Hydraulic Jack	Force	Hydraulic Jacks JIG 621	(0.01~300)kN	$U_{rel}=0.5\%$		
				(0.3~3.6)MN	$U_{rel}=0.5\%$		
115	Measuring Instrumentations for Strain Gauge Transducer	Voltage ratio	Calibration Specification of Measuring Instrumentations for Strain Gauge Transducer JJF 1469	$\pm (0.1\sim 101)mV/V$	$U_{rel}=0.0005\%$		
116	*Tension, Compression and Universal Testing Machines	Force	Tension, Compression and Universal Testing Machines JIG 139 ,Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1:	(0.0001~300)kN	$U_{rel}=0.2\%$		
				(0.3~30)MN	$U_{rel}=0.3\%$		
		Coaxiality		(0.1~40%)	$U_{rel}=2\%$		
		Displacement		(0.05~500)mm	$U_{rel}=0.1\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Deformation(Extensometer)	Tension/compression testing machines — Calibration and verification of the force-measuring system ISO 7500-1, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system BS EN ISO 7500-1, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force ISO 7500-2, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force DIN EN ISO 7500- 2, Standard Practices for Force Verification of Testing Machines ASTM E4-16, Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and	(0.1~300)mm	$U_{rel}=0.1\%$		



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Compressive Axial Force Application ASTM E1012-14 Standard Practices for

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
117	*Flexure Testing Machine	Force	Flexure Testing Machine JJG 476	(0.0001~300)kN	$U_{rel}=0.2\%$		
				(0.3~30)MN	$U_{rel}=0.3\%$		
118	*Electronic Universal Testing Machine	Force	Electronic Universal Testing Machine JJG 475, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and	(0.0001~300)kN	$U_{rel}=0.2\%$		
				(0.3~30)MN	$U_{rel}=0.3\%$		
		Coaxiality		(0.1~40%)	$U_{rel}=2\%$		
		Displacement		(0.05~500)mm	$U_{rel}=0.1\%$		
		Rate	(0.05~500)mm/min	$U_{rel}=0.2\%$			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Deformation(Extensometer)	verification of the force-measuring system ISO 7500-1, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system BS EN ISO 7500-1, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force ISO 7500-2, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force DIN EN ISO 7500- 2, Standard Practices for Force Verification of Testing Machines ASTM E4-16, Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012-14, Standard Practices for Verification of Displacement Measuring Svstems and	(0.1~300)mm	$U_{rel}=0.1\%$		

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
119	*High-Temperature Creep and Stress-Rupture Machines	Force	High-Temperature Creep and Stress-Rupture Machines JJG 276, Metallic materials —	(0.0001~300)kN	$U_{rel}=0.2\%$		
			Calibration and verification of static uniaxial testing machines — Part 1:	(0.3~30)MN	$U_{rel}=0.3\%$		
		Coaxiality		(0.1~40%)	$U_{rel}=2\%$		
		Time		(0~86400)s	$U=0.1s$		

SCHEDULE OF ACCREDITATION CERTIFICATE



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Deformation (Extensometer)	Tension/compression testing machines — Calibration and verification of the force-measuring system ISO 7500-1, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system BS EN ISO 7500-1, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force ISO 7500-2, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force DIN EN ISO 7500- 2, Standard Practices for Force Verification of Testing Machines ASTM E4-16, Standard Practices for Verification of Displacement Measuring Systems and Devices Used in Material	(0.1~300)mm	$U_{rel}=0.1\%$		

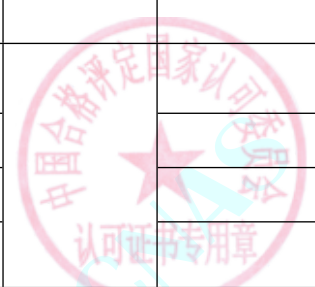


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Testing Machines ASTM E2309/E2309M-16, Standard Practice for Verification of

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
120	*Universal Testing Machine for Wood	Force	Universal Testing Machine for Wood JJG 474	(0.0001~300)kN	$U_{rel}=0.2\%$		
				(0.3~30)MN	$U_{rel}=0.3\%$		
121	*Calibration Specification for Working Force Measuring Machines for Special Purposes	Force	Calibration Specification for Working Force Measuring Machines for Special Purposes JJF 1134	(0.0001~300)kN	$U_{rel}=0.2\%$		
				(0.3~30)MN	$U_{rel}=0.3\%$		
122	*Pendulum impact testing machines	Center distance	Verification Regulation of Pendulum Impact Testing Machines JJG 145	(0~800)mm	$U=0.33\text{mm}$		
		Energy		(0.1~300) J	$U_{rel}=0.33\%$		
123	Calibration instrument for torque wrenchs	torque	Verification Regulation of Calibration instrument for torque wrenchs JJG 797	Lever and weight:(0.1~1000)Nm	$U_{rel}=0.12\%$		
				(1~3000)Nm	$U_{rel}=0.1\%$		
124	Static torque measuring device	torque	Verification Regulation of Static torque measuring device JJG 995	Lever and weight:(0.1~1000)Nm	$U_{rel}=0.12\%$		
				(2~200)Nm	$U_{rel}=0.12\%$		
				(50~5000)Nm	$U_{rel}=0.06\%$		
125	Tacho-torque measuring device	torque	Verification Regulation of Tacho-torque measuring device JJG 924	Lever and weight:(0.1~5000)Nm	$U_{rel}=0.12\%$		
				(2~200)Nm	$U_{rel}=0.12\%$		
				(50~5000)Nm	$U_{rel}=0.06\%$		
		Torque;rotate speed		(50~10000)r/min	$U_{rel}=0.12\%$		
126	Equipment of power measuring	Rotate speed	Verification Regulation of Equipment of power	Non-contact :(50~10000)r/min	$U_{rel}=0.12\%$		

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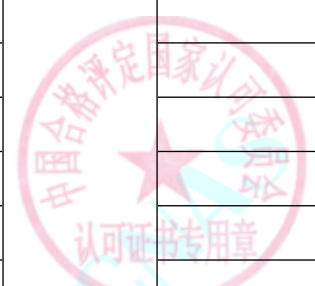
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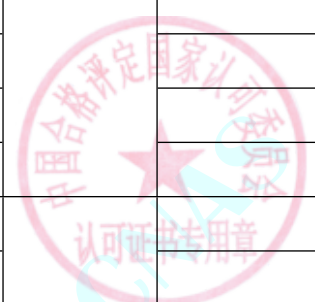
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Driving force	measUring JIG 653	Non-contact : (1 ~ 2500)N · m	$U_{rel}=0.2\%$		
		Driving force		Contact : (1 ~ 10 ⁴)N	$U_{rel}=0.6\%$		
		Rotate speed		Contact : (1 ~ 200)km/h	$U_{rel}=0.2\%$		
127	Torque Wrenches	Torque	Verification Regulation of Torque Wrenches JIG 707	(0.4 ~ 3000) Nm	$U_{rel}=0.3\%$		
128	*Torsion Testing Machines	Torque	Verification Regulation of Torsion Testing Machines JIG 269	(2 ~ 10000)Nm	$U_{rel}=0.05\%$		
129	Diamond Pressure Head	Angle	Calibration Specification for Diamond Pressure Head NIMTT (CM) 025	(90 ~ 140)°	$U=2'$		
		Length		((0.2 ~ 10)mm	$U=1.2 \mu m$		
130	*Metallic Rockwell Hardness Testing Machines	Hardness	Metallic Rockwell Hardness Testing Machines JJG 112	(20 ~ 88)HRA	$U=0.6HRA$		
				(20 ~ 100)HRBW	$U=0.6HRBW$		
				(20 ~ 70)HRC	$U=0.4HRC$		
				(12 ~ 93)HRN/TW	$U=(1.0 \sim 1.5)HRN/TW$		
131	Metallic Rockwell Hardness Reference Blocks	Hardness	Surface Rockwell Hardness Reference Blocks JJG 113	(20 ~ 88)HRA	$U=0.5HRA$		
				(20 ~ 100)HRBW	$U=0.5HRBW$		
				(20 ~ 70)HRC	$U=0.5HRC$		
				(89 ~ 91)HR15N	$U=0.64HR15N$		
				(74 ~ 80)HR30N	$U=0.64HR30N$		
				(42 ~ 54)HR30N	$U=0.75HR30N$		
				(32 ~ 61)HR45N	$U=0.80HR45N$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(88~93)HR15TW	U=0.76HR15TW		
				(70~82)HR30TW	U=0.76HR30TW		
132	Brinell Hardness Reference Blocks	Hardness	Metallic Brinell Hardness Reference Blocks JJG 147	(8~650)HBW(S)	$U_{rel}=(0.8\sim 1.0)\%$		
133	*Brinell Hardness Testers	Hardness	Metallic Brinell Hardness Testers JJG 150	(8~125) HB	$U_{rel}=1.3\%$		
				(125~225)HB	1.0 %		
				(225~650)HB	0.9 %		
134	Vickers Hardness Reference Blocks	Hardness	Vickers Hardness Reference Blocks JJG 148	(5~225)HV	$U_{rel}=2.1\%$		
				(225~400)HV	$U_{rel}=1.3\%$		
				(400~1000)HV	$U_{rel}=1.6\%$		
135	*Vickers Hardness Testers	Hardness	Metallic Vickers Hardness Testers JJG 151	(5~225)HV	$U_{rel}=2.7\%$		
				(225~400)HV	$U_{rel}=2.1\%$		
				(400~1000)HV	$U_{rel}=2.3\%$		
136	Epuotip Hardness Reference Blocks	Hardness	Epuotip Hardness Testers JJG 747	(465~847)HLD	U=5HLD		
				(465~847)HLD	U=7HLD		
				(448~645)HLG	U=5HLG		
				(448~645)HLG	U=7HLG		
137	ShoreHardness Reference Blocks	Hardness	Shore Hardness Reference Blocks JJG 347	(91~99)HSD	U=1.1HSD		
				(56~64)HSD	U=0.9HSD		
				(26~34)HSD	U=0.8HSD		



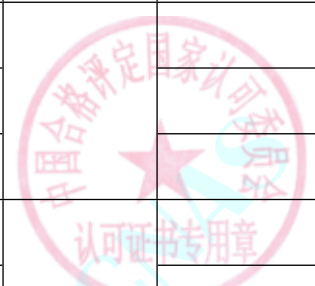
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
138	Shore Hardness testers	Hardness	Shore Hardness tester JJG 346	(26~99)HSD	$U=2.0HSD$		
139	Shore A Durometers	Force	Shore A Durometers JJG 304	(0~100)HA	$U=1.0HA$		
		Length		(0.79±0.03)mm	$U=0.1mm$		
140	Vibration Displacement Transducer	Displacement	Vibration Displacement Transducer JJG 644	Dynamic: $f:(10\sim 2000)Hz$ $d:(0.01\sim 10)mm$	$U_{rel}=3.0\%$		
				Static: $d:(0.01\sim 300)mm$	$U_{rel}=0.1\%$		
141	Measuring Instrument for Cement Bright Degumming Equipment	Frequency	Measuring Instrument for Cement Bright Degumming Equipment JJG 974	(20~100)Hz	$U_{rel}=1.0\%$		
		Acceleration		(0.1~1000)m/s ²	$U_{rel}=3.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=3.0\%$		
142	*Verification Regulation of Mechanical Vibration Genetator for Testing	Frequency	Verification Regulation of Mechanical Vibration Genetator for Testing JJG 189	(5~5000)Hz	$U_{rel}=1.0\%$		
		Acceleration		(0.1~1000)m/s ²	$U_{rel}=5.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=5.0\%$		
143	*Hydraulic Vibration Testing System	Frequency	Hydraulic Vibration Testing System JJG 638	(0.1~5000)Hz	$U_{rel}=1.0\%$		
		Acceleration		(0.1~1000)m/s ²	$U_{rel}=5.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=5.0\%$		
144	Acceleration Sensor	Acceleration	Piezoelectrl Accelerometer JJG 233	$f:160Hz$ $a:(1\sim 300)m/s^2$	$U_{rel}=1.0\%$		
				$f:(10\sim 2000)Hz$ $a:(1\sim 300)m/s^2$	$U_{rel}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				shock a : (200~14000)m/s ²	$U_{rel}=5.0\%$		
145	Measuring Instrument for Shock	Acceleration	Measuring Instrument for Shock JJG 973	(200~14000)m/s ²	$U_{rel}=5.0\%$		
		Time		(1~100) ms	$U_{rel}=3.0\%$		
146	*Digital Electrodynamic Vibration Testing System	Frequency	Digital Electrodynamic Vibration Testing System JJG 948	(5~5000)Hz	$U_{rel}=1.0\%$		
		Acceleration		(0.1~1000)m/s ²	$U_{rel}=5.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=5.0\%$		
147	*Standard Vibrators	Frequency	Standard Vibrators JJG 298	(0.1~5000)Hz	$U_{rel}=1.0\%$		
		Acceleration		(0.1~1000)m/s ²	$U_{rel}=3.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=3.0\%$		
148	*Calibration Set of Shock Acceleration by Impact Force	Acceleration	Calibration Set of Shock Acceleration by Impact Force JJG 791	(0.5~1000)m/s ²	$U_{rel}=3.0\%$		
		Time		(1~100) ms	$U_{rel}=2.0\%$		
149	Dynamic Balance Measuring Instruments	Amplitude of vibration	Calibration Specification for Dynamic Balance Measuring Instruments JJF1570	a : (0.1~100)m/s ² v : (0.1~50)cm/s d : (0.01~10)mm	$U_{rel}=3.0\%$		
		Phase		ϕ : 0° ~ 360°	$U=3.0^\circ$		
150	*Cement mortar specimen jolting table	Time	Verification Regulation for cement mortar specimen jolting table complying with ISO 679 JJG(Building materials) 124	(0~6000)s	$U=0.33s$		
		displacement		(0~300)mm	$U=0.33mm$		



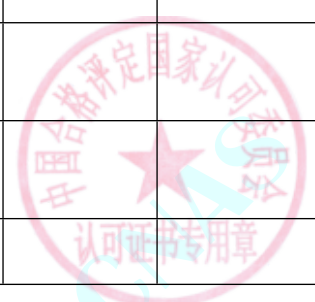
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
151	Verification Regulation of Vibration meters	Frequency	Verification Regulation of Vibration meters JJG 676	(10~2000)Hz	$U_{rel}=0.2\%$		
		Acceleration		(0.1~300) m/s ²	$U_{rel}=2.0\%$		
		Velocity		(0.1~50)cm/s	$U_{rel}=2.0\%$		
		Displacement		(0.01~10)mm	$U_{rel}=2.0\%$		
152	*Quantitative Filling Machine for Liquid State Material	Weight	JJG 687	Set the heavy type:(0~20)kg	$U=17g$		
153	Velocity Sensor	Velocity	Verification Regulation of Electromagnetic Velocity Transducer JJG 134	f:(10~2000)Hz v:(0.1~50)cm/s	$U_{rel}=3.0\%$		
154	*Verification regulation for cement Mortar mixer complying	Revs	JJG (建材) 123	(0~300)r/min	$U=1.7r/min$		
		time		(0~6000)s			
		Interval		(0~300)mm			
155	*Horizontal Metallic Tank	Capacity (Volume)	Verification Regulation of the Volume of Horizontal Metallic Tank JJG266	(10 ~200) m ³ ;	$U_{rel}=(1.9 \times 10^{-3} \sim 8.7 \times 10^{-4})$		
156	*Spherical metal Tank	Capacity (Volume)	Verification Regulation of Spherical Metal Tank Capacity JJG642	(80~5000) m ³	$U_{rel}=(2.6 \times 10^{-3} \sim 6.6 \times 10^{-4})$		
157	*Electric and Pneumatic Torque wrenches	Torque	Calibration Specification for Electric and Pneumatic Torque wrenches JJF 1610	(2~2500) Nm	$U_{rel}=0.3\%$		
158	Digital Barometers	Pressure	V.R. of Digital Barometers JJG 1084	(0~130)kPa abs	$U=0.07hPa$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
159	Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge JJF 1328	(0~25)Mpa	$U=0.6\%FS$		
160	*Halogen Leak Detector	leak rate	Calibration Specification for Halogen Leak detector NIMTT(CM) 030	$(1 \times 10^{-6} \sim 1 \times 10^{-5})$ Pa · m ³ /s	$U_{rel} = (24\% \sim 13\%)$		
161	Mass Spectrometer for Partial Pressure	Pressure	Calibration Specification of Mass Spectrometer for Partial Pressure in the Pressure Range of $(1 \times 10^{-9} \sim 1 \times 10^{-1})$ Pa JJF (军工) 152	$(1 \times 10^{-6} \sim 1 \times 10^{-1})$ Pa	$U_{rel} = 7.4\% \sim 6.2\%$		
162	High Strength Bolt Testers	torque	Calibration Specification for High Strength Bolt Testers JJF 1478	(50~3000) Nm	$U_{rel} = 0.2\%$		
163	*Point-to-point Vehicle Speed Monitor Systems for Road Traffic	Mileage	Point-to-point Vehicle Speed Monitor Systems for Road Traffic JJF(Chuan) 109	(1~60000)m	$U_{rel} = 0.8\%$		
		Time Interval		(1~99999) s	$U_{rel} = 0.5\%$		
164	Elevator Overspeed Governor	Speed	Calibration Specification for Elevator Overspeed Governor Testers JJF 1374	(0.1~10.000) m/s	$U_{rel} = 2.0 \times 10^{-3}$		
165	Dynamic Elastic Modulus Measurement Instruments	Frequency	Calibration Specification for Dynamic Elastic Modulus Measurement Instruments JJF1373	(5~5000)Hz	$U_{rel} = 1.0\%$		
166	*Centrifuge	Rorate	Centrifuge NIMTT(CM) 106	(20~33000) r/min	$U_{rel} = 0.02\%$		
		temperature		(-20~40) °C	$U = 0.8^{\circ}C$		

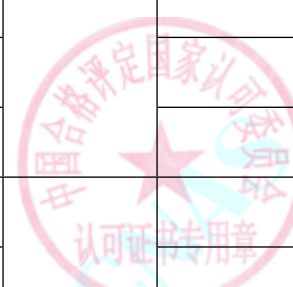


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
167	*Electro-hydraulic Servo Universal Testing Machines	Force	Electro-hydraulic Servo Universal Testing Machines JIG 1063	(10N~3MN)	$U_{rel}=0.2\%$		
168	Dry piston flow calibrator	flow	Calibration Specification of Dry piston flow calibrator NIMTT(CM) 057	(0.005~50) L/min	$U_{rel}=0.28\% \sim 0.32\%$		
		flow		(0.2~60) L/min	$U_{rel}=0.2\% \sim 0.3\%$		
169	*p.V.T.t technique	volume	Gas Flow Calibration to p.V.T.t technique JIG 619	(10~30000) L	$U_{rel}=0.03\%$		
		flow		(0.01~4000) kg/h	$U_{rel}=0.05\%$		
170	*Electromagnetic Flowmeters	flow	Online Calibration Specification for Liquid Flowmeter JJF (川) 159	DN50~DN3000, (2~50000) m ³ /h	$U_{rel}=1.2\%$		
171	*Buchholz relay & overspeed shut-off valve detection device	velocity of flow	Buchholz relay & overspeed shut-off valve detection device NIMTT(CM) 072	(1~100)m ³ /h((0.566~5.662)m/s)	$U_{rel}=1\%$		
		volume		(10~1000)mL	$U_{rel}=1.2\%$		
		pressure		(10~250)kPa	$U_{rel}=1\%$		
四、声学测量仪器							
1	Standard Sound Source	Sound Power Level	V. R. of Reference Sound Sources JIG 277	(36~148)dB, (100~500) Hz	$U=1.0\text{dB}$		
				(36~148)dB, (>500~2500) Hz	$U=0.5\text{dB}$		
				(36~148)dB, (>2.5~10) kHz	$U=0.8\text{dB}$		
2	Sound Calibrators	SPL	V.R. of Sound Calibrators JIG 176	(30~130)dB, (31.5Hz~16kHz)	$U=0.50\text{dB}$		
				94dB, 1kHz	$U=0.12\text{dB}$		
				114dB, 1kHz	$U=0.15\text{dB}$		

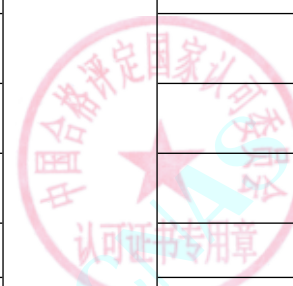


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency	V.R. of Working Standard Microphones(Electrostatic Actuator Method) JJG 175,V.R. of Working Standard Microphones(Coupler Comparison Method) JJG 1019,V.R. of Working Standard Microphones (Free-field Comparison Method) JJG 1172	124dB, 250Hz	U=0.10dB		
		Distortion		20Hz~20kHz	U _{rel} =0.01%		
				0.05%~100%	U=10%rdg		
3	Working Standard Microphones	Frequency response of Sensitivity level	V.R. of Working Standard Microphones(Electrostatic Actuator Method) JJG 175,V.R. of Working Standard Microphones(Coupler Comparison Method) JJG 1019,V.R. of Working Standard Microphones (Free-field Comparison Method) JJG 1172	(-60~20)dB, 20Hz~20kHz	U=0.5dB		
		Sensitivity level		(-60~20)dB, 20Hz~20kHz	U=0.2dB		
		Free-field Sensitivity Level		-80dB~0dB	U=0.15dB		
				(-80~0)dB, 20 Hz~20 kHz	U=0.4dB		
4	Octave and Fraction Octave Band Filter	Relative Attenuation	V.R. of Octave-Band and Fractional-Octave-Band Filters JJG 449	(0~130)dB, Stopband	U=0.08dB		
				(0~130)dB, Passband	U=0.05dB		
5	Laboratory Standard Microphones	Free-field Sensitivity Level	V.R. of Laboratory Standard Microphones(Free-field Reciprocity Method) JJG 482,V.R. of Laboratory Standard Microphones(Coupler Reciprocity Method) JJG 790	-80dB~0dB, (1~20)kHz	U=0.16dB		
				-80dB~0dB, (>20~25)kHz	U=0.20dB		
				-80dB~0dB, (20~31.5)Hz	U=0.05dB		
		Pressure Field Sensitivity Level		-80dB~0dB, (63~4000)Hz	U=0.04dB		
				-80dB~0dB, 8kHz	U=0.05dB		
				-80dB~0dB, 10kHz	U=0.06dB		

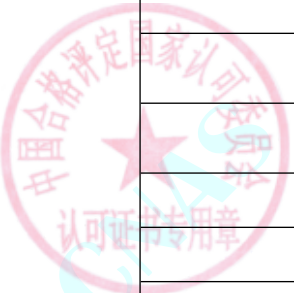


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				-80dB~0dB, 25kHz	U=0.11dB		
6	Personal Sound Exposure Meters	Personal Sound Exposure Meters	V.R. of Personal Sound Exposure Meters JJG 980	(0.3~100)Pa ² h, (20~800)Hz	U _{rel} =11%		
				(0.3~100)Pa ² h, (1~4)kHz	U _{rel} =9%		
				(0.3~100)Pa ² h, (5~8)kHz	U _{rel} =14%		
7	Measurement Instruments of Sound Intensity	Sound Intensity Level	V.R. of The Measurement Instruments of Sound Intensity JJG 992	30dB~130dB, 45Hz~7.1kHz	U=0.5dB		
8	*Anechoic Rooms and Hemi-anechoic Rooms	SPL	C. S. for Acoustic Performance of Anechoic Rooms and Hemi-anechoic Rooms JJF 1147	0dB~130dB, 20Hz~20kHz	U=0.8dB		
9	*Reverberation Rooms	Reverberation Time	C. S. for Acoustic Performance of Reverberation Rooms JJF 1143	0.05ms~30s	U _{rel} =8.7%		
10	Sound Level meters	SPL	Verification Regulation of Sound Level Meters JJG 188	(40~120)dB, (10~200)Hz	U=0.4dB		
				(40~120)dB, (250 Hz~1.25kHz)	U=0.3dB		
				(40~120)dB, (1.6~10)kHz	U=0.5dB		
				(40~120)dB, (12.5 ~20)kHz	U=0.9dB		
				(120~160)dB, 100Hz	U=0.5dB		
				F:(1~50)dB/s, 4kHz	U=3.0dB/s		
		S:(1~50)dB/s, 4kHz		U=0.2dB/s			
Time Weighing							

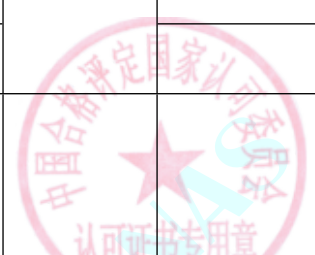


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Burst Response		(-40~10)dB, (0.25~1000)ms	U=0.2dB		
		Level Linearity		(10~160)dB,(10Hz~20kHz)	U=0.2dB		
11	Psophometers	Impedance	Calibration Specification for Calibration Specification for Psophometers JJF 1167	600 Ω	U=0.7 Ω		
				10k Ω	U=12 Ω		
				10M Ω	U=10k Ω		
		Level		(-90~40)dB	U=0.05dB		
12	Noise Level Statistical Analyzers	Sound Pressure Level	Verification Regulation of Noise Level Statistical Analyzers JJG 778	(40~140)dB, (10~200)Hz	U=0.4dB		
				(40~140)dB, (250Hz~1.25kHz)	U=0.3dB		
				(40~140)dB, (1.6~10)kHz	U=0.5dB		
				(40~140)dB, (12.5~20)kHz	U=0.9dB		
13	Audio-frequency Signal Generator	Amplitude Frequency Characteristics	Verification Regulation of Audio-frequency Signal Generator JJG 607	-80dB~20dB, (20Hz~20kHz)	U=0.2dB		
				-80dB~20dB, (>20~200)kHz	U=0.3dB		
14	Electro-acoustical Measurement Instruments for Telephone Set	Frequency Response	Verification Regulation of Electro-acoustical Measurement Instruments for Telephone Set JJG 869	(0~10)dB, (100Hz~8kHz)	U=0.4dB		
15	Measuring Amplifiers	Sensitivity	Calibration Specification for Measuring Amplifiers JJF 1157	-26.0dB, 1kHz	U=0.05dB		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency Weighting		-80dB~20dB, 10Hz~20kHz	$U=0.08\text{dB}$		
		Frequency Response		(-80~20)dB, 2Hz~200kHz	$U=0.08\text{dB}$		
16	Preamplifiers	Frequency Response	Calibration Specification for Microphone Preamplifiers JJF 1137	(-20~20)dB, 10Hz~50kHz	$U=0.09\text{dB}$		
		Transmission Lost		-20dB~20dB, 10Hz~50kHz	$U=0.09\text{dB}$		
17	Audio-frequency Power Amplifiers	Frequency Response	Calibration Specification for Audio-frequency Power Amplifiers JJF 1200	(-20~40)dB, 10Hz~20kHz	$U=0.05\text{dB}$		
		Distortion		0.05%~100%	$U=10\%\text{rdg}$		
18	Electrostatic Actuators	Response Level	Calibration Specification for Electrostatic Actuators JJF 1293	WS1:-60dB~20dB, DC~20kHz	$U=0.06\text{dB}$		
				WS2:-60dB~20dB, DC~20kHz	$U=0.10\text{dB}$		
19	Tone Burst Generators	Duration	Verification Regulation of Tone Burst Generators JJG 199	0.1 ms~5 s	$U_{\text{rel}}=0.5\%$		
		Repeat Cycle		0.1 ms~5 s	$U_{\text{rel}}=0.5\%$		
20	Sonic Belt Tension Meters	Frequency	Calibration Specification for Sonic Belt Tension Meters JJF 1216	(0~99.9)Hz	$U=0.3\text{Hz}$		
				(100~1000)Hz	$U=3.0\text{Hz}$		
				(1000~20000)Hz	$U_{\text{rel}}=0.3\%$		
21	Measurement Instruments of Otoacoustic Emissions	SPL	Calibration Specification for Measurement Instruments of Otoacoustic Emissions JJF 1289	(30~90)dB	$U=1.0\text{dB}$		
		Frequency		0.5kHz~8kHz	$U_{\text{rel}}=0.01\%$		
		Distortion		(0.05~100)%	$U=10\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	Impedance Audiometers	Hearing Level	Verification Regulation of Audiometric Equipment—	-20dB~100dB, 250Hz~8kHz	U=0.9dB		
		Sound Pressure Level	Instruments for the Measurement of Aural Acoustic Impedance/Admittance JJG 991	0dB~130dB, (226Hz、678Hz、1000Hz)	U=0.8dB		
23	*Audiometry Rooms	SPL	Calibration Specification for Acoustic Performance of Audiometry Rooms JJF 1191	0dB~60dB, 20Hz~20kHz	U=0.8dB		
24	Pure-tone Audiometer	Frequency	Verification Regulation of Audiological Equipment Pure-tone Audiometers JJG 388	(100~20000)Hz	U _{rel} =0.01%		
		Distortion		0.05%~100%	U=10%rdg		
		RETSPL		(-10~110)dB, (125~4000)Hz	U=1.0dB		
		RETFL		(-10~110)dB, (6000~12500)Hz	U=1.5dB		
(-10~70)dB, (250~4000)Hz	U=1.5dB						
		(-10~70)dB, (6000~8000)Hz	U=2.0dB				
25	*Anechoic Watertank	Echoic interference value	Calibration Specification for Acoustic Characteristics of Anechoic Water Tank JJF 1146	(80~160)dB, (500Hz~200kHz)	U _{rel} =2.4%		
26	Standard hydrophone	Sound Pressure Sensitivity Level	Standard Hydrophones in the Frequency Range 0.5 MHz to 5 MHz (Two-transducer Reciprocity Method) JJG 1070, Standard Hydrophones in the Frequency Range 1kHz	(-270~-180)dB, (1~100)kHz	U=0.9dB		

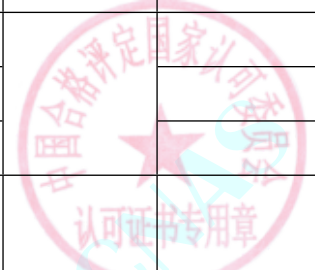


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			to 1 MHz JIG 1017	(-270~-180)dB, > 100kHz~5MHz	$U=1.1\text{dB}$		
27	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Output Power	V.R. of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JIG 639	(1~10)mW/cm ²	$U_{\text{rel}}=11\%$		
		definition		(0~190)mm	$U=0.1\text{mm}$		
28	*Ultrasonic Flaw Detectors	Accuracy of Calibrated Attenuator	V.R. for Ultrasonic Flaw Detectors JIG 746	(0~81)dB, (0.5~15)MHz	$U=0.2\text{ dB}$		
		Electrical noise		(0~100%)	$U=5.0\%$		
		horizontal linearity		(0~100)%, (0.5~15)MHz	$U=0.2\%$		
		Voltage		(-4×10 ⁸ ~4×10 ⁸) μ V, (0.5~15)MHz	$U=40\text{ μ V}$		
		Dynamic range		(0~81)dB, (0.5~15)MHz	$U=3\text{ dB}$		
		Linearity of Vertical Display		(0~100)%, (0.5~15)MHz	$U=0.7\%$		
29	Equipment of Ultrasonic Inspection Detectors	Frequency	C.R for Equipment of Ultrasonic Inspection Detectors NIMTT(CM) 097	(0.5~15)MHz	$U_{\text{rel}}=0.07\%$		
		Attenuator		(0~81)dB	$U=0.06\text{dB}$		
		Voltage		(0~10)V	$U_{\text{rel}}=4.0\%$		
30	Acoustic Detector	Time of transmitted sound	Verification Regulation of Acoustic Detector JIG 990	1 μ s~10s	$U_{\text{rel}}=6.7\times 10^{-4}\times (0.047/d^2+1.6^2)^{0.5}\times 100\%$		

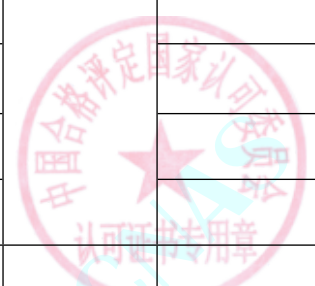


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
31	Ultrasonic Standard Test Tube	Length	Ultrasonic Standard Test Tube NIMTT (CM) 041	(1~400)mm	$U=(1.5+L) \mu m$	L is the length, m	
32	*Ultrasonic Phased Array Flaw Detectors	length	Calibration Specification for Ultrasonic Phased Array Flaw Detectors JJF 1338	geometry:(0.1~55)mm	$U_{rel}=2.0\%$		
		angle		angle:(0.1~90)°	$U_{rel}=2.0\%$		
33	Ultrasonic Power Meter for Mill watt Level	power	Verification Regulation of Ultrasonic Power Meter for Milliwatt Level JJG665	(1~5)mW	$U_{rel}=7\%$		
		power		(5~100)mW	$U_{rel}=5.8\%$		
		power		(100~150)mW	$U_{rel}=10\%$		
34	Air Ultrasound Measuring Instruments	Minimum detected signal	Calibration Specification for Air Ultrasound Measuring Instruments JJF 1504	100Hz~50kHz	$U=2.5dB$		
35	Acoustic Emission Instrumentation	receiver noise	Calibration Specification for Acoustic Emission Instrumentation JJF 1505	(0~60)dB	$U=0.4dB$		
		frequency range		10Hz~100MHz	$U_{rel}=5\%$		
36	Environmental Noise Automatic Monitors	SPL	Verification Regulation of Environmental Noise Automatic Monitors JJG 1095	(0~120)dB, ((31.5~2k)Hz	$U=0.5dB$		
				(0~120)dB, (>2k~16k)Hz	$U=0.9dB$		
		Time Weighing		(60~120)dB, (10Hz~20kHz)	$0.3dB/s(S); U=1.5dB/s(F)$		
		Burst Response		(60~120)dB	$U=0.2dB$		
		Level Linearity		(10~160)dB	$U=0.2dB$		
37	Multi-Channels Sound Analyzers	SPL	Calibration Specification for Multi-Channels Sound Analyzers JJF 1288	(10~160)dB, (10Hz~20kHz)	$U=0.2dB$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Level Linearity		(10~150)dB	$U=0.2\text{dB}$		
				(0~50)dB	$U=0.2\text{dB}$		
		Time Weighing		(60~120)dB, (10Hz~20kHz)	0.3dB/s(S) ; $U=1.5\text{dB/s(F)}$		
		amplitude frequency characteristics		(10~160)dB, (10Hz~20kHz)	$U=0.2\text{dB}$		
		Frequency		0%~100%	$U=0.05\%$		
		Amplitude		0%~100%	$U=0.3\%$		
		frequency spectrum features		(10~160)dB, (10Hz~20kHz)	$U=0.2\text{dB}$		
38	High Sound Pressure Measuring Microphones	Level Linearity	Calibration Specification of the Upper Limit of Dynamic Range of High Sound Pressure Measuring Microphones JJF 1738	(-2.0~2.0)dB	$U=0.2\text{dB}$		
		Total harmonic distortion		0%~20%	$U=0.8\%$		
		upper limit for dynamic rang		0dB~171dB	$U=2\text{dB}$		
39	Elastic Wave-Based Measurement Apparatus	time indication	Calibration Specification for Elastic Wave-Based Measurement Apparatus NIMTT(CM) 031	0.1%~100%	$U_{\text{rel}}=0.3\%$		
		voltage amplitude		0.1%~100%	$U_{\text{rel}}=2.0\%$		
40	Ultrasonic Flaw Detectors by Time-of-Flight Diffraction	Receiver bandwidth	Calibration Specification for Ultrasonic Flaw Detectors by Time-of-Flight Diffraction JJF 1447	100kHz~1MHz	$U_{\text{rel}}=2.5\%$		



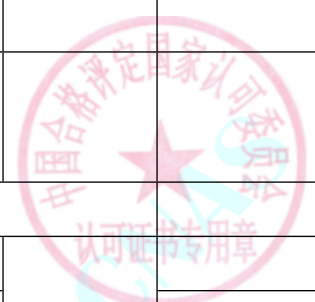
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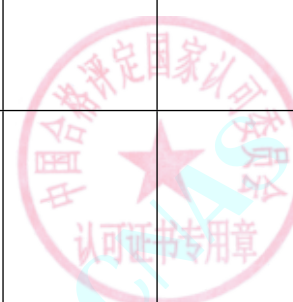
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
41	Acoustic Emission Sensors	Sensitivity Level	Calibration Specification for Acoustic Emission Sensors(Comparative Method) JJF 1337	(40~120)dB, 100kHz~1MHz	$U=3.1$ dB		
42	Ultrasonic Flaw Detector for Rail	attenuator	Calibration Specification for Ultrasonic Flaw Detector for Rail JJG(铁道)130	40dB	$U=0.5$ dB		
43	Transducers of Ultrasonic flaw detector	Pulse width	Calibration Specification for Transducers of Ultrasonic flaw detector JJF 1294	(0.5~15)MHz	$U_{rel}=2.3\%$		
		Central Frequency		(0.5~15)MHz	$U_{rel}=2.3\%$		
		Relative bandwidth		(0.5~15)MHz	$U_{rel}=3.4\%$		
		relative pulse echo		(-100~-0.1)dB	$U_{rel}=1.5\%$		
		angle probe index		(0.1~50)mm	$U_{rel}=2.1\%$		
angle of incidence	35° ~85°	$U_{rel}=3.6\%$					
44	Ultrasound Phantoms	Sound velocity	Calibration Specification for Ultrasound Phantoms JJF 1556	(1000~3000)m/s	$U_{rel}=0.3\%$		
		Attenuation		(0.1~80)dB/cm	$U_{rel}=6\%$		
45	Measuring hydrophone	Sensitivity level	Standard Hydrophones in the Frequency Range 1 Hz to 2 kHz(Closed-chamber Comparison Method) JJG 340	(-220~-160)dB, 1Hz~1kHz	$U=0.9$ dB		
五、电磁测量仪器							
1	Withstanding Voltage Tester	AC Voltage	Withstanding Voltage Tester JJG795,C. S. of Withstanding Voltage Tester	(0.1~100)kV	$U_{rel}=0.05\%$		
		DC Voltage		(0.1~100)kV	$U_{rel}=0.1\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Breakdown current	(15kV~100kV) NIMTT(CM) 022	0.1mA~2A	$U_{rel}=0.1\%$		
		Time		0.1s~999s	$U_{rel}=1.0\%$		
2	High Voltage Electrostatic Voltmeter	AC Voltage	High Voltage Electrostatic JYG494	(0.1~100)kV, 50Hz	$U_{rel}=0.26\%$		
		DC Voltage		(0.1~100)kV	$U_{rel}=0.16\%$		
3	Digital high-Voltage meter	AC Voltage	Digital high-voltage meter verification regulation	(0.1~300)kV 50Hz	$U_{rel}=0.05\%$		
		DC Voltage	JYG(J1)101	(0.1~300)kV	$U_{rel}=0.1\%$		
4	High Voltage Divider at Power Frequency	Voltage	Verification Regulation of High Voltage Divider at Power Frequency JYG496	(0.1~300)kV 50Hz	$U_{rel}=0.05\%$		
5	DC High Voltage Dividers	Voltage	DC High Voltage Dividers JYG1007	(0.1~300)kV	$U_{rel}=0.1\%$		
6	high-voltage prob	DC Voltage	C.S.of high-voltage prob NIMTT(CM) 020	(0.1~100)kV	$U_{rel}=0.1\%$		
		AC Voltage		(0.1~100)kV, 50Hz	$U_{rel}=0.05\%$		
		Spike Voltage		(1~15)kV	$U_{rel}=2.0\%$		
7	Industrial frequency, dc spark machine	voltage	verification procedure for test equipmet of rubber plastic wire and cable-part 10:spark tester JB/T 4278.10	(1~50)kV	$U_{rel}=0.5\%$		
8	Contactless electrostatic voltmeter	voltage	Contactless electrostatic voltmeter calibration specifications JJF 1517, Contactless electrostatic voltmeter calibration specifications GJB/J 5972	(0.1~100)kV	$U_{rel}=0.1\%$		

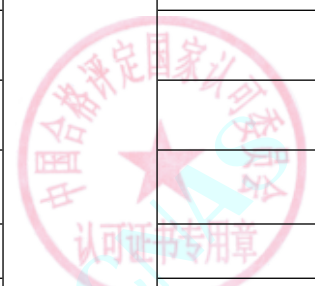


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
9	*Voltage Transformers of MeasUring Service	Difference value	V.R. of Voltage Transformers of MeasUring Service JJG 314	20%Un:(100/√3~500000/√3)/(100~100/√3)V	U=2.4×10 ⁻⁵		
				50%Un:(100/√3~500000/√3)/(100~100/√3)V	U=1.8×10 ⁻⁵		
				80%~120%Un:(100/√3~500000/√3)/(100~100/√3)V	U=1.2×10 ⁻⁵		
		Phase difference		20%Un:(0~0.29)rad	U=2.4×10 ⁻⁵ rad		
				50%Un:(0~0.29)rad	U=1.8×10 ⁻⁵ rad		
				80%~120%Un:(0~0.29)rad	U=1.2×10 ⁻⁵ rad		
10	*Instrument Transformers in Power System	Difference value	V.R. of Instrument Transformers in Power System JJG1021	(80~120)%Un:(100/√3~500000/√3)/(100~100/√3)V	U=0.01%		
				Phase difference	(80~120)%Un:(0~999.9)'	U=0.8'	
		Difference value			1%In:(0.1~10000)/(1、5)A	U=0.02%	
				5%In:(0.1~10000)/(1、5)A	U=0.01%		
		Phase difference		20%~120%In:(0.1~10000)/(1、5)A	U=0.01%		
				1%In:(0~999.9)'	U=1.2'		
		5%In:(0~999.9)'	U=1.0'				



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				20%~120%In:(0~999.9)'	$U=0.8'$		
11	Inductive Voltage Divider	Difference value	V.R of Inductive Voltage Divider JJG 244	(10~1000) / (10~200) V	$U=1.2 \times 10^{-5}$		
		Phase difference		(0~0.29)rad	$U=1.2 \times 10^{-5}$ rad		
12	Standard Cell	Electromotive force	Verification Regulation of Standard Cell JJG 153	1.018V(rating voltage)	$U_{rel}=2 \times 10^{-7}$		
13	Standard Cell	Electromotive force	Verification Regulation of Working Standard of DC Electromotive Force JJG 719	1.018V(rating voltage)	$U_{rel}=3 \times 10^{-8}$		
14	DC Volt Ratio Box	Voltage	Verification Regulation of The DC Resistive Volt Ratio Box JJG531	10V~1.0 kV $\times 10$:	$U_{rel}=5 \times 10^{-5}$		
				10V~1.0 kV $\times 100$:	$U_{rel}=2 \times 10^{-5}$		
				10V~1.0 kV $\times 200$:	$U_{rel}=7 \times 10^{-5}$		
				10V~1.0 kV $\times 500$:	$U_{rel}=7 \times 10^{-5}$		
15	Medical Diagnostic X-ray Non-invasive Current Meters	Current	Calibration Specification for Medical Diagnostic X-ray Non-invasive Current Meters JJF 1473	0.1mA~1A	$U_{rel}=0.4\%$		
16	Leakage switch tester	DC Current	Calibration Specification for Residual Current Operated Protective Device Operated Characteristic Tester JJF1283	10 μ A~20A	$U_{rel}=0.02\%$		
		AC Voltage		40Hz~65Hz 10mV~750V	$U_{rel}=0.05\%$		
		AC Current		40Hz~65Hz μ A~20A	10 $U_{rel}=0.05\%$		
		Time		(0.01~999999)ms	$U=0.02\text{ms} \sim 3.9\text{ms}$		
17	Leakage current tester	voltage	V.R. of Leakage current tester JJG843	(1~1000)V	$U_{rel}=0.1\%$		

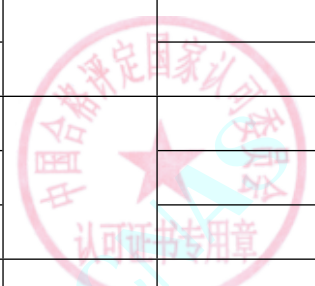


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		current		0.01mA ~ 10A	$U_{rel}=0.1\%$		
18	*Current Transformers of MeasUring Service	Difference value	V.R. of Current Transformers of MeasUring Service JJG 313	1%In:(0.1 ~ 10000)/(1、5)A	$U=5 \times 10^{-6}$		
				5%In:(0.1 ~ 10000)/(1、5)A	$U=4 \times 10^{-6}$		
				20% ~ 120%In:(0.1 ~ 10000)/(1、5)A	$U=3 \times 10^{-6}$		
		Phase difference		1%In:(0 ~ 0.29)rad	$U=5 \times 10^{-6}rad$		
				5%In:(0 ~ 0.29)rad	$U=4 \times 10^{-6}rad$		
				20% ~ 120%In:(0 ~ 0.29)rad	$U=3 \times 10^{-6}rad$		
19	DC Electronic Loads	DC Voltage	Calibration Specification for DC Electronic Loads JJF1462	(1 ~ 240)V	$U_{rel}=0.01\%$		
		DC Current		(0.1 ~ 240)A	$U_{rel}=0.02\%$		
		DC Power		1W ~ 12kW	$U_{rel}=0.02\%$		
20	lightning element tester	DC Voltage	Calibration method of lightning element tester NIMTT(CM) 084	10mV ~ 2000V	$U_{rel}=0.2\%$		
		DC Current		1 μ A ~ 10A	$U_{rel}=0.2\%$		
		Resistance		0.1 Ω ~ 100M Ω	$U_{rel}=0.2\%$		
21	Galvanometer	Current	Verification Regulation of DC Magnetolectric Galvanometers JJG495	10 ⁻⁴ A ~ 10 ⁻⁷ A	$U_{rel}=0.1\%$,		
				10 ⁻⁷ A ~ 10 ⁻⁸ A	$U_{rel}= (0.1\% \sim 0.5\%)$		
				10 ⁻⁸ A ~ 10 ⁻¹⁰ A	$U_{rel}= (0.5\% \sim 2\%)$		
				10 ⁻¹⁰ A ~ 10 ⁻¹² A	$U_{rel}= (2\% \sim 5\%)$		
22	Grounding (conduction)	resistance	Earth-continuity testers JJG984	(10 ~ 500)m Ω	$U_{rel}=0.05\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	resistance tester	current		(1~100)A	$U_{rel}=0.05\%$		
		voltage		10mV~20V	$U_{rel}=0.1\%$		
23	DC Resistors	Resistances	Verification Regulation of DC Resistors JJG166	Working standard:($10^{-3}\sim 10^5$) Ω	$U_{rel}=(0.25\sim 1)\times 10^{-6}$		
				Grade 1:($10^{-3}\sim 10^5$) Ω	$U_{rel}=(0.5\sim 3)\times 10^{-6}$		
				Grade 2:($10^{-3}\sim 10^5$) Ω	$U_{rel}=3\times 10^{-5}$		
24	DC Bridges for Measuring Temperature	Resistances	Verification Regulation of DC Bridges for Measuring Temperature JJG484	($10^{-2}\sim 10^{-1}$) Ω	$U_{rel}=1\times 10^{-3}$		
				($10^{-1}\sim 1$) Ω	$U_{rel}=1\times 10^{-4}$		
				($1\sim 10^4$) Ω	$U_{rel}=1\times 10^{-5}$		
25	DC Low Resistance Meters	Resistances	Verification Regulation of DC Low Resistance Meters JJG837	($10^{-6}\sim 10^{-4}$) Ω	$U_{rel}=1\times 10^{-3}$		
				($10^{-4}\sim 10^{-1}$) Ω	$U_{rel}=5\times 10^{-4}$		
				($10^{-1}\sim 10^5$) Ω	$U_{rel}=5\times 10^{-5}$		
26	Loop Resistance Tester and DC Resistance Meters	Resistances	Verification Regulation of Loop Resistance Tester and DC Resistance Meters JJG1052	($10^{-6}\sim 10^{-4}$) Ω	$U_{rel}=1\times 10^{-3}$		
				($10^{-4}\sim 10^{-1}$) Ω	$U_{rel}=5\times 10^{-4}$		
				($10^{-1}\sim 10^5$) Ω	$U_{rel}=5\times 10^{-5}$		
27	DC Bridge	Resistances	Verification Regulation of DC Bridge JJG125	($10^{-4}\sim 1$) Ω	$U_{rel}=1\times 10^{-3}$		
				($1\sim 10$) Ω	$U_{rel}=1\times 10^{-4}$		
				($10\sim 10^7$) Ω	$U_{rel}=1\times 10^{-5}$		
28	DC Comparison Bridge	Resistances	Verification Regulation of DC Comparison Bridge JJG546	($10^{-2}\sim 1$) Ω	$U_{rel}=1\times 10^{-3}$		
				($1\sim 10^4$) Ω	$U_{rel}=1\times 10^{-5}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	DC Shunts	Resistances	Verification Regulation of DC Shunts JJG1069	$(10^{-6} \sim 1) \Omega$	$U_{rel}=5 \times 10^{-5}$		
30	Earth Resistance Meter	Resistive	Verification Regulation of Earth Resistance Meters JJG366	$0.01 \Omega \sim 10 \Omega$	$U_{rel}= (0.5\% \sim 1\%)$		
				$10 \Omega \sim 2000 \Omega$	$U_{rel}= (0.5\% \sim 5\%)$		
31	Clamp Earth Resistance Meters	Resistive	Verification Regulation of Clamp Earth Resistance Meters JJG1054	$0.01 \Omega \sim 10 \Omega$	$U_{rel}= (0.5\% \sim 1\%)$		
				$10 \Omega \sim 2000 \Omega$	$U_{rel}= (0.5\% \sim 5\%)$		
32	surface resistance tester	Resistive	Calibration specification for surface resistance tester JJF1285	$10^2 \Omega \sim 10^6 \Omega$	$U_{rel}= (0.001\% \sim 0.002\%)$		
				$10^6 \Omega \sim 10^8 \Omega$	$U_{rel}= (0.002\% \sim 0.005\%)$		
				$10^8 \Omega \sim 10^{10} \Omega$	$U_{rel}= (0.005\% \sim 0.2\%)$		
				$10^{10} \Omega \sim 10^{13} \Omega$	$U_{rel}= (0.2\% \sim 5\%)$		
				$10^{13} \Omega \sim 10^{15} \Omega$	$U_{rel}= (5\% \sim 10\%)$		
33	Industry Frequency Single-Phase Phase Meter	Mutually Phase(power Factor)	Verification Regulation of Industry Frequency Single-Phase Phase Meter JJG440	$0^\circ \sim 360^\circ$	$U=0.05^\circ$		
34	Low-frequency Phase Meters	Mutually Phase(power Factor)	Calibration Specification for Low-frequency Phase Meters JJF1756	$0^\circ \sim 360^\circ$	$U=0.005^\circ$		
35	HDEM-electric field monitor	electric fieldintensity	calibration specification for HDEM-electric field monitor NIMTT(CM) 009	$(0.05 \sim 30) \text{ kV/m}$	$U_{rel}=4.2\%$		
36	Charge Amplifiers	Normalized	Charge Amplifiers JJG 338	$f:(0.1 \sim 10^5)\text{Hz}$ $Q:(0.1 \sim 10^4)\text{pC}$	$U_{rel}=0.5\%$		
				$f:(0.1 \sim 10^5)\text{Hz}$ $Q:(0.1 \sim 10^4)\text{pC}$	$U_{rel}=0.5\%$		



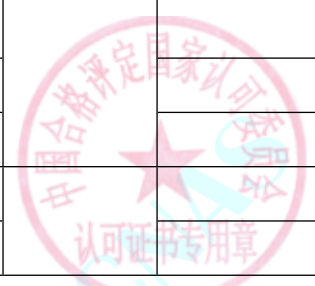
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	f:(0.1~10 ⁵)Hz Q:(0.1~10 ⁴)pC	U _{rel} =0.5%		
				f:(0.1~10 ⁵)Hz Q:(0.1~10 ⁴)pC	U _{rel} =0.5%		
		Attenuation		f:(0.1~10 ⁵)Hz Q:(0.1~10 ⁴)pC	U _{rel} =0.5%		
		Linear		f:(0.1~10 ⁵)Hz Q:(0.1~10 ⁴)pC	U _{rel} =0.5%		
37	Resistance Strain Gauge Indicators	Frequency response	Resistance Strain Gauge Indicators JJG 623	10Hz~500kHz	U=0.5dB		
		Strain		(0.1~10 ⁵) μ ε	U _{rel} =0.1%		
38	Calibration Specification for IEPE Amplifiers	Attenuation	Calibration Specification for IEPE Amplifiers JJF 1269	f:(0.1~10 ⁵)Hz ACV:(0.01~10)V	U _{rel} =0.5%		
		Linear		f:(0.1~10 ⁵)Hz ACV:(0.01~10)V	U _{rel} =0.5%		
		Normalized		f:(0.1~10 ⁵)Hz ACV:(0.01~10)V	U _{rel} =0.5%		
39	Instrument Transformer Test Set(Secondary Pressure Drop Tester)	Ratio variant	Verification Regulation of Instrument Transformer Test Set JJG 169	1×10 ⁻⁹ ~1.111×10 ⁻²	U _{rel} =0.4%~0.2%		
		Angular Difference		1×10 ⁻⁹ ~11.11×10 ⁻²	U _{rel} =0.4%~0.2%		
		Impedance		(10-3~111.1) Ω	U _{rel} =0.8%~0.4%		
		Admittance		(10 ⁻⁸ ~0.1111)S	U _{rel} =0.4%		
40	Burden Box of Instrument Transformers	Impedance	Calibration Specification for Burden Box of Instrument Transformers JJF1264	(10-3~111.1) Ω	U _{rel} =0.8%~0.4%		
		Admittance		(10 ⁻⁸ ~0.1111)S	U _{rel} =0.4%		

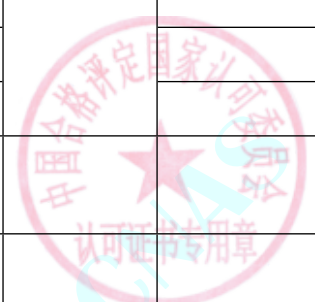


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
41	Volt-ampere characteristic and polarity Measuring Instrument	Current Transformation Ratio	Calibration Specification for Volt-ampere characteristic and polarity Measuring Instrument NIMTT(CM) 048	0.1/5A~10000/5A	$U_{rel}=0.01\%$			
		Voltage Transformation Ratio		(100/100V~10000/100V)	$U_{rel}=0.01\%$			
				10000/100V ~35/0.1kV	$U_{rel}=0.01\% \sim 0.05\%$			
		Current		(0.1~50)A	$U_{rel}=0.5\% \sim 0.2\%$			
				(50~100)A	$U_{rel}=0.2\% \sim 0.1\%$			
				(100~1000)A	$U_{rel}=0.1\%$			
				(1000~10000)A	$U_{rel}=0.1\% \sim 0.5\%$			
				Voltage	(0.1~50)V	$U_{rel}=0.5\% \sim 0.1\%$		
					50V~35kV	$U_{rel}=0.1\%$		
		resistant load		(0.01~1000) Ω	$U_{rel}=0.1\%$			
(0.01~80) kV	$U_{rel}=0.1\%$							
42	AC and DC converter	Voltage	Calibration method for AC and DC converter NIMTT(CM) 088	5 V~600V	$U_{rel}=0.01\%$			
		Current		25mA ~10A	$U_{rel}=0.01\%$			
		Power		5V~600V/25mA~10A	$U_{rel}=0.01\%$			
43	Magnetic field coil	Coils constant	Calibration Specification for Magnetic Field Coil NIMTT(CM) 003	$(1 \times 10^{-4} \sim 2 \times 10^{-2})T/A$	$U_{rel}=0.02\%$			
44	field meter	Low Frequency Electric-Field	Calibration Specification for Electric Field meters JJF(川)154,Calibration	10Hz~400kHz 1V/m~100V/m	$U=0.6dB$			
				(0.1~10) kV/m(50Hz)	$U=0.6dB$			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		high Frequency Electric-Field	Specification for Electromagnetic Field Probes from 10kHz to 6GHz NIMTT(CM) 006	10kHz~100MHz0.2V/m~300V/m	U=0.8dB		
				1GHz~6GHz1V/m~300V/m	U=1.6dB		
		high Frequency magnetic-Field		100MHz~1GHz1V/m~300V/m	U=1.4dB		
				100MHz~1GHz0.01A/m~1A/m	U=1.4dB		
45	Power amplifier	Power Gain	calibration specification for RF and microwave power amplifier JJF1678	(0~80)dB, (9kHz~18GHz)	U=0.49dB		
		1dB compression point Gain		(0~80)dB, (9kHz~18GHz)	U=0.49dB		
		harmonic suppression		0~80)dBc,(9kHz~19GHz)	U=0.49dB		
46	Tesla-Meter	Magnetic induction intensity	Verification Regulation of Tesla-Meter JJF 1832	(1~43)mT	U _{rel} =0.1%		
				(43~2000) mT	U _{rel} =0.02%		
47	Fluxmeter	Magnetic flux	Verification Regulation of magnetic flux meter JJG 317	(0.1~1)mWb	U=0.002mWb		
				1mWb~10Wb	U _{rel} =0.1%		
48	Alternating magnetic intensity meter	Magnetic induction intensity	Verification Regulation of Alternating Tesla-Meter for Weak Magnetic Field JJG 1049	(1~1000) μ T	U=(0.12~5) μ T		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
49	Magenetometer	Magnetic induction intensity	Calibration Specification for Magnetometers Based Magnetic Force JJF 1656	(0.05~10)mT	$U_{rel}=1.3\%$		
50	D.C.Resistance Box	Resistances	Verification Regulation of D.C.Resistance Box JJG 982	$(10^{-3}\sim 10^{-2})\Omega$	$U_{rel}=1\times 10^{-4}$		
				$(10^{-2}\sim 1)\Omega$	$U_{rel}=3\times 10^{-5}$		
				$(1\sim 10^7)\Omega$	$U_{rel}=1\times 10^{-5}$		
51	DC Potentiometer	voltage	Verification Regulation of DC Potentiometer JJG 123	$0.01\mu V\sim 10mV$	$U=0.01\mu V$		
				$10mV\sim 2.1111111V$	$U_{rel}=1\times 10^{-5}$		
52	DC Comparison Potentiometer	voltage	Verification Regulation of DC Comparison Potentiometer JJG 505	$0.01\mu V\sim 10mV$	$U=0.01\mu V$		
				$10mV\sim 2.1111111V$	$U_{rel}=1\times 10^{-6}$		
53	DC Current Comparator Bridge	Resistances	Verification Regulation of DC Current Comparator Bridge JJG 506	$(10^{-3}\sim 10^5)\Omega$	$U_{rel}=(0.5\sim 1)\times 10^{-6}$		
		ratio		$0.95\sim 1.05$	$U_{rel}=5\times 10^{-8}$		
				$0.01\sim 0.95$	$U_{rel}=1\times 10^{-7}$		
				$1.05\sim 100$	$U_{rel}=1\times 10^{-7}$		
54	DC Comparator Bridge for measuring temperatures	Resistances	Calibration specification for DC Comparator Bridge for measuring temperatures JJF 1444	$(10^{-3}\sim 10^5)\Omega$	$U_{rel}=(0.5\sim 1)\times 10^{-6}$		
		ratio		$0.95\sim 1.05$	$U_{rel}=5\times 10^{-8}$		
				$0.01\sim 0.95$	$U_{rel}=1\times 10^{-7}$		
				$1.05\sim 100$	$U_{rel}=1\times 10^{-7}$		
55	Electromechanical watt hour meters	Alternating-current Electrical Energy	V.R. of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG 307	$57.7V\sim 380V, 25mA\sim 100A$	$U_{rel}=0.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
56	Electrical energy meters	Alternating-current Electrical Energy	V.R. of Electrical Meters for Measuring Alternating-current Electrical Energy JJG 596, V.R. of Multi-Rate Electricity Meters for Measuring Alternating-current Electrical Energy JJG 691, V.R. of Pre-payment Electrical Meters for Measuring Alternating-current Electrical Energy JJG 1099, V.R. of Electricity Meters with Maximum Demand Measurement Functions JJG 569	57.7V~380V, 1mA~100A	$U_{rel}=4 \times 10^{-4}$		
		time		(-99.99 ~ 99.99) s/d	$U=0.06s/d$		
57	Reference meters for electrical energy	Alternating-current Electrical Energy	V.R. of Reference Meters for Electrical Energy JJG 1085	3P4W active 0.05A~100A, 57.7V~380V	$U_{rel}=8 \times 10^{-5}$		
				3P3W active 0.05A~100A, 57.7V~380V	$U_{rel}=1 \times 10^{-4}$		
				3P4W reactive 0.05A~100A, 57.7V~380V	$U_{rel}=1.3 \times 10^{-4}$		
				3P4W active 0.01A~0.05A, 57.7V~380V	$U_{rel}=1.3 \times 10^{-4}$		
				3P3W active 0.01A~0.05A, 57.7V~380V	$U_{rel}=1.6 \times 10^{-4}$		
				3P4W active 0.001A~0.01A, 57.7V~380V	$U_{rel}=2.5 \times 10^{-4}$		
58	Electrical energy performance field	Alternating-current Electrical	C.S. for Electrical Energy Meter on-site calibrator NIMTT(CM) 074	57.7V~380V, port: 0.1~20A	$U_{rel}=1.2 \times 10^{-4}$		



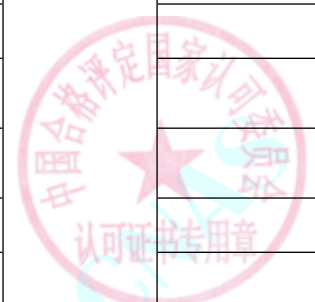
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	calibrator	Energy	ilac-MRA	57.7V~380V,clamp: 0.1~100A	$U_{rel}=2 \times 10^{-4}$		
		voltage		57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
		current		port: 0.1~20A	$U_{rel}=1.2 \times 10^{-4}$		
				clamp: 0.1~100A	$U_{rel}=2 \times 10^{-4}$		
		power		57.7V~380V,port: 0.1~20A	$U_{rel}=1.2 \times 10^{-4}$		
				57.7V~380V,clamp: 0.1~100A	$U_{rel}=2 \times 10^{-4}$		
		phase		(0~360)°	$U=0.01^\circ$		
59	*verification equipment for AC electrical energy meters	Alternating-current	V.R. Verification Equipment for AC Electrical Energy Meters JJG 597	0.1A~100A,57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
		Electrical Energy		0.001A~0.1A,57.7V~380V	$U_{rel}=3 \times 10^{-4}$		
		voltage		57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
		current		0.1A~100A	$U_{rel}=1.2 \times 10^{-4}$		
				0.001A~0.1A	$U_{rel}=3 \times 10^{-4}$		
		power		0.1A~100A,57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
				0.001A~0.1A,57.7V~380V	$U_{rel}=3 \times 10^{-4}$		
		phase		0° ~360°	$U=0.01^\circ$		
		frequency		45Hz~65Hz	$U=0.001\text{Hz}$		

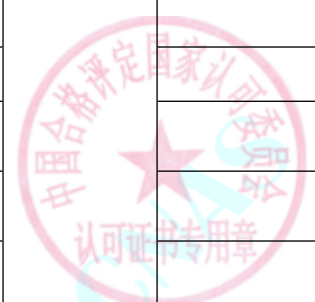


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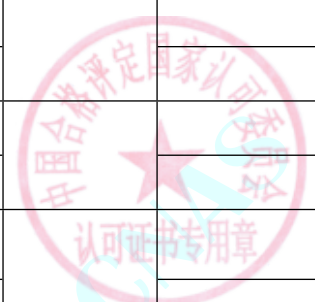
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
60	*DC Digital Wattmeter	DC Power	Calibration method of DC digital power meter NIMTT(CM) 076	0.1V~600V,10 μ A~400A	$U_{rel}=0.02\%$		
61	Clamp Meter	AC Current	C.S. for A multi function power meter calibration method NIMTT(CM) 085	(0.001~1000)A, 50Hz	$U_{rel}=0.2\%$		
				(0.001~1000)A,1000Hz	$U_{rel}=0.3\%$		
		DC Current		(0.001~1000)A	$U_{rel}=0.2\%$		
		AC Power		(0.1~1000)V,(1~1000)A,(45Hz~65Hz)	$U_{rel}=0.2\%$		
		DC Voltage		0.01 V~1000V	$U_{rel}=0.002\%$		
		AC Voltage		0.01V~1000V,40Hz~10kHz	$U_{rel}=0.01\%$		
		Resistance		10 Ω ~1M Ω	$U_{rel}=0.01\%~0.002\%$		
				1M Ω ~100M Ω	$U_{rel}=0.01\%$		
		Phase		0° ~360° ,(16~69)Hz	$U=0.005^\circ$		
0° ~360° ,(69~450)Hz	$U=0.03^\circ$						
62	*Testers for Relaying Protection	DC Voltage	V.R. of Testers for Relaying Protection JJG 1112	10mV~1000V	$U_{rel}=0.002\%$		
		DC Current		1mA~100A	$U_{rel}=0.02\%$		
		AC Voltage		10mV~750V,10Hz~1kHz	$U_{rel}=0.02\%$		
		AC Current		1mA~100A,10Hz~1kHz	$U_{rel}=0.02\%$		
		Mutually Phase		(0~360)° ,10Hz~1kHz	$U=0.006^\circ$		
		Time		(1~999999)ms	$U=0.02ms~3.9ms$		



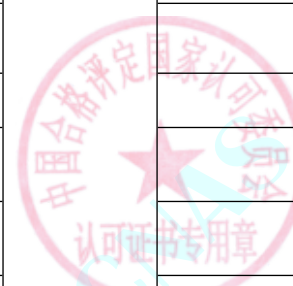
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		10Hz~1kHz	$U_{rel}=0.001\%$		
63	*Harmonious and Flicker Analysis System (Power Quality Analyzer)	Voltage	Calibration Specification for Harmonious and Flicker Analysis System JJF 1205	(3~1000)V,45Hz~65Hz	$U_{rel}=0.01\%$		
		Current		(0.05~100)A,45Hz~65Hz	$U_{rel}=0.01\%$		
				(100~3000)A,45Hz~65Hz	$U_{rel}=0.2\%$		
		Power		(3~1000)V,(0.05~100)A,45Hz~65Hz	$U_{rel}=0.02\%$		
				(3~1000)V,(100~1000)A,45Hz~65Hz	$U_{rel}=0.2\%$		
		Frequency		16Hz~850Hz	$U_{rel}=0.001\%$		
		Phase		(0~360)°,16Hz~180Hz	$U=0.003^\circ$		
		Harmonic Voltage		(0.03~300)V,(2~60)Times	$U_{rel}=0.01\%~0.02\%$		
		Harmonic Current		(0.005~30)A,(2~60)Times	$U_{rel}=0.01\%~0.02\%$		
(30~100)A,(2~60)Times	$U_{rel}=0.2\%$						
Flicker	(0.40~13.62)%	$U_{rel}=0.06\%$					
64	Transformer with load tap changer	Time	Calibration method of transformer with load tap changer NIMTT(CM) 078	(0.01~2000)ms	$U=0.02\text{ms}$		
		Resistance		(0.1~100)Ω	$U=0.10\Omega$		
65	Electrical Quantities Transducer	AC Current	V.R. of Measuring transducers for converting a.c.electrical quantities into d.c.electrical quantities JJG	(0.1~100)A,40Hz~1kHz	$U_{rel}=0.02\%$		
		AC Voltage		10mV~1000V,40Hz~1kHz	$U_{rel}=0.01\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Power	126	$3 \times (30 \sim 600)V, (0.005 \sim 100)A, 40Hz \sim 65Hz$	$U_{rel}=0.02\%$		
		Frequency		10Hz ~ 100kHz	$U_{rel}=0.01\%$		
66	*DC Stabilized Power Supplies	DC Voltage	Calibration Specification for DC Stabilized Power Supplies JJF 1597	(0.01 ~ 1000)V	$U_{rel}=0.002\%$		
		DC Current		(0.01 ~ 1000)A	$U_{rel}=0.01\%$		
				(1000 ~ 10000)A	$U_{rel}=0.2\%$		
67	*Battery charging and discharging tester	DC Voltage	Calibration method for battery charging and discharging tester NIMTT(CM) 082	(0.01 ~ 1000)V	$U_{rel}=0.01\%$		
		DC Current		(0.01 ~ 1000)A	$U_{rel}=0.01\%$		
				(1000 ~ 10000)A	$U_{rel}=0.5\%$		
		Resistance		1mΩ, 10mΩ, 100mΩ, 1Ω	$U_{rel}=0.02\%$		
68	Large current tester	DC Current	Calibration method for large current tester NIMTT(CM) 087	(0.01 ~ 10000)A	$U_{rel}=0.01\%$		
		Time		0.5s ~ 10s	$U=0.01s$		
69	*Digital AC Electrical Parameters Meter	AC Voltage	Calibration Specification for Digital AC Electrical Parameters Meter JJF 1491	0.01V ~ 1000V, 40Hz ~ 1kHz	$U_{rel}=0.01\%$		
		AC Current		30 μA ~ 100A, (40 ~ 65)Hz	$U_{rel}=0.01\%$		
				0.2A ~ 10A, 65Hz ~ 1kHz	$U_{rel}=0.05\%$		
		AC Power		3V ~ 600V, 0.005A ~ 100A, (40 ~ 65)Hz	$U_{rel}=0.01\%$		
				5V ~ 600V, 0.025A ~ 10A, 65Hz ~ 1kHz	$U_{rel}=0.05\%$		
		Frequency		40Hz ~ 1kHz	$U_{rel}=1 \times 10^{-5}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase		0° ~ 360° , (40~69)Hz	$U_{rel}=0.005^\circ$		
				0° ~ 360° , (69~450)Hz	$U_{rel}=0.03^\circ$		
70	Process Calibrators	DC Voltage	Calibration Specification for Process Calibrators JJF 1472	0.01 V~1000V	$U_{rel}=0.001\%$		
		AC Voltage		0.01V~1000V,40Hz~10kHz	$U_{rel}=0.01\%$		
		DC Current		10 μ A ~ 50A	$U_{rel}=0.01\%$		
		AC Current		100 μ A ~ 100A, (40~65)Hz	$U_{rel}=0.01\%$		
				0.2A~10A,65Hz~5kHz	$U_{rel}=0.05\%$		
		Frequency		1Hz~100kHz	$U_{rel}=1 \times 10^{-5}$		
		Resistance		10 Ω ~ 1M Ω	$U_{rel}=0.01\% \sim 0.002\%$		
				1M Ω ~ 100M Ω	$U_{rel}=0.01\%$		
71	Dc high voltage(source) generator	voltage	C.S. for DC high voltagesource, dc highvoltage generatorcalibration specifications NIMTT(CM) 054	(0.1~1)kV	$U_{rel}=0.1\%$		
		current		(>1~300)kV	$U_{rel}=0.2\%$		
72	*Lightning impulse voltage test system.	voltage	calibration specification of impulse voltage divider NIMTT(CM) 129	(0.1~500)kV	$U_{rel}=1.0\%$		
		time		(1~3000) μ s	$U_{rel}=3.0\%$		
73	*Lightning impulse current test system.	voltage	Lightning impulse current test system.Calibration specification NIMTT(CM) 011	(1~100) kA	$U_{rel}=1.5\%$		
		current		(1~500) μ s	$U_{rel}=3.0\%$		
74	Digital source	DCV	Calibration Specification for Multifunction Standard	10mV~100mV	$U_{rel}=5.5 \times 10^{-6} \sim 1.0 \times 10^{-5}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Sources JJF 1638	100mV~1V	$U_{rel}=4.5 \times 10^{-6} \sim 5.0 \times 10^{-6}$		
				1V~10V	$U_{rel}=1.5 \times 10^{-6} \sim 5.0 \times 10^{-6}$		
				10V~100V	$U_{rel}=2.7 \times 10^{-6} \sim 3.6 \times 10^{-6}$		
				100V~1000V	$U_{rel}=3.7 \times 10^{-6} \sim 4.5 \times 10^{-6}$		
		ACV		10mV~220mV,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				10mV~220mV,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				10mV~220mV,20kHz~100kHz	$U_{rel}=3.4 \times 10^{-4}$		
				10mV~220mV,100kHz~1MHz	$U_{rel}=1.8 \times 10^{-3}$		
				220mV~2.2V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				220mV~2.2V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				220mV~2.2V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mV~2.2V,100kHz~1MHz	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				2.2V~22V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				2.2V~22V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				2.2V~22V,100kHz~1MHz	$U_{rel}=5.0 \times 10^{-3}$		



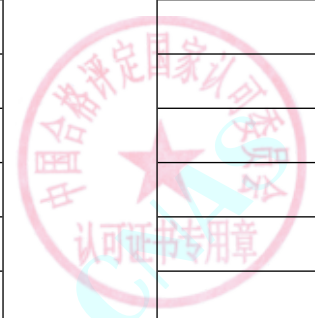
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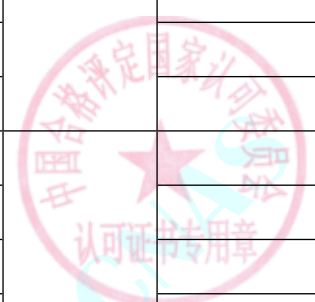
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				22V~220V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				22V~220V,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				22V~220V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				22V~220V,100kHz~500kHz	$U_{rel}=5.0 \times 10^{-3}$		
				220V~1000V,50Hz~1kHz	$U_{rel}=1.0 \times 10^{-4}$		
		ACI		10 μ A~220mA,10Hz~40Hz	$U_{rel}=2.0 \times 10^{-4}$		
				10 μ A~220mA,40Hz~1kHz	$U_{rel}=1.5 \times 10^{-4}$		
				10 μ A~220mA,1kHz~5kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mA~2.2A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
				220mA~2.2A,1kHz~5kHz	$U_{rel}=4.5 \times 10^{-4}$		
				2.2A~50A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
				2.2A~20A,1kHz~5kHz	$U_{rel}=1.0 \times 10^{-3}$		
		DCI		10 μ A~22mA	$U_{rel}=3.0 \times 10^{-5}$		
				22mA~220mA	$U_{rel}=5.0 \times 10^{-5}$		
				220mA~2.2A	$U_{rel}=5.8 \times 10^{-5}$		
				2.2A~20A	$U_{rel}=6.5 \times 10^{-5}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Resistive		1 Ω ~ 100 Ω	$U_{rel}=6.5 \times 10^{-5}$		
				100 Ω ~ 100k Ω	$U_{rel}=1.0 \times 10^{-5}$		
				100k Ω ~ 10M Ω	$U_{rel}=5.0 \times 10^{-5}$		
				10M Ω ~ 100M Ω	$U_{rel}=5.0 \times 10^{-4}$		
75	Insulation resistance meter Megohmmeter	Resistive	Verification regulation of megohmmeter JJG 622	100 Ω ~ 100M Ω	$U_{rel}=1\% \sim 5\%$		
				100M Ω ~ 1T Ω	$U_{rel}=5\% \sim 10\%$		
		Voltage		10V ~ 5000V	$U_{rel}=0.5\% \sim 5\%$		
76	Megohmmeter (High Resistance meter)	Resistive	Verification Regulation of High Insulation Resistance Meters JJG 690	100 Ω ~ 100M Ω	$U_{rel}=0.2\% \sim 2\%$		
				100M Ω ~ 10G Ω	$U_{rel}=2\% \sim 5\%$		
				10G Ω ~ 1T Ω	$U_{rel}=5\% \sim 10\%$		
				10V ~ 1000V	$U_{rel}=0.5\%$		
77	High Voltage and Value D.C. Resistors	Resistive	Verification Regulation of High Voltage and Value D.C. Resistors JJG 1072	$10^2 \Omega \sim 10^6 \Omega$	$U_{rel}=0.001\% \sim 0.002\%$		
				$10^6 \Omega \sim 10^8 \Omega$	$U_{rel}=0.002\% \sim 0.005\%$		
				$10^8 \Omega \sim 10^{10} \Omega$	$U_{rel}=0.005\% \sim 0.2\%$		
				$10^{10} \Omega \sim 10^{12} \Omega$	$U_{rel}=0.2\% \sim 5\%$		
78	Picoampere Source	Current	Calibration Specification for Micro Current Source (Micro Current Tester) NIMTT (CM) 019	$10^{-4}A \sim 10^{-7}A$	$U_{rel}=0.1\%$		
				$10^{-7}A \sim 10^{-8}A$	$U_{rel}=0.1\% \sim 0.5\%$		
				$10^{-8}A \sim 10^{-10}A$	$U_{rel}=0.15\% \sim 0.5\%$		
				$10^{-10}A \sim 10^{-11}A$	$U_{rel}=0.5\% \sim 2\%$		



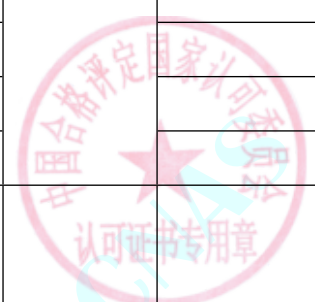
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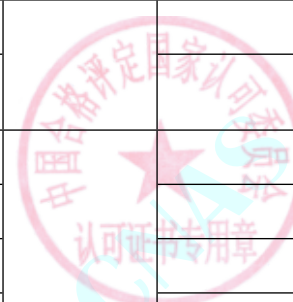
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				$10^{-11}A \sim 10^{-12}A$	$U_{rel}=2\% \sim 5\%$		
79	Electronic Insulation Resistance Meters	Resistive	Verification Regulation of Electronic Insulating Resistance Meters JJG 1005	$100 \Omega \sim 100M \Omega$	$U_{rel}=1\% \sim 5\%$		
				$100M \Omega \sim 1T \Omega$	$U_{rel}=5\% \sim 10\%$		
		Voltage		$10V \sim 5000V$	$U_{rel}=0.5\% \sim 5\%$		
80	Calibration device of leakage current switch tester	DC Current	Calibration Specification for Calibration device of leakage current switch tester NIMTT(CM) 102	$(5 \sim 3000)mA$	$U_{rel}=0.08\%$		
		AC Current		$(5 \sim 3000)mA, 50Hz$	$U_{rel}=0.10\%$		
		Time		$(20 \sim 5000)ms$	$U=0.08ms$		
81	Calibration device of Transformer with load tap changer	Resistance	Calibration Specification for Calibration device of Transformer with load tap changer NIMTT(CM) 094	$(0.1 \sim 10) \Omega$	$U_{rel}=0.06\%$		
				$(10 \sim 40) \Omega$	$U_{rel}=0.10\%$		
		Time		$(1 \sim 10)ms$	$U_{rel}=2.5 \times 10^{-5}$		
				$(10 \sim 100)ms$	$U_{rel}=2.5 \times 10^{-6}$		
				$(100 \sim 10000)ms$	$U_{rel}=3 \times 10^{-7}$		
82	Calibration device of Fluxmeter (Volt-Second generator)	DC voltage	Calibration Specification for Calibration device of Fluxmeter NIMTT(CM) 100	$(10 \sim 100)mV$	$U_{rel}=1 \times 10^{-4}$		
				$(100 \sim 10000)mV$	$U_{rel}=2 \times 10^{-5}$		
		Time		$(1 \sim 10)ms$	$U_{rel}=3 \times 10^{-5}$		
				$(10 \sim 10000)ms$	$U_{rel}=3 \times 10^{-6}$		
83	AC charging sport tester	Alternating-current Electrical Energy	C.S. for AC charging sport tester NIMTT(CM) 092	$57.7V \sim 380V, 0.01A \sim 100A$	$U_{rel}=1.2 \times 10^{-4}$		
		AC voltage		$57.7V \sim 380V, 50Hz$	$U_{rel}=1.2 \times 10^{-4}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC current		0.01A~100A,50Hz	$U_{rel}=1.2 \times 10^{-4}$		
		AC power		57.7V~380V,0.01A~100A,50Hz	$U_{rel}=1.2 \times 10^{-4}$		
84	Off-board charger tester	Electrical Energy	C.S. for Off-board charger tester NIMTT(CM) 086	100mV~1000V,100 μA~400A	$U_{rel}=1.2 \times 10^{-4}$		
		DC voltage		100mV~1000V	$U_{rel}=1.2 \times 10^{-4}$		
		DC current		100 μ A~400A	$U_{rel}=1.2 \times 10^{-4}$		
		DC power		100mV~1000V,100 μA~400A	$U_{rel}=1.2 \times 10^{-4}$		
85	Multi Function Clamp Meter Calibrator	DC Voltage	Calibration Specification for Multi Function Clamp Meter Calibrator NIMTT(CM) 114	0.01 V~1000V	$U_{rel}=0.002\%$		
		AC Voltage		0.01V~1000V,40Hz~1000Hz	$U_{rel}=0.01\%$		
		DC Current		0.1A ~1000A	$U_{rel}=0.02\%$		
		AC Current		0.1A ~2000A,(45~65)Hz	$U_{rel}=0.02\%$		
		Resistance		0.1 Ω ~100M Ω	$U_{rel}=0.01\% \sim 0.05\%$		
86	Insulating Oil electrical Strength Tester	Voltage	Calibration Specification for Dielectric strength detector of insulating oils NIMTT(CM) 126	5kV~100kV	$U_{rel}=0.6\%$		
		time		0.1s~600s	$U_{rel}=1.0\%$		
87	Withstanding Voltage calibration device	Voltage	Calibration specification for safety gauge NIMTT(CM) 131	(1~500)V,(50Hz)	$U_{rel}=0.05\%$		
				>0.5kV~100kV,(50Hz)	$U_{rel}=0.1\%$		
		Voltage		(1~500)V	$U_{rel}=0.05\%$		
				>0.5kV~100kV	$U_{rel}=0.1\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		current		0.1mA~100A,(DC,50Hz)	$U_{rel}=0.1\%$		
		resistance		10mΩ~500mΩ	$U_{rel}=0.2\%$		
				1MΩ~1000MΩ	$U_{rel}=0.2\%$		
		Time		0.1s~999s	$U_{rel}=0.1\%$		
88	Testing transformer	Voltage	Calibration specification for high voltage tester devices NIMTT(CM)133	1kV~100kV,(DC,50Hz)	$U_{rel}=0.2\%$		
				>100kV~600kV,(DC,50Hz)	$U_{rel}=1\%$		
		current		0.1mA~1A,(DC,50Hz)	$U_{rel}=0.2\%$		
				>1A~1000A,(DC,50Hz)	$U_{rel}=0.3\%$		
Time	0.1s~600s	$U_{rel}=1.0\%$					
89	Zinc oxide lightning arrester test instrument	Voltage	Calibration specification for Resistive current testers for zinc oxide surge arrester NIMTT(CM) 128	1V~200V,(50Hz)	$U_{rel}=0.2\%$		
		current		0.01mA~20mA,(50Hz)	$U_{rel}=0.2\%$		
90	DC Spark Detector(Needle-hole Detector)	Voltage	Calibration Specification for Electric Spark Leak Detectors NIMTT(CM) 123	0.01kV~50kV	$U_{rel}=1.2\%$		
91	Impulse Voltage Testers for Winding Interturn Insulation	Voltage	Calibration Specification for Impulse Voltage Testers for Winding Interturn Insulation JJF 1691	0.1kV~50kV	$U_{rel}=1.2\%$		
		time		0.1 μs~100 μs	$U_{rel}=3\%$		
92		Voltage	calibration specification for Electrostatic analyzer NIMTT(CM) 115	1V~1kV	$U_{rel}=0.1\%$		
				>1kV~20kV	$U_{rel}=0.2\%$		



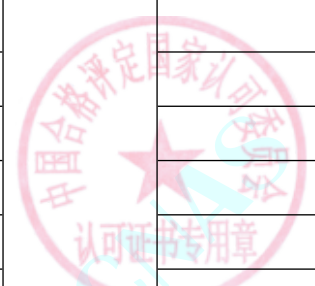
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		time		0.1s~20s	$U_{rel}=5\%$		
93	Concrete Resistivity Tester	resistivity	Calibration specification for Concrete Resistivity Tester NIMTT(CM) 148	(1~2000)kΩ·cm	$U_{rel}=0.05\%$		
94	*Magnetic particle Flow Detectors	Current	Calibration Specification for Magnetic Particle Flow Detectors JJF 1273	(0.1~10000)A,(DC,50Hz)	$U_{rel}=1.5\%$		
		Magnetic induction intensity		(0~1)mT	$U=0.04\text{ mT}$		
		Illuminance		(50~3000)lx	$U_{rel}=1.6\% \sim 3.2\%$		
		Ultraviolet Irradiance (UVA)		(1~10000)μW/cm ²	$U_{rel}=19\%$		
95	Specification for Magnetic Yoke Detectors	Irradiance	Calibration Specification for Magnetic Yoke Detectors JJF 1458	(0.1~500)N	$U_{rel}=4.0\%$		
		Current		(0.1~40)A,(DC,50Hz)	$U_{rel}=2.2\% \sim 5.1\%$		
96	Eddy Current Flow Detector	Frequency	V.R. of Eddy Current Flow Detector JJG(MH) 0061	1Hz~10MHz	$U_{rel}=0.02\%$		
		Voltage		(0.1~10)V,(1kHz~1MHz)	$U_{rel}=1.2\%$		
97	Digital Multimeter	DC Voltage	Calibration Specification for Multimeters JJF 1587	10mV~100mV	$U_{rel}=5.5 \times 10^{-6} \sim 1.0 \times 10^{-5}$		
				100mV~1V	$U_{rel}=4.5 \times 10^{-6} \sim 5.0 \times 10^{-6}$		
				1V~10V	$U_{rel}=1.5 \times 10^{-6} \sim 5.0 \times 10^{-6}$		
				10V~100V	$U_{rel}=2.7 \times 10^{-6} \sim 3.6 \times 10^{-6}$		
				100V~1000V	$U_{rel}=3.7 \times 10^{-6} \sim 4.5 \times 10^{-6}$		
		AC Voltage		10mV~220mV,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		

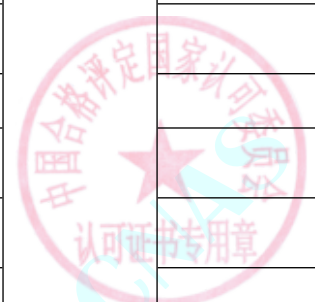


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				10mV~220mV,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				10mV~220mV,20kHz~100kHz	$U_{rel}=3.4 \times 10^{-4}$		
				10mV~220mV,100kHz~1MHz	$U_{rel}=1.8 \times 10^{-3}$		
				220mV~2.2V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				220mV~2.2V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				220mV~2.2V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mV~2.2V,100kHz~1MHz	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				2.2V~22V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				2.2V~22V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				2.2V~22V,100kHz~1MHz	$U_{rel}=5.0 \times 10^{-3}$		
				22V~220V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				22V~220V,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				22V~220V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				22V~220V,100kHz~500kHz	$U_{rel}=5.0 \times 10^{-3}$		

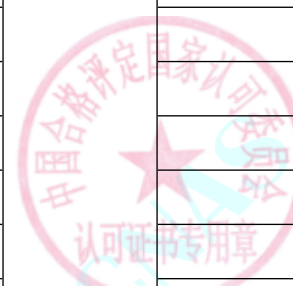


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current		220V~1000V,40Hz~10kHz	$U_{rel}=1.0 \times 10^{-4}$		
				10 μ A~220mA,10Hz~40Hz	$U_{rel}=2.0 \times 10^{-4}$		
				10 μ A~220mA,40Hz~1kHz	$U_{rel}=1.5 \times 10^{-4}$		
				10 μ A~220mA,1kHz~5kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mA~2.2A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
				220mA~2.2A,1kHz~5kHz	$U_{rel}=4.5 \times 10^{-4}$		
				2.2A~50A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
				2.2A~20A,1kHz~5kHz	$U_{rel}=1.0 \times 10^{-3}$		
				50A~100A,40Hz~65Hz	$U_{rel}=1 \times 10^{-4}$		
				10 μ A~22mA	$U_{rel}=3.0 \times 10^{-5}$		
		DC Current		22mA~220mA	$U_{rel}=5.0 \times 10^{-5}$		
				220mA~2.2A	$U_{rel}=5.8 \times 10^{-5}$		
				2.2A~20A	$U_{rel}=6.5 \times 10^{-5}$		
				20A~100A	$U_{rel}=1 \times 10^{-4}$		
		Resistances		(10 ⁻⁴ ~1) Ω	$U_{rel}=5 \times 10^{-4}$		
				1 Ω ~ 100 Ω	$U_{rel}=5 \times 10^{-5}$		
				100 Ω ~ 100k Ω	$U_{rel}=1.0 \times 10^{-5}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				100k Ω ~ 10M Ω	$U_{rel}=5.0 \times 10^{-5}$		
				10M Ω ~ 10G Ω	$U_{rel}=5.0 \times 10^{-4}$		
98	*Amperemeters, Voltmeters, Wattmeters	DC Current	V.R. of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG 124	10 μ A ~ 50A	$U_{rel}=0.05\%$		
		AC Current		100 μ A ~ 100A, 40Hz ~ 65Hz	$U_{rel}=0.05\%$		
				0.2A ~ 10A, 65Hz ~ 5kHz	$U_{rel}=0.06\%$		
		DC Voltage		10mV ~ 1000V	$U_{rel}=0.05\%$		
		AC Voltage		0.1V ~ 1000V, 40Hz ~ 10kHz	$U_{rel}=0.05\%$		
		DC Power		0.1V ~ 600V, 10 μ A ~ 100A	$U_{rel}=0.02\%$		
		AC Power		10V ~ 600V, 5mA ~ 100A, (40 ~ 65)Hz	$U_{rel}=0.05\%$		
5V ~ 600V, 0.025A ~ 10A, 65Hz ~ 1kHz	$U_{rel}=0.05\%$						
99	*Digital AC./DC. Voltmeter	AC Voltage	V.R. of AC Digital VoltMeter JJG(JG) 72	0.01V ~ 1000V, 40Hz ~ 10kHz	$U_{rel}=0.01\%$		
100	*Digital AC./DC. Amperemeter	AC Current	V.R. of AC Digital Current Meter JJG(JG) 68	100 μ A ~ 100A, 40Hz ~ 65Hz	$U_{rel}=0.01\%$	合格评定 国家认 定 认 可 证 书 专 用 章	
				0.2A ~ 10A, 65Hz ~ 5kHz	$U_{rel}=0.05\%$		
101	Calibrators for Electrical Meters	DC Voltage	Calibration Specification of Calibrators for Electrical Meters JJF 1284	0.01 V ~ 1000V	$U_{rel}=0.001\%$		
		AC Voltage		0.01V ~ 1000V, 40Hz ~ 10kHz	$U_{rel}=0.01\%$		
		DC Current		10 μ A ~ 100A	$U_{rel}=0.01\%$		

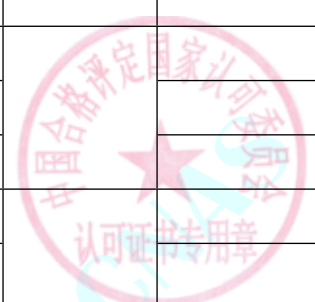


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current	ilac-M	100 μ A ~ 100A,(40~65)Hz	$U_{rel}=0.01\%$		
				0.2A~10A,65Hz~5kHz	$U_{rel}=0.05\%$		
		Frequency		1Hz~100kHz	$U_{rel}=1 \times 10^{-5}$		
		Resistance		0.1 Ω ~ 10 Ω	$U_{rel}=1\% \sim 0.05\%$		
				10 Ω ~ 1M Ω	$U_{rel}=0.01\% \sim 0.002\%$		
				1M Ω ~ 100M Ω	$U_{rel}=0.01\%$		
102	Electrical (Safety) Analyzer	AC Voltage	Calibration Specification for Electrical (Safety) Analyzer NIMTT(CM) 113	10V~300V,40Hz~65Hz	$U_{rel}=0.02\%$		
		AC Current		0.1A ~ 20A,40Hz~65Hz	$U_{rel}=0.02\%$		
		DC Leakage Current		10 μ A ~ 1A	$U_{rel}=0.3\% \sim 0.05\%$		
		AC Leakage Current		30 μ A ~ 1A,40Hz~5kHz	$U_{rel}=0.5\% \sim 0.1\%$		
		Resistance		0.01 Ω ~ 100 Ω	$U_{rel}=5\% \sim 0.02\%$		
				100 Ω ~ 100M Ω	$U_{rel}=0.3\% \sim 1.5\%$		
103	Clamp Ammeters	AC Current	Calibration Specification for Clamp Ammeters JJF1075	(0.001~1000)A, 50Hz	$U_{rel}=0.2\%$		
				(0.001~1000)A,1000Hz	$U_{rel}=0.3\%$		
		DC Current		(0.001~1000)A	$U_{rel}=0.2\%$		
104	Hall Current (Voltage) Transduce	DC Current	V.R. of Hall Current (Voltage) Transduce JJG(Chuan) 136	(0.001~10000)A	$U_{rel}=0.01\%$		
		AC Current		(0.1~100)A,45Hz~1kHz	$U_{rel}=0.02\%$		

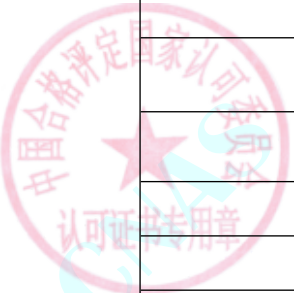


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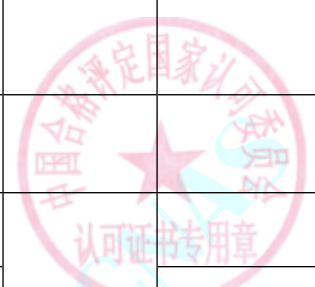
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Voltage		(100~1000)A,45Hz~1kHz	$U_{rel}=0.2\%$		
		AC Voltage		10mV~1000V	$U_{rel}=0.002\%$		
		AC Voltage		10mV~1000V,45Hz~1kHz	$U_{rel}=0.01\%$		
105	AC Digital Powermeter	AC Power	V.R. of AC Digital Powermeter JJG 780	$3 \times 3V \sim 600V, 0.005A \sim 100A, (40 \sim 65)Hz$	$U_{rel}=0.01\%$		
				$5V \sim 600V, 0.025A \sim 10A, 65Hz \sim 1kHz$	$U_{rel}=0.05\%$		
106	single phase and three phase multifunction calibration source	DC Voltage	Calibration method for single phase and three phase multifunction calibration source (calibration method for multi-functional instrument calibration source) NIMTT(CM) 079	0.01 V~1000V	$U_{rel}=0.001\%$		
		AC Voltage		0.01V~1000V,40Hz~10kHz	$U_{rel}=0.01\%$		
		DC Current		10 μ A ~100A	$U_{rel}=0.01\%$		
		AC Current		100 μ A ~100A,(40~65)Hz	$U_{rel}=0.01\%$		
				0.2A~10A , 65Hz~5kHz	$U_{rel}=0.05\%$		
		AC Power		$3 \times 3V \sim 600V, 0.005A \sim 100A, (45 \sim 65)Hz$	$U_{rel}=0.01\%$		
				$5V \sim 600V, 0.025A \sim 10A, 65Hz \sim 1kHz$	$U_{rel}=0.05\%$		
		DC Power		$(3 \sim 1000)V, (0.001 \sim 500)A$	$U_{rel}=0.02\%$		
		Frequency		1Hz~100kHz	$U_{rel}=1 \times 10^{-5}$		
Resistance	0.1 Ω ~10 Ω	$U_{rel}=1\% \sim 0.05\%$					
	10 Ω ~1M Ω	$U_{rel}=0.01\% \sim 0.002\%$					



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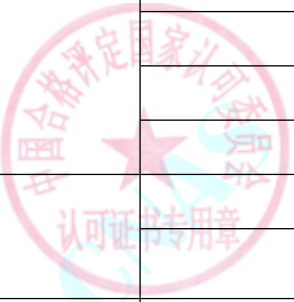
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				1MΩ ~ 100MΩ	$U_{rel}=0.01\%$		
		Phase		0° ~ 360°, (16~69)Hz	$U=0.005^\circ$		
				0° ~ 360°, (69~450)Hz	$U=0.03^\circ$		
		Harmonic Voltage		(0.03~300)V, (2~60)Times	$U_{rel}=0.012\% \sim 0.05\%$		
		Harmonic Current		(0.005~30)A, (2~60)Times	$U_{rel}=0.012\% \sim 0.05\%$		
六、无线电测量仪器							
1	Electronic Voltmeter	Frequency response	Verification Regulation of Electronic Voltmeter JJG250	20Hz~500MHz	$U_{rel}=3\%$		
		Voltage		1mV~1V	$U_{rel}=0.5\%$		
				1V~300V	$U_{rel}=1\%$		
2	UHF Electronic Mill voltmeter	Voltage	Verification Regulation of RF Voltmeters JJG308	1 mV~1 V (DC~1000MHz)	$U_{rel}=1\%$		
				1 V~10 V (DC~1000MHz)	$U_{rel}=2\%$		
3	Compensate voltage meter	Voltage	Verification Regulation of Compensation Voltmeter JJG254	25 mV~100 V (20Hz~0.5GHz)	$U_{rel}=0.5\%$		
4	Frequency Response Test Set	Voltage	Verification Regulation of 300 MHz Frequency Response Test Set JJG359	50mV~300mV (1MHz~300MHz)	$U_{rel}=5\%$		
5	Network analyzer	Reflection	Verification Regulation for Automatic Network Analyzer GJB/J3608, Calibration Specification for Vector	1.00~2.00 (50MHz~18GHz)	$U=0.02 \sim 0.06$		
		Transmission		(0~50)dB (50MHz~18GHz)	$U=0.2 \text{dB} \sim 0.5 \text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Source output frequency	Network Analyzer JJF1495	9kHz~18GHz	$U_{rel}=1 \times 10^{-7}$		
		Source output power		(-80~+20)dBm	$U=0.2\text{dB}$		
6	Underground pipeline detector	frequency	calibration specification for Underground pipeline detector NIMTT(CM) 010	20Hz~1MHz	$U_{rel}=4.3 \times 10^{-6}$		
7	Digital Signal Generator	Level	Calibration Specification for Digital Signal Generator JJF1174	20dBm~-120dBm (100kHz~6GHz)	$U=0.2\text{dB} \sim 0.5\text{dB}$		
		Frequency		100kHz~6GHz	$U_{rel}=1 \times 10^{-9}$		
		Harmonics		0dBc~100dBc (100kHz~6GHz)	$U=0.5\text{dB} \sim 2\text{dB}$		
		Vector Magnitude		0.5%~18%(FSK、MSK、16QAM)	$U=0.5\%$		
		RMS Phase		0.5°~15° (FSK、MSK、16QAM)	$U=0.5^\circ$		
		RMS frequency		1kHz~250kHz(FSK、MSK、16QAM)	$U=2\text{Hz}$		
8	Data Acquisition System	Voltage	Calibration Specification for Data Acquisition System JJF1048	1mV~1V	$U_{rel}=0.3\%$		
				1V~100V	$U_{rel}=0.2\%$		
		Frequency		(0.1~250)MHz	$U_{rel}=4 \times 10^{-8}$		
				250MHz~2.7GHz	$U_{rel}=6 \times 10^{-8}$		
9	Standard Capacitors	Capacitance	Verification Regulation of Standard Capacitors JJG183	1pF~1 μ F (1 kHz)	$U_{rel}=2 \times 10^{-5}$		
				(1~99999) μ F (100 Hz)	$U_{rel}=5 \times 10^{-4}$		
10	Standard	Inductance	Verification Regulation of	1 μ H~10 μ H (1kHz)	$U_{rel}=2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Inductors		Standard Inductors JJG726	10 μ H~100 μ H (1kHz)	$U_{rel}=0.1\%$		
				100 μ H~1H (1kHz)	$U_{rel}=0.01\%$		
				1H~99999H (100Hz)	$U_{rel}=0.05\%$		
11	Alternating Current Bridge (Capacitance Bridge)	Resistances	Verification Regulation of Alternating Current Bridge JJG441	1 Ω ~1M Ω (1kHz)	$U_{rel}=0.01\%$		
		Inductances		10 μ H~1H (1kHz)	$U_{rel}=0.01\%$		
		Capacitances		1pF~1 μ F (1kHz)	$U_{rel}=0.01\%$		
12	High Voltage Capacitance Bridge	ratio of capacitances	Verification Regulation of High Voltage Capacitance Bridges JJG563	X:(0.1~1)	$U_{rel}=0.002\%$		
		dissipation factor		X: (1~1000)	$U_{rel}=0.2\%$		
				$1 \times 10^{-4} \sim 0.1$	$U_{rel}=0.2\%$		
13	Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	capacitances	Calibration Specification for Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF1618	100pF	$U_{rel}=0.1\%(k=2)$		
		dissipation factor		$1 \times 10^{-5} \sim 5 \times 10^{-1}$	$U_{rel}=0.5\%$		
14	Dielectric Dissipation Factor Tester	capacitances	High Voltage Standard Capacitors JJG1075	10pF~100nF	$U_{rel}=0.05\%$		
		dissipation factor		$1 \times 10^{-5} \sim 1 \times 10^{-3}$	$U=6 \times 10^{-5}$		
15	HF Inductance and Capacitance Meter	Inductance	Verification Regulation of High Frequency LC-meter Type LCCG-1 JJG197	1 μ H~100mH (1kHz~50MHz)	$U_{rel}=0.5\% \sim 1.9\%$		
		Capacitance		100pF~1000pF (1kHz~50MHz)	$U_{rel}=0.2\% \sim 1.5\%$		
16	High frequency Q meter	Q	Calibration Specification of HF Q Meter JJF1073	10~500	$U_{rel}=5\% \sim 10\%$		



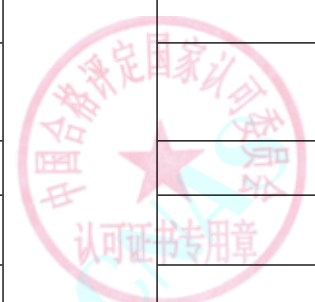
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		50kHz~500kHz	$U_{rel}=2\%$		
				500kHz~50MHz	$U_{rel}=2.4\%$		
17	Transistor Character Scope	Voltage	Calibration Specification for Semiconductor Device Curve Tracers JJF1236	(0.1~1)V	$U_{rel}=1\%$		
				(1~200)V	$U_{rel}=0.5\%$		
		Current		200 μ A~1mA	$U_{rel}=0.8\%$		
				1mA~1A	$U_{rel}=0.6\%$		
				1A~10A	$U_{rel}=0.5\%$		
18	Dynamical Signal Analyzer	Frequency	Dynamical Signal Analyzer JYG 834	(1~200k)Hz	$U_{rel}=1 \times 10^{-4}$		
		Spectrum amplitude		(0.02~10)V	$U_{rel}=0.2\%$		
19	Radio Communication Tester	RF frequency	Calibration Specification for RF Communication Test Set JJF1065	20kHz~6GHz	$U_{rel}=2 \times 10^{-9}$		
		RF power		20dBm~-120dBm(20kHz~6GHz)	$U=0.2dB$		
		Frequency modulation (FM)		20Hz~200kHz	$U_{rel}=3\%$		
		amplitude modulation(AM)		1%~99%	$U_{rel}=3\%$		
		AF frequency		10Hz~20kHz	$U_{rel}=2 \times 10^{-9}$		
		AF level		0.1V~750V(10Hz~20kHz)	$U_{rel}=0.1\%$		
		DC level		0.1V~1000V	$U_{rel}=0.01\%$		

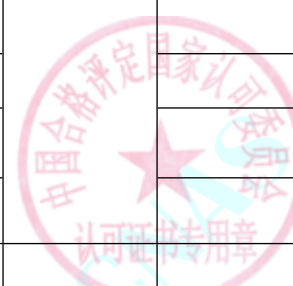


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
20	Bluetooth tester	output frequency	Calibration Specification for Bluetooth Test Set JJF1278	0.1Hz~3GHz	$U_{rel}=5 \times 10^{-8}$		
		output level		(-127~30) dBm(0.1Hz~3GHz)	$U=0.5\text{dB}$		
		Output signal frequency response		(-60~+20)dBm(0.1Hz~3GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120)dBc(0.1Hz~3GHz)	$U=1\text{dB}$		
		Modulation frequency deviation		10Hz~350kHz(GFSK、8DPSK)	$U_{rel}=2\%$		
21	Wireless LAN tester	output frequency	Calibration Specification for WLAN Test Set JJF1277	0.01Hz~13GHz	$U_{rel}=5 \times 10^{-8}$		
		output level		(-127~30)dBm(0.01Hz~13GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120)dBc	$U=1\text{dB}$		
		Single side band phase noise of output signal		(0~-120)dBc/Hz	$U=1\text{dB}$		
		modulation		5%~20%	$U_{rel}=2\%$		
		Level		(-127~30)dBm(0.01Hz~13GHz)	$U=0.3\text{dB}$		
		Vector Magnitude		0.5%~18%	$U_{rel}=1\%$		
22	CDMA digital mobile communication	output frequency	Calibration Specification for CDMA Digital Radio Communication Testers	0.1GHz~3GHz	$U_{rel}=2 \times 10^{-8}$		



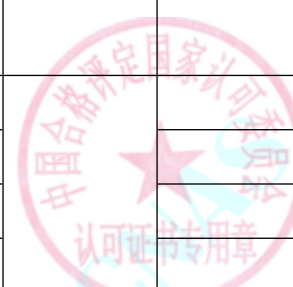
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	comprehensive test instrument	output level	JJF1177	(-120~-5)dBm(0.1GHz~3GHz)	U=0.5dB		
		Output signal harmonic		(0~-120)dBc	U=0.8dB		
		Single side band phase noise of output signal		(0~-120)dBc/Hz	U=1.0dB		
		CDMA signal generator Rho		0.9~1.0(0.1GHz~3GHz)	U=0.0005		
		CDMA generator EVM		1.5%~50%(0.1GHz~3GHz)	U=2.0%		
		CDMA power level		(-75~-5)dBm	U=0.5dB		
		Audio generator frequency		100Hz~50kHz	U=0.0008Hz		
		Audio generator level		1V~5V(100Hz~5kHz)	U _{rel} =0.04%		
		23	TD-SCDMA digital mobile communication comprehensive test instrument	output frequency	Calibration Specification for TD-SCDMA Digital Radio Communication Testers JJF1204		
output level	(-120~-10)dBm(30MHz~2.7GHz)			U=0.5dB			
Output signal harmonic	(0~-120)dBc			U=0.8dB			
Single side band phase noise of output signal	(0~-120)dBc/Hz			U=1.0dB			



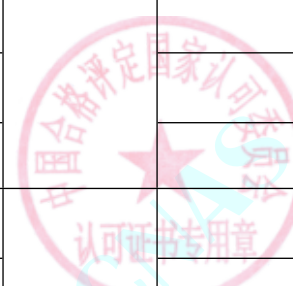
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		CDMA signal generator Rho	ilac-MEA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	0.9~1.0(30MHz~2.7GHz)	U=0.0005		
		CDMA generator EVM		1.5%~50%(30MHz~2.7GHz)	U=2.0%		
		Audio generator frequency		100Hz~5kHz	U=0.0008Hz		
		Audio generator level		1V~5V(100Hz~5kHz)	U _{rel} =0.06%		
24	*artificial mains network	Voltage Division Factor	Calibration Specification of Artificial Mains Networks JJF 1705 2018	0dB~30dB (9kHz~108MHz)	U=1.6dB		
		Impedance		0Ω~300Ω (9kHz~108MHz)	U _{rel} =6%		
		phase		0°~360°	U=2.8°		
25	*coupling/Decoupling network	Insert Loss	calibration specification of Coupling/decoupling network JJF(苏)213-2018	0dB~30dB (150kHz~200MHz)	U=0.8dB		
		common-mode impedance		10Ω~300Ω (150kHz~200MHz)	U _{rel} =7.3%		
26	LCR Digital Bridge (LCR Meter)	Resistances	Verification regulation for wide range digital RLC meter GJB 8817	1Ω~1MΩ	U _{rel} =0.01%		
		Inductances		10μH~100μH	U _{rel} =0.05%		
		Inductances		100μH~1H	U _{rel} =0.01%		
		Inductances		1H~9999H	U _{rel} =0.05%		
		Capacitances		1pF~1μF	U _{rel} =0.01%		



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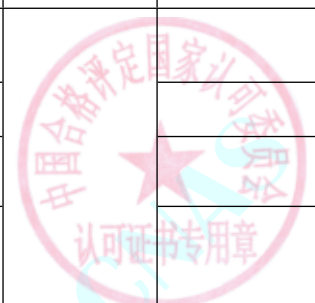
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Capacitances		1 μ F ~ 9999 μ F	$U_{rel}=0.05\%$		
27	Standard Dissipation Factor	capacitance	High Voltage Standard Capacitors JJG 1075, Calibration Regulation of Standard Dissipation Factor NIMTT(CM) 050	10pF ~ 500nF	$U_{rel}=0.05\%$		
		dissipatin factor		$1 \times 10^{-5} \sim 1 \times 10^{-1}$	$U=6 \times 10^{-5} \sim 6 \times 10^{-4}$		
28	*Dielectric Dissipation Factor Tester	capacitances	High Voltage Dielectric Loss Tester JJG 1126	100pF ~ 500nF	$U_{rel}=0.1\%$		
		dissipatin factor		0.000% ~ 10%	$U=0.5\% \times \text{tg } \delta + 5 \times 10^{-5}$		
29	Cable and Antenna Analyzers	Level	Calibration Specification for SWR Tester JJF(川) 137, Calibration Specification for Cable and Antenna Analyzers JJF 1740	(-70 ~ 20)dBm(2MHz ~ 18GHz)	$U=0.07\text{dB}$		
		Frequency		2MHz ~ 18GHz	$U_{rel}=2 \times 10^{-7}$		
		Attenuation		(-30 ~ 0)dB(2MHz ~ 18GHz)	$U=0.05\text{dB}$		
		SWR		1.00 ~ 2.00(2MHz ~ 18GHz)	$U=0.02 \sim 0.06$		
30	Spectrum Analyzer	Frequency	Calibration Specification for Spectrum JJF 1396	20Hz ~ 50GHz	$U_{rel}=3 \times 10^{-10}$		
		Amplitude		(-30 ~ 20)dBm(20Hz ~ 50GHz)	$U=0.12\text{dB} \sim 0.5\text{dB}$		
		Amplitude		(0 ~ 80)dB(20Hz ~ 50GHz)	$U=0.08\text{dB} \sim 0.5\text{dB}$		
		Sweep Width		1kHz ~ 50GHz	$U_{rel}=2 \times 10^{-4}$		
31	Attenuator	Attenuation	Verification Regulation of Coaxial Attenuator JJG 387, Verification Regulation of Variable Attenuator	(0 ~ 120)dB (250kHz ~ 26.5GHz)	$U=0.09\text{dB} \sim 0.14\text{dB}$		
		Attenuation		(0 ~ 50)dB (26.5GHz ~ 40GHz)	$U=0.14\text{dB} \sim 0.30\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Attenuation	JJG737	(0~50)dB (40GHz~50GHz)	$U=0.30\text{dB}\sim 0.40\text{dB}$		
		SWR		1.00~2.00	$U=0.02\sim 0.06$		
32	Power Meter	SWR	Verification Regulation of Lower Power Mount GJB/J 3598	1.00~2.00(9kHz~40GHz)	$U=0.02\sim 0.07$		
		Calibration factor		30%~200%(250kHz~40GHz)	$U_{\text{rel}}=3.0\%\sim 5.0\%$		
		Calibration factor		30%~200%(40GHz~50GHz)	$U_{\text{rel}}=5.0\%\sim 7.0\%$		
33	Power divider/Coupler	Insertion loss	Calibration Specification for Microwave Components NIMTT(CM) 101	0~80dB(250kHz~40GHz)	$U=0.2\text{dB}$		
		Standing wave ratio		1.00~2.00(250kHz~40GHz)	$U=0.02\sim 0.06$		
34	Low Frequency Signal Generator	Voltage	Verification Regulation of Low Frequency Signal Generator JJG 602	1mV~1V	$U_{\text{rel}}=3\%$		
		Voltage		1V~300V	$U_{\text{rel}}=1.5\%$		
		Frequency		10mHz~1MHz	$U_{\text{rel}}=1\times 10^{-7}$		
		Distortion		0.01%~20%	$U_{\text{rel}}=3\%$		
35	Signal Generator	Level	Verification Regulation of Signal Generator JJG 173	20dBm~-120dBm (20Hz~40GHz)	$U=0.16\text{dB}\sim 0.50\text{dB}$		
		Frequency		20Hz~40GHz	$U_{\text{rel}}=5\times 10^{-10}$		
		Amplitude modulation		6%~99%(fm:50Hz~400kHz)	$U_{\text{rel}}=0.7\%\sim 1.8\%$		
		Frequency modulation		4kHz~400kHz(fm:10Hz~200kHz)	$U_{\text{rel}}=0.6\%\sim 3.5\%$		

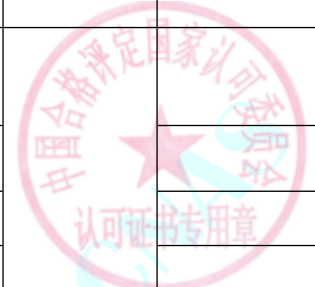


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase modulation		(4~400)rad (50Hz~100kHz)	$U_{rel}=0.6\% \sim 1.2\%$		
36	Function Signal Generator	Frequency	Verification Regulation of Function Generators JJG 840	1Hz~250MHz	$U_{rel}=4 \times 10^{-8}$		
		AC Voltage		1mV~55V(1Hz~250MHz)	$U_{rel}=1\%$		
		Distortion		0.03%~20%	$U_{rel}=1\% \sim 6\%$		
37	Distortion Meter	Distortion	Verification Regulation of Distortion Meter Calibrator JJG 251	0.3%~100%(10Hz~10kHz)	$U_{rel}=1\%$		
		Distortion		0.3%~100%(10kHz~100kHz)	$U_{rel}=3\%$		
		Distortion		0.3%~100%(100kHz~200kHz)	$U_{rel}=3.5\%$		
		Distortion		0.003%~0.3%(10Hz~10kHz)	$U_{rel}=6\%$		
		Distortion		0.003%~0.3%(10kHz~100kHz)	$U_{rel}=6.5\%$		
		Distortion		0.003%~0.3%(100kHz~200kHz)	$U_{rel}=9\%$		
		Voltage		(0.001~300)V	$U_{rel}=1\%$		
38	Digital Oscilloscope	Vertical deflection coefficient	Calibration Specification for Digital Storage Oscilloscope JJF 1057, Verification Regulation of Digital Oscilloscope GJB 7691	(1mV~20V)/div	$U_{rel}=0.6\%$		
		Frequency bandwidth		50kHz~50GHz	$U_{rel}=2.5\%$		
		Rise time		17ps~500ns	$U_{rel}=2\%$		
		Sweep time		200ps~5s	$U_{rel}=0.6\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
39	Analog Oscilloscope	Vertical deflection coefficient	Verification Regulation of Analogue Oscilloscope JJG 262	(1mV~20V)/div	$U_{rel}=0.6\%$		
		Frequency bandwidth		50kHz~500MHz	$U_{rel}=2.5\%$		
		Rise time		350ps~500ns	$U_{rel}=20\%$		
		Sweep time		200ps~5s	$U_{rel}=0.6\%$		
40	Sampling Oscilloscope	Vertical deflection coefficient	Verification Regulation of 1 GHz Sampling Oscilloscope JJG 491	10mV~200V	$U_{rel}=0.6\%$		
		Frequency bandwidth		50kHz~50GHz	$U_{rel}=3\%$		
		Time base		200ps~5s	$U_{rel}=0.6\%$		
		Rise time		17ps~500ns	$U_{rel}=2\%$		
41	Oscilloscope Calibrator	Voltage	Verification Regulation of Oscilloscope Calibrator JJG 278	1mV~200V	$U_{rel}=0.05\%$		
		Time base		25ps~5s	$U_{rel}=4 \times 10^{-8}$		
		Rise Time		25ps~500ns	$U_{rel}=3\%$		
42	Pulse Generator	Frequency	Verification Regulation of Pulse Generator JJG 490	0.1Hz~3GHz	$U_{rel}=3.4 \times 10^{-8}$		
		Pulse wide		10000s~1ns	$U_{rel}=0.35\%$		
		Amplitude		1mV~100V	$U_{rel}=1.0\%$		
		Rise Time		17ps~500ns	$U_{rel}=3\%$		
43	Audio Analyzer	Voltage	Calibration Specification for Audio Analyzer JJF 1395	(1~220)mV(10Hz~1MHz)	$U_{rel}=0.07\% \sim 0.35\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	(0.22~22)V(10Hz~1MHz)	$U_{rel}=0.06\% \sim 0.28\%$		
				(22~220)V(10Hz~1MHz)	$U_{rel}=0.06\% \sim 1.16\%$		
				(220~300)V(15Hz~1kHz)	$U_{rel}=0.04\% \sim 0.01\%$		
		Distortion		0.003%~0.05%(10Hz~10kHz)	$U_{rel}=10\% \sim 2\%$		
				0.05%~0.3%(10Hz~200kHz)	$U_{rel}=1\% \sim 10\%$		
				0.3%~100%(10Hz~200kHz)	$U_{rel}=1\% \sim 4\%$		
		Source Frequency		10Hz~1MHz	$U_{rel}=1 \times 10^{-6}$		
		Source Voltage		(1~220)mV(10Hz~1MHz)	$U_{rel}=0.08\% \sim 0.40\%$		
				(0.22~22)V(10Hz~1MHz)	$U_{rel}=0.10\% \sim 0.48\%$		
				(22~220)V(10Hz~1MHz)	$U_{rel}=0.08\% \sim 1.26\%$		
(220~300)V(15Hz~1kHz)	$U_{rel}=0.04\% \sim 0.01\%$						
44	Measuring Receiver	Frequency	Calibration Specification for Measuring Receivers JJF 1173	250kHz~67GHz	$U_{rel}=1.3 \times 10^{-9}$	国家认证认可监督管理委员会 CNAS 认可证书专用章	
		Level		(0~-120)dB (250kHz~50GHz)	$U=0.006\text{dB} \sim 0.15\text{dB}$		
		Amplitude modulation		5%~99%	$U_{rel}=0.2\% \sim 0.5\%$		
		Frequency modulation		1Hz~400kHz	$U_{rel}=0.2\% \sim 0.5\%$		

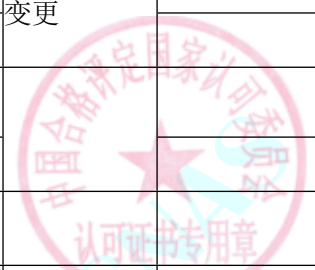


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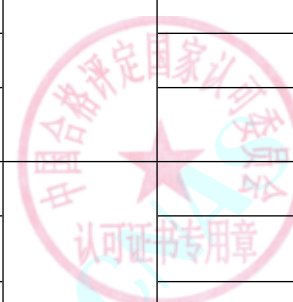
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase modulation		(1~400)rad	$U_{rel}=0.5\% \sim 2\%$		
七、时间和频率测量仪器							
1	Crystal Oscillators Inside the Electrical Measuring Instrument	Frequency	Verification Regulation of Crystal Oscillator inside the Electrical Measurement Instrument JJG180	1 MHz, 5MHz, 10MHz	$U_{rel}=2 \times 10^{-9}$		
2	Quartz crystal frequency standard	Frequency	Verification Regulation of Quartz Crystal Frequency Standards JJG181	1 MHz, 5MHz, 10MHz	$U_{rel}=1 \times 10^{-10}$		
3	Frequency Meters	Frequency	Verification Regulation of Frequency Meters JJG603	10Hz~20kHz	$U_{rel}=5 \times 10^{-5}$		
4	Frequency Comparator	Comparator uncertainty	Verification Regulation of Frequency Comparator JJG545	0.1s~10s	$U_{rel}=1 \times 10^{-11}/\tau$		
5	Vibrating Wire Frequency Readouts	Frequency	Calibration Specification for Vibrating Wire Frequency Readouts JJF1401	(300~6000)Hz	$U=(0.03 \sim 0.6)\text{Hz}$		
6	High Voltage Capacitance Bridges	Time	High Voltage Switch Operation Characteristic Testers JJG1120	(0.01~9999.99)ms	$U=0.02\text{ms}$	变更	
		Length		(0~300)mm	$U=0.03\text{mm}$		
7	Mechanical stopwatch	Time	Verification Regulation of Stopwatches JJG237	分度盘 T 240s/900s/1800s/3600s	$U=2 \times 10^{-7} \times T+3\text{ms}$		
				秒盘 T 60s/30s/6s	$U=2 \times 10^{-7} \times T+3\text{ms}$		
8	Electronic stopwatch	Time	Verification Regulation of Stopwatches JJG237	(0~24)h、10s、10min、1h、1d	$U=2 \times 10^{-7} \times T+3\text{ms}$		
9	Timer and Charge System of SPC Exchange	Time Length	Verification Regulation of the Timer and Charge System of SPC Exchange JJG(川)87	(0.1~864000)s	$U_{rel}=0.1\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
10	Time Interval Generator	Frequency	Verification Regulation of Time Interval Generator JJJG723	5MHz, 10MHz	$U_{rel}=2 \times 10^{-9}$		
		Time		10ns~10000s	$U=2 \times 10^{-7} \times T+3 \mu s$		
11	Time Interval Meter	Crystal oscillator Frequency accuracy	Verification Regulation of Time Interval Meters JJJG238	5MHz~10MHz	$U_{rel}=5 \times 10^{-9}$		
		Time Interval		1 μs ~10000s	$U=2 \times 10^{-7} \times T+3 \mu s$		
12	Coast-down Time Testers	Velocity	Calibration Specification for Coast-down Time Testers JJF1360	0.1km/h~20km/h	$U=0.01km/h$		
				20km/h~130km/h	$U_{rel}=4.6 \times 10^{-4}$		
		Time		0.1s~150s	$U=1.1ms$		
		Diameter		0mm~300mm	$U=0.03mm$		
13	GNSS Vehicle Comprehensive Performance Tester	Response time of localization	Calibration Specification for Vehicle Comprehensive Performance Tester JJF(Mechanics)1017	(0~1000)s	$U=0.02s$		
		Time		(0~1000)s	$U=0.02s$		
		Velocity		(5~300)km/h	$U=0.08km/h$		
		Distance		(0.1~10000) m	$U_{rel}=0.02\%$		
		Positioning accuracy		经度(0~180)°, 纬度(0~90)°	$U=0.0002'$		
14	GNSS Signal Simulators	Power range	Calibration Specification for GNSS Signal Simulators JJF1471	(-50~-90) dB	$U=0.2dB$		
		Power resolution		0.1dB~2dB	$U=0.06dB$		
		Harmonic		(-100~0)dBc	$U=2.0dB$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		1GHz~2.7GHz	$U_{rel}=3.6 \times 10^{-10}$		
		1s Frequency stability		$5 \times 10^{-11}/s$	$U_{rel}=1.6 \times 10^{-12}$		
		Speed range		$(0 \sim 2.0 \times 10^5)m/s$	$U=0.04m/s$		
		Acceleration range		$(0 \sim 2 \times 10^4)m/s^2$	$U=0.02m/s^2$		
		Acceleration range		$(0 \sim 2 \times 10^3)m/s^3$	$U=0.01m/s^3$		
		Pseudorange resolution		$(0.01 \sim 0.1)m$	$U=0.06m$		
		Pseudorange ratio resolution		$(0.01 \sim 0.1)m/s$	$U=0.006m/s$		
15	Calibration device of high voltage switch characteristic tester	Time	Calibration device of high voltage switch characteristic tester NIMTT(CM) 070	$(1 \sim 20000)ms$	$U=2 \times 10^{-4}ms$		
16	Time calibrator	Crystal oscillator Frequency accuracy	Verification Regulation of Time Interval Generator JJG601	5MHz 10MHz	$U_{rel}=5 \times 10^{-9}$		
		Time Interval		1ms~1s	$U=2 \times 10^{-7} \times T+3 \mu s$		
		Time Interval		1s~1d	$U=2 \times 10^{-7} \times T+3ms$		
17	Microwave Frequency Counter	Crystal oscillator Frequency accuracy	Verification Regulation of Microwave Frequency Counters JJG841	5MHz 10MHz	$U_{rel}=5 \times 10^{-10}$		
		Frequency		100kHz~67GHz	$U_{rel}=5 \times 10^{-10}$		

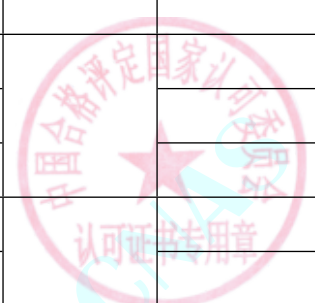


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
18	Universal Counters	Crystal oscillator Frequency accuracy	Verification Regulation of Universal Counters JJG349	5MHz 10MHz	$U_{rel}=5 \times 10^{-10}$		
		Frequency		0.1Hz~18GHz	$U_{rel}=5 \times 10^{-10}$		
八、光学测量仪器							
1	Illuminance Meter	Illuminance	Illuminance Meter JJG245	$(10^{-3} \sim 10^{-1})lx$	$U_{rel}=(2.5\% \sim 2.0\%)$		
				$(10^{-1} \sim 10)lx$	$U_{rel}=(2.0\% \sim 1.0\%)$		
				$(10 \sim 3000)lx$	$U_{rel}=1.0\%$		
				$(3000 \sim 10000)lx$	$U_{rel}=(1.0\% \sim 2.5\%)$		
2	Standard Lamp of Luminous Intensity	Luminance	Standard Lamp of Luminous Intensity JJG 246	$(1 \sim 10)cd$	$U_{rel}=(1.2\% \sim 0.8\%)$		
				$(10 \sim 1200)cd$	$U_{rel}=0.8\%$		
				$(1200 \sim 5000)cd$	$U_{rel}=(0.8\% \sim 2.0\%)$		
3	Standard Incandescent Lamp	Total Luminous Flux	Standard Incandescent Lamp for Total Luminous Flux JJG 247	$(50 \sim 2 \times 10^4)lm$	$U_{rel}=1.0\%$		
4	Luminance Meter(Chromatic Luminance Meter)	Luminance	Luminance Meter JJG 211	$(5 \times 10^{-3} \sim 10)cd/m^2$	$U_{rel}=(3.0\% \sim 2.4\%)$		
				$(10 \sim 1400)cd/m^2$	$U_{rel}=2.4\%$		
				$(1400 \sim 5000)cd/m^2$	$U_{rel}=2.4\% \sim 3.0\%$		
5	Spectral Radiometers	Wavelength	Spectral Radiometers NIMTT(CM) 060, Colour Temperature Meters JJG 212	$(250 \sim 2500)nm$	$U=0.1nm$		
		Chromaticity Coordinate		x,y:all	$U(x)=0.0008, U(y)=0.0006$		

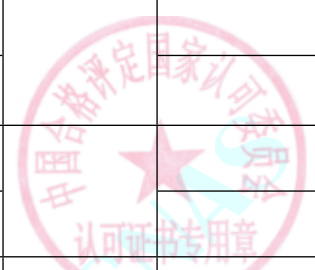


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Color Temperature		(2042~9500)K	(2042~3200)K: $U=(6\sim 15)K$, (3200~9500)K: $U=(15\sim 80)K$		
		spectral radiation		(250~2500)nm	$U_{rel}=(250\sim 400)nm: U_{rel}=(4.1\sim 2.8)\%$, (400~800)nm: $U_{rel}=2.8\%$, (800~2500)nm: $U_{rel}=(2.8\sim 5.3)\%$		
		Stray Light		(0~5)%	$U=0.2\%$		
6	Color Analyzers	Color Temperature	Calibration Specification of Cathode Ray Tubes(CRT) Analyzers JJF 1079	6500K~9300K	$U=1.0 \times 10^2 K$		
		Chromaticity Coordinate		x,y:all	$U=0.002$		
		Luminance		(50~500)cd/m ²	$U_{rel}=3.5\%$		
7	Lovibond Comparable Colormeter	Lovibond Chromaticness	Lovibond Comparable Colormeter JJG 758	R:(0.1~79.9)Lovibond Unit	0.6Lovibond Unit		
				Y:(0.1~79.9)Lovibond Unit	0.6Lovibond Unit		
				B:(0.1~49.9)Lovibond Unit	0.6Lovibond Unit		
				N:(0.1~3.9)Lovibond Unit	0.6Lovibond Unit		
8	Colormeters and Color Difference Meters	Stimulus value Y	Colormeters and Color Difference Meters JJG 595	Y:0~100	$U=0.9\sim 1.3$		
		Chromaticity coordinate		x,y:all	$U=0.0074\sim 0.0086$		
9	Color Standard Plates	Spectral reflectance	Color Standard Plates JJG 453, Whiteness Meter JJG 512-2002, Filter-Type	(0~100) %	$U=0.96\%$		

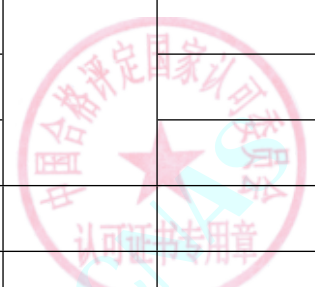


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Spectral reflection	Smokemeters JJG 847-2011	(0~100) %	U=1.0%~1.3%		
		Stimulus value		X:0~100,Y:0~100,Z:0~150	U=0.13~1.3		
		Stimulus value		X:0~100,Y:0~100,Z:0~150	U=0.01~0.77		
		Chromaticity coordinate		x,y:all	U=0.0017~0.0046		
		Chromaticity coordinate		x,y:all	U=0.0013~0.0025		
		Lightness index		0~100	U=0.36~0.53		
		Chroma index		a*: (-100~100), b*: (-100~100)	U=0.53~2.0		
		Chromatic aberration		0~1	U=0.4		
		Blue Whiteness		0~100	U=1.0~1.2		
		Gs Whiteness		0~100	U=1.2~1.3		
		Light tone index		(-3~3)	U=0.5		
		Hunter Whiteness		0~100	U=1.1~1.4		
		Smoketric tablet		0.1~10.0	U=0.3		
10	Whiteness Meter	Whiteness	Whiteness Meter JJG 512	W:0~100	U=1.0~1.3		
11	Laser for Medicine	Laser Power	Verification Regulation of Laser for Medicine JJG 581	0.1mW~100mW	U _{rel} = 2.0%		

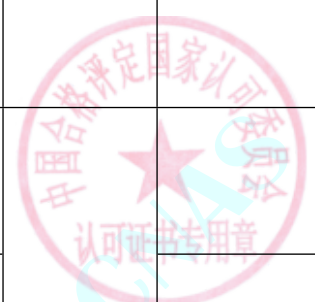


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Laser Power		0.1W~150W	$U_{rel}=5.0\%$		
12	Laser Energy Meter	Laser Energy	Verification Regulation of laser energy meter JJG312	0.4mJ~850mJ	$U_{rel}=4\%$		
13	laser beams Analysis	Laser beam width	Calibration Specification for laser beam Analysis NIMTT(CM) 118	0.2mm~5mm	$U_{rel}=5\%$		
14	Laser Power Meter	Laser Power	Verification Regulation of 0.1mW~200W laser power meter JJG249	0.1mW~100mW	$U_{rel}=2.0\%$		
		Laser Power		0.1W~150W	$U_{rel}=4.0\%$		
15	Irradiance Meter	Ultraviolet Irradiance (UVA)	Ultraviolet Irradiance Meters JJG 879, Calibration Specification for Wide-band Irradiance Meters JJF 1660	UVA:(1~30000)uW/cm ²	$U_{rel}=16\%$		
		Ultraviolet Irradiance(UVB&UVC)		UVB:(1~1000)uW/cm ² ,UVC:(1~1000)uW/cm ²	$U_{rel}=13\%$		
		Radiation Exposure Amount		(100~5000)mJ/cm ²	$U_{rel}=16\%$		
		Wide-band Irradiance		250nm~2500nm	(250~400)nm: $U_{rel}=(6.1~5.1)\%$,(400~800)nm: $U_{rel}=5.1\%$,(800~2500)nm: $U_{rel}=(5.1~6.6)\%$		
16	Standard Light Source	Spectral Irradiance	Verification Regulation of Spectral Irradiance Standard Lamp JJG 384, Verification Regulation of Spectral Radiance Standard Lamp JJG 383, Calibration Specification of radiometers used in aging	(250~2500)nm	(250~400)nm: $U_{rel}=(4.1~2.8)\%$,(400~800)nm: $U_{rel}=2.8\%$,(800~2500)nm: $U_{rel}=(2.8~5.3)\%$		
		Color Temperature		(2042~2353)K	$U=(5.0~6.5)K$		
		Color Temperature		(2353~2856)K	$U=(6.5~9.0)K$		



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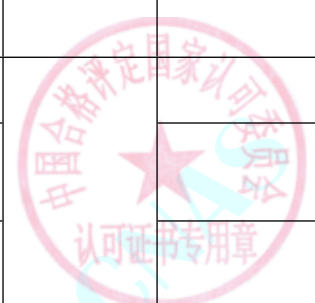
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		test JJF 1525		(2856~3200)K	$U=(9.0\sim 14)K$		
				(3200~6500)K	$U=(14\sim 30)K$		
				(6500~9000)K	$U=(30\sim 50)K$		
		Chromaticity Coordinate Color Rendering Index	x,y:all Ra,Ri(i=1~15):0~100	$U(x)=0.0008, U(y)=0.0006$ $U=0.3$			
17	Radiation Fluxmeters	Irradiance	Verification Regulation of Radiation Fluxmeters JJF1572	(0.1 ~2.0)kW/m ²	$U_{rel}=5\%$		
18	*Transmittance Reference Filter	Waveleghth	Transmittance Reference Filter JJG1034	(200~2600)nm	$U=(0.10\sim 0.35)nm$		
		Transmittance		0.02~1.00	$U_{rel}=(0.26\sim 0.40)\%$		
19	*Hazemeter	Haze	Calibration Specification for Hazemeter JJF1303	(1~30)Hd	$U=0.31$		
		Transmission ratio		(0.7~0.9) τ	$U=0.008$		
20	Stabilized Laser Sources	output power	Verification Regulation of Stabilized Laser Sources for Optical Transmit JJG 958	(-50~10)dBm	$U=0.09dB$		
		Central wavelength		(600~1700)nm	$U=0.05nm$		
		Spectral bandwidth		(600~1700)nm	$U=0.05nm$		
21	Optical Attenuator	Attenuation value	Calibration Specification of Optical Attenuator for Telecommunications JJF1199	(800~1700)nm: (0~60)dB	$U=0.08dB$		
		Insertion loss		(800~1700)nm: (0~60)dB	$U=0.08dB$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	Optical Return Loss Meters	Optical return loss	Calibration Specification of Optical Return Loss Meters for Telecommunications JJF1325	(800~1700) nm, (0~60) dB	$U=(0.4\sim0.6)$ dB		
23	Filter	Spectral transmittance	Interference filter JJG 812, Light filter NIMTT(CM) 066	(0.01~100)%	$U_{rel}=0.3\%$		
		Absorbance		(0~3) A	$U=0.003$		
		Haze		0.1~30.0	$U=0.2$		
		centerwavelength		(200~850) nm	$U=0.2$ nm		
		Full of halfmaximum		(850~2600) nm	$U=(0.2\sim0.5)$ nm		
		Absorptance		(200~850) nm	$U=0.2$ nm		
		Effective Absorptance		(850~2600) nm	$U=(0.2\sim0.5)$ nm		
		Absorptance		0~100	$U=0.3$		
24	Fiber Optica power meter	Optica power	Verification Regulation of Fiber Optical Power Meters JJG813	(-70~10)dBm	$U_{rel}=2.3\%$		
25	*Solar simulator	Spectral match	Calibration Specification of Solar Simulator JJF 1615	(300~1100)nm	$U_{rel}=8.0\%$		
		Non-uniformity of irradiance		(200~2000)W/m ²	$U_{rel}=3.0\%$		
		Temporal instability of irradiance		(200~2000)W/m ²	$U_{rel}=3.0\%$		

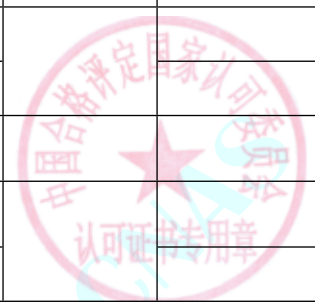


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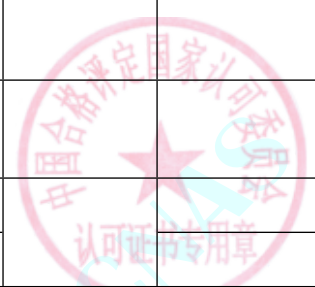
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
26	Verification device of Pupil Distance Meters	Length	Pupil Distance Meters JJG 952, Calibration Specification for Verification device of Pupil Distance Meters NIMTT(CM) 116	(55~85)mm	$U=(3+L/100) \mu m(L:mm)$		
27	Reflectometers	Reflectivity	Calibration Specification for Reflectometers JJF 1232	Y:0~100	$U=0.9\sim 1.3$		
28	Standard Lenses of Vertex Power	Vertex Power	Verification Regulation of Standard Lenses of Vertex Power JJG 866	$(-25.0\sim +25.0)m^{-1}$	$U= (0.02\sim 0.03) m^{-1}$		
29	Trial case lenses	Vertex Power	Verification Regulation of Trial case lenses JJG 579	$(-25.0\sim +25.0)m^{-1}$	$U= (0.02\sim 0.03) m^{-1}$		
30	Focimeters	Vertex Power	Verification Regulation of Focimeters JJG 580	$(-25.0\sim +25.0)m^{-1}$	$U= (0.02\sim 0.03) m^{-1}$		
31	Eye Refractometers	Vertex Power	Verification Regulation of Eye Refractometers JJG 892	Objective: $(-20\sim +20)m^{-1}$	$U=(0.07\sim 0.10) m^{-1}$ (Objective)		
		Vertex Power		Subjective: $(-15\sim +15)m^{-1}$	$U=0.04m^{-1}$ (Subjective)		
32	Black and White Step Tablet	Black and White Step Tablet	Black and White Step Tablet JJG 452	D:(0.0~4.0)	$U=0.02$		
				D:(4.0~5.10)	$U=0.03$		
33	Visual Densitometer	Density	Verification Regulation of Diffuse Transmission Visual Densitometer JJG 920	D:(0.00~4.00)	$U=0.02$		
				D:(4.00~5.00)	$U=0.03$		
34	Resolution Target	Length	Resolution plate JJG 827	$(0.0005\sim 400)mm$	$U=1 \mu m$		
35	Abbe Refractometer	Refractive index	Abbe Refractometer JJG 625	$n_D:1.47001\sim 1.67248$	$U=1 \times 10^{-4}$		
		Dispersion		$n_F-n_C:0.00708\sim 0.02086$	$U=7 \times 10^{-5}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
36	Specular Gloss Meters and Gloss Plates	Gloss	V.R. of Specular Gloss Meters and Gloss Plates JJG 696	Specular Gloss Meters: (0.0~120.0)gloss unit	U=1.0gloss unit		
				Gloss Plates(0.0~120.0)gloss unit	U=1.2gloss unit		
37	Transmittance Measuring Equipment For Ophthalmic Products	Spectral transmittance	Calibration Specification of Transmittance Measuring Equipment For Ophthalmic Products JJG 1106	0.1%~100%	U=1.5%		
38	Optical detector	Spectral Responsivity	Calibration Specification for Relative Spectral Responsivity for Photoelectric Detectors JJF 1150	(300~400)nm	U _{rel} =3.0%		
				(400~1100)nm	U _{rel} =2.0%		
39	Retroreflection Meters	Coefficient of Retroreflection	Galibration Specification Of Retroreflection Coefficient Meters for Motor Vehicle's Reflecting Marking JJF 1747, Verification Regulation for Retroreflectometer JJG(traffic) 059	(0.1~1999) cd·lx ⁻¹ ·m ⁻²	U _{rel} =7.5%		
		Coefficient of Retroreflection		(0.1~1999) mcd·lx ⁻¹ ·m ⁻²	U _{rel} =12%		
		Coefficient of luminous intensity		(1~1999) mcd·lx ⁻¹	U _{rel} =12%		
40	Water Colorimeter	Water Chromaticness	Water Colorimeter JJF 1689	(0~100) PCU	0.8 PCU		
41	Reflection densitometer	Optical Density	Reflection densitometer JJF 1492	0.07~1.00	U=0.03		
				1.00~2.04	U=0.04		
42	Transmittance meter	Transmittance	Transmittance meter NIMTT(CM) 146	(0~100) %	U=0.8%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Stimulus value Y		Y:0~100	U=1.0		
		Chromaticity coordinate		x:0~1,y:0~1	U=0.0064		
九、化学测量仪器							
1	*Wavelength Dispersive X-Ray Fluorescence Spectrometers	Count rate	Verification Regulation for Wavelength Dispersive X-Ray Fluorescence Spectrometers JJG810	(10~2000)kcps	$U_{rel}=0.3\%$		
2	*Hand Saccharimeter (Content-meter) and Hand Refractometer	Sugar content	Verification Regulation of Hand Saccharimeter (Content-meter) and Hand Refractometer JJG820	(0~60) %	$U=0.06\%$		
		Refractive index		$n_D: (1.3\sim 1.5)$	$U_{rel}=1\%$		
3	*Colorimeter	content	Colorimeter NIMTT(CM) 073	(0.2~10.0) mg/L	$U_{rel}=1\%$		
4	*Filter Photoelectric Colorimeter	Wavelength	Filter Photoelectric Colorimeter JJG179	(400~700)nm	$U=0.2\text{ nm}$		
		Absorbance		0.1~0.8	$U_{rel}=1.2\%$		
5	*Polarimeter and Polarimetric Saccharimeters	specific rotation	Polarimeter and Polarimetric Saccharimeters JJG536	(-45~+45)°	$U=0.002^\circ$		
6	*Mercury Analyzers	Detection limit	Mercury Analyzers JJG548	absorption: $\leq 1.0\text{ ng}$	$U_{rel}=48\%$		
				Fluorescence: $\leq 0.1\text{ ng}$	$U_{rel}=48\%$		
7	*Flame Photometer	Detection limit	Flame Photometer JJG630	K: $\leq 0.004\text{ mmol/L}$	$U_{rel}=48\%$		
				Na: $\leq 0.008\text{ mmol/L}$	$U_{rel}=48\%$		
8	*UV-VIS-NIR Spectrophotometer	Wavelength	UV-VIS-NIR Spectrophotometers JJG178	(200~600)nm	$U=0.02\text{ nm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	s	Transmittance	ilac-M	(600~900)nm	$U=0.3$ nm		
				(900~2600)nm	$U=0.1$ nm		
				(7~30)%	$U_{rel}=0.4\%$		
9	*Fourier Transform Infrared Spectrometer	wave number	Calibration Specification for Fourier Transform Infrared Spectrometer JJF1319	(900~3300) cm^{-1}	$U=0.09$ cm^{-1}		
10	*Dispersive Infrared Spectrophotometer	wave number	Dispersive Infrared Spectrophotometers JJG681	(900~3300) cm^{-1}	$U=0.09$ cm^{-1}		
11	*Atomic Absorption Spectrophotometer	Wavelength	Atomic Absorption Spectrophotometers JJG694	(190~1000)nm	$U=0.1$ nm		
		detection limit		Cu: ≤ 0.02 μ g/mL	$U_{rel}=48\%$		
				Cd: ≤ 4 pg	$U_{rel}=48\%$		
12	*Fluorescence Spectrophotometer	Wavelength	Fluorescence Spectrophotometer JJG537	(240~550)nm	$U=0.1$ nm		
		Detection limit		type A: $\leq 5 \times 10^{-10}$ g/mL	$U_{rel}=48\%$		
				type B: $\leq 1 \times 10^{-8}$ g/mL	$U_{rel}=48\%$		
13	*Atomic Fluorescence Spectrophotometer	Detection limit	Atomic Fluorescence Spectrophotometers JJG939	As、Sb: ≤ 0.4 ng	$U_{rel}=48\%$		
14	*Emission Spectrometer	Wavelength	Emission Spectrometer JJG768	(190~1000)nm	$U=0.01$ nm		
		Detection limit		Zn: ≤ 0.01 mg/L(ICP)	$U_{rel}=48\%$		
				Ni: ≤ 0.03 mg/L(ICP)	$U_{rel}=48\%$		

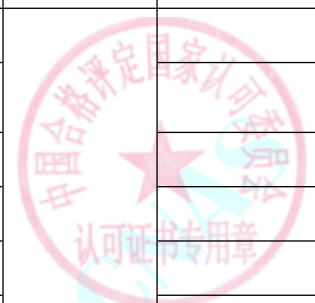


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Mn: ≤0.005 mg/L(ICP)	$U_{rel}=48\%$		
				Cr: ≤0.02 mg/L(ICP)	$U_{rel}=48\%$		
				Cu: ≤0.02 mg/L(ICP)	$U_{rel}=48\%$		
				Ba: ≤0.005 mg/L(ICP)	$U_{rel}=48\%$		
				C: ≤0.02%(Direct reading spectrometer)	$U_{rel}=48\%$		
				Si: ≤0.02%(Direct reading spectrometer)	$U_{rel}=48\%$		
				Mn: ≤0.02%(Direct reading spectrometer)	$U_{rel}=48\%$		
				Cr: ≤0.01%(Direct reading spectrometer)	$U_{rel}=48\%$		
				Ni: ≤0.02%(Direct reading spectrometer)	$U_{rel}=48\%$		
				V: ≤0.01%(Direct reading spectrometer)	$U_{rel}=48\%$		
				Spectrograph: ≤0.003%	$U_{rel}=48\%$		
15	*Flow Analyzers with Spectrophotography	Detection limit	Calibration Specification for Flow Analyzers with Spectrophotography JJF 1568	cyanide: ≤0.002 mg/L	$U_{rel}=48\%$		
				Volatile phenol: ≤0.002 mg/L	$U_{rel}=48\%$		
				Cr ⁶⁺ : ≤0.004 mg/L	$U_{rel}=48\%$		
				sulfide: ≤0.005 mg/L	$U_{rel}=48\%$		
				TP: ≤0.01 mg/L	$U_{rel}=48\%$		
				TN: ≤0.04 mg/L	$U_{rel}=48\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			Verification Regulation of Capillary Electrophoresis Instruments JJG964	Amino Nitrogen: ≤ 0.04 mg/L	$U_{rel}=48\%$		
				Anion Active Detergent: ≤ 0.05 mg/L	$U_{rel}=48\%$		
		wavelength		(210~1100) nm	$U=0.2$ nm		
16	*Capillary Electrophoresis Instruments	Detection limit	Verification Regulation of Capillary Electrophoresis Instruments JJG964	$\leq 1 \times 10^{-6}$ g/mL (VB ₆)	$U_{rel}=10\%$		
17	*Gas Chromatographs	Temperature	Verification Regulation of Gas Chromatographs JJG700	(20~300)°C	$U=0.06^\circ\text{C}$		
		Sensitivity		TCD: ≥ 800 mV · mL / mg	$U_{rel}=3.5\%$		
		Detection limit		FID: ≤ 5 ng/s	$U_{rel}=14\%$		
				FPD: ≤ 0.5 ng/s (S)	$U_{rel}=14\%$		
				FPD: ≤ 0.1 ng/s (P)	$U_{rel}=14\%$		
				NPD: ≤ 5 pg/s (N)	$U_{rel}=14\%$		
				NPD: ≤ 10 pg/s (P)	$U_{rel}=14\%$		
				ECD: ≤ 5 pg/mL	$U_{rel}=14\%$		
18	*on-line Gas Chromatograph	Temperature	On-line Gas Chromatograph JJG1055	(20~300)°C	$U=0.06^\circ\text{C}$		
		Sensitivity		TCD: ≥ 1000 mV · mL / mg	$U_{rel}=3.5\%$		
		Detection limit		PID: $\leq 5 \times 10^{-12}$ g/mL	$U_{rel}=14\%$		
19	*Liquid Chromatographs	Flow	Verification Regulation of Liquid Chromatographs JJG705	(0.5~10) mL/min	$U_{rel}=0.3\%$		
		Temperature		(10~90)°C	$U=0.06^\circ\text{C}$		



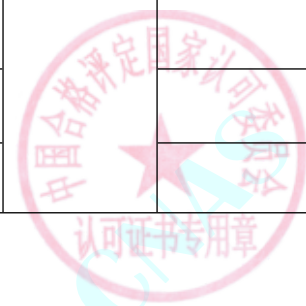
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Wavelength		(200~400)nm	$U=0.2\text{nm}$		
		Detection limit		UV-VIS/DAD: $\leq 5 \times 10^{-8} \text{ g/mL}$	$U_{\text{rel}}=10\%$		
				FLD: $\leq 5 \times 10^{-9} \text{ g/mL}$	$U_{\text{rel}}=10\%$		
				RID: $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=10\%$		
		ELSD: $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=10\%$				
20	*Gel Chromatograph	Flow	Verification Regulation of Gel Chromatograph JJG342	(0.5~10) mL/min	$U_{\text{rel}}=0.3\%$		
		Temperature		(10~90)°C	$U=0.06^\circ\text{C}$		
		molecular weight		Organic phase: (1×10 ³ ~5×10 ⁵) g/mol	$U_{\text{rel}}=8\%$		
				Water phase: (1×10 ³ ~5×10 ⁵) g/mol	$U_{\text{rel}}=8\%$		
21	*Ion Chromatograph	Flow	Verification Regulation of Ion Chromatograph JJG823	(0.5~10) mL/min	$U_{\text{rel}}=0.3\%$		
		Temperature		(10~90)°C	$U=0.06^\circ\text{C}$		
		Detection limit		Conductivity detector (Cl ⁻ , Li ⁺): $\leq 0.02 \mu\text{g/mL}$	$U_{\text{rel}}=10\%$		
				UV-VIS detector (NO ₂ ⁻): $\leq 0.02 \mu\text{g/mL}$	$U_{\text{rel}}=10\%$		
		Electrochemical detector (I ⁻): $\leq 0.02 \mu\text{g/mL}$	$U_{\text{rel}}=10\%$				



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Portable Gas Chromatography-Mass Spectrometers	SNR	Calibration Specification for Portable Gas Chromatography-Mass Spectrometers NIMTT(CM) 015	$\geq 10:1$	$U_{rel}=14\%$		
23	*Quadrupole Inductively Coupled Plasma Mass Spectrometers	detection limit	Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be: ≤ 30 ng/L	$U_{rel}=48\%$		
				In: ≤ 10 ng/L	$U_{rel}=48\%$		
				Bi: ≤ 10 ng/L	$U_{rel}=48\%$		
24	*Bench Top Gas Chromatography-Mass Spectrometers	SNR	Calibration Specification for Gas Chromatography-Mass Spectrometers JJF1164	$\geq 10:1$	$U_{rel}=14\%$		
25	*Liquid Chromatography-Mass Spectrometers	SNR	Calibration Specification of Liquid Chromatography-Mass Spectrometers JJF1317	$\geq 10:1$	$U_{rel}=14\%$		
26	*Time of Flight Mass Spectrometers	M/R	Calibration Specification of Time of Flight Mass Spectrometers JJF1528	(100~5000)	$U_{rel}=1 \times 10^{-5}$		
27	*Nitrate-Nitrogen Automatic Analyzers	concentration	Verification Regulation of Nitrate-Nitrogen Automatic Analyzers JJG656	(0~500) μ g/mL	$U=(0.30\sim 6.0)$ mg/L		
28	*Analyzers for Oil Content in Water	concentration	Verification Regulation of Analyzers for Oil Content in Water JJG950	(0~1000) mg/L	$U=(0.2\sim 20)$ mg/L		
29	*Silicate Analyzers	Concentration	Calibration Specification for Silicate Analyzers JJF1539	(0.02~100) μ g/mL	$U_{rel}=(4\sim 2)\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
30	*Ammonia-Nitrogen Automatic Analyzers	Concentration	Verification Regulation of Ammonia-Nitrogen Automatic Analyzers JJG631	(0.01~500) μ g/mL	$U_{rel}=1.5\%$		
31	*Total Organic Carbon Analyzer	Concentration	Verification Regulation of Total Organic Carbon Analyzer JJG821	TOC: (0.01~1000) μ g/mL	$U_{rel}=2.1\%$		
		Concentration		TIC: (0.01~1000) μ g/mL	$U_{rel}=2.1\%$		
32	*Chemical Oxygen Demand(COD) Meters	Concentration	Verification Regulation of Chemical Oxygen Demand(COD) Meters JJG975	A type instrument: (0.01~1500) (mg/L)	$U_{rel}=1\%$		
		Concentration		B type instrument: (0.01~1500) (mg/L)	$U=0.52$ mg/L		
		Temperature		(100~200) $^{\circ}$ C	$U=0.06^{\circ}$ C		
33	*On-line Automatic Determination of Chemical Oxygen Demand (COD)	Concentration	Verification Regulation of On-line Automatic Determination of Chemical Oxygen Demand (COD) JJG1012	(16~1000) (mg/L)	$U_{rel}=1\%$		
34	*Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen	Concentration	Verification Regulation of Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen JJG1094	TP: (0.01~500) mg/L	$U_{rel}=2.3\%$		
		Concentration		TN: (0.01~100) mg/L	$U_{rel}=2.2\%$		
35	*Turbidimeter	Turbidity	Turbidimeter JJG880	(0.1~400)NTU	$U_{rel}=3.1\%$		
36	*Dissolved Oxygen Meter with Covered-Membrane-Electrode	Dissolved Oxygen	Dissolved Oxygen Meter JJG291	(0~20)mg/L	$U=0.02$ mg/L		

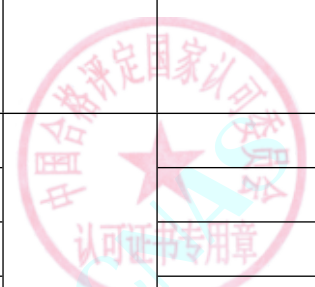


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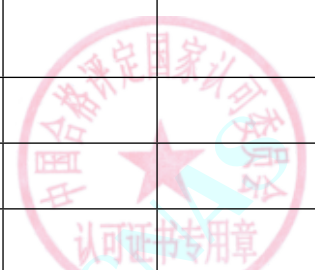
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
37	*Water-Quality Synthetical Analyse Instrument	pH	Water-Quality Synthetical Analyse Instrument JJG715	pH:(0.00~14.00)	electronic unit: $U=0.001$; instruments: $U=0.01$		
		Conductance		(100pS · m ⁻¹ ~0.25 μS · cm ⁻¹ (electronic unit)	$U_{rel}=0.7\%$		
		Conductance		(>0.25~2.5) μS · cm ⁻¹ (electronic unit)	$U_{rel}=0.2\%$		
		Conductance		(>2.5 μS · cm ⁻¹ ~10S · cm ⁻¹ (electronic unit)	$U_{rel}=0.05\%$		
		Conductance		(0.09212~0.0001765)S · cm ⁻¹ (instrument)	$U_{rel}=0.3\%$		
		Dissolved Oxygen		(0.0~20.0)mg/L	0.02 mg/L (meter), $U=0.02$ mg/L (instruments:)		
		Potential		(0~2000)mV	$U=0.1$ mV		
		Temperature		(0~50)°C	$U=0.1$ °C		
38	*Water Quality On-line Analyzers of Heavy Metals	Concentration	Calibration Specification of Water Quality On-line Analyzers of Heavy Metals JJF1565	Pb、Cd、Hg、As、Cr ⁶⁺ 、Cr、Cu、Zn、Ni、Fe、Mn: (0.001~100) mg/L	$U_{rel}=(1\sim3)\%$		
39	*Instrument for KF Coulometry Titration	weight	Verification Regulation of Instrument for KF Coulometry Titration JJG1044	10 μg	$U=1.4$ μg		
				100 μg	$U=14$ μg		
				1000 μg	$U=71$ μg		
				5000 μg	$U=71$ μg		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
40	*Thermogravimetric Moisture Meters	weight	Thermogravimetric Moisture Meters JJG658	(0~210)g	U=0.5mg		
		Concentration		(94.98~95.02)%	U=0.20%		
41	*Instruments for measuring the moisture content of grain with capacitance and resistance method	weight	Instruments for Measuring the Moisture Content of Grain with Capacitance and Resistance Method JJG891	(0~210)g	U=0.5mg		
42	*Wood moisture content measuring meters	Concentration	Wood Moisture Content Measuring Meters JJG986	(0~50)%	U=0.04%		
43	*Moisture	Concentration	Moisture meter NIMTT(CM) 110	(0~100)%	U=0.8%		
44	Roution Capillary Viscometer	Kinematic viscosity	RoUtion Capillary Viscometer JJG155	(1~10 ⁵)mm ² /s	U _{rel} = (0.16%~0.61%)		
45	Standard Capillary Viscometer	Kinematic viscosity	Standard Capillary Viscometer JJG154	(1~10 ⁵)mm ² /s	U _{rel} = (0.15%~0.60%)		
46	Viscometer for Roll-DoUn Ball Type	Kinematic viscosity	Viscometer for Roll-DoUn Ball Type JJG214	(1~10 ⁵)mm ² /s	U _{rel} = (0.16%~0.61%)		
47	*Rotational Viscositymeter	Viscosity	Rotational Viscositymeter JJG1002	(1~10 ⁵)mPa.s	U _{rel} = (0.16%~0.61%)		
48	Engler Viscometer	time	Engler Viscometer JJG742	(50~52)s	U _{rel} =0.2%		
49	Flow CUPS Viscometer	Kinematic viscosity	Flow CUPS Viscometer JJG743	(1~10 ⁵)mm ² /s	U _{rel} = (0.16%~0.61%)		
50	*Kinematic Viscosity	Kinematic viscosity	Calibration Specification for Kinematic Viscosity JJF1274	(0.3~30000)mm ² /s	U _{rel} =(0.24~0.61)%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(20~100)°C	U=0.003°C		
51	*Oscilloscopic Polarograph	Concentration	Verification Regulation of Oscilloscopic Polarograph JJG748	Cd: (0.01~100) mg/L	$U_{rel}=(1.2\sim 2)\%$		
52	*Potential Stripping Analyzer	Concentration	Verification Regulation of Potential Stripping Analyzer JJG800	Cd: (0.01~100) mg/L	$U_{rel}=2\%$		
53	Verifying Meter for pH Meters	potential	Verification Regulation of Verifying Meter for pH Meters JJG919	(-2000~+2000)mV	$U=(0.00058\sim 0.048)\text{mV}$		
		pH		pH: (0~14)	pH: $U=(0.00006\sim 0.00018)$		
54	*Laboratory pH Meters	pH	Laboratory pH Meters JJG119	electric unit: (0~14)	$U=0.001$		
				instrument: (1~14)	$U=0.006$		
		Voltage		(-2000~2000) mV	$U=0.1\text{ mV}$		
55	*Ionometer	pX	Verification Regulation of Laboratory Ion Meters JJG757	(0~14)	$U=0.001$		
		Potential		(-2000~2000) mV	$U=0.1\text{ mV}$		
56	*Automatic Potentiometric Titrator	Potential	V. R. of Automatic Potentiometric Titrator JJG 814	(-2000~2000) mV	$U=0.1\text{ mV}$		
		Capacity		(0.1~50) mL	$U=0.001\text{ mL}$		
		Concentration		(0.09~0.11) mol/L	$U_{rel}=0.3\%$		
57	*Electrolytic Conductivity Meters	Conductance	Electrolytic Conductivity Meters JJG376	(100 pS · m ⁻¹ ~0.25 μ S · cm ⁻¹ (electronic unit)	$U_{rel}=0.7\%$		
				(>0.25~2.5) μ S · cm ⁻¹ (electronic unit)	$U_{rel}=0.2\%$		
				(>2.5 μ S · cm ⁻¹ ~10 S · cm ⁻¹ (electronic unit)	$U_{rel}=0.05\%$		



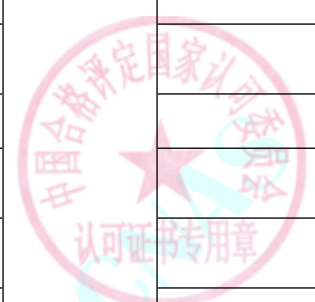
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.000118~0.13110)S · cm ⁻¹ (instrument)	U _{rel} =0.3%		
58	*On-line pH Meters	pH	C. S. for on-line pH Meters JJF 1547	pH:(0~14)	U=0.001 (electric unit)		
		Potential		pH:(1~14)	U=0.01(instrument)		
		Temperture		(-2000~2000) mV	U=0.1 mV		
				(0~60)°C	U=0.18 °C		
59	*alarmer detectors of combustibile gas	gas content	verification regulation of alarmer detectors of combustibile gas JJG693	(1~100)%LEL	U _{rel} =0.7%		
				(3~98) × 10 ⁻²	U _{rel} =0.7%		
60	*carbon monoxide detector	gas content	verification regulation of carbon monoxide detector JJG915	(10.0~200.0) × 10 ⁻⁶	U _{rel} =2.0%~0.8%		
				(>200~1000) × 10 ⁻⁶	U _{rel} =0.8%		
				(>1000~3000) × 10 ⁻⁶	U _{rel} =0.7%		
61	*carbon monoxide and carbon dioxide infrared gas analyzer	gas content	verification regulation of carbon monoxide and carbon dioxide infrared gas analyzer JJG635	CO:(10.0~200.0) × 10 ⁻⁶	U _{rel} =1.7%~1.1%		
				CO:(>200~1000) × 10 ⁻⁶	U _{rel} =1.4%~1.2%		
				CO:(>1000~10000) × 10 ⁻⁶	U _{rel} =1.1%		
				CO:(>1.00~5.00) × 10 ⁻²	U _{rel} =2.1%~1.4%		
				CO:(>5.00~20.00) × 10 ⁻²	U _{rel} =1.2%		
				CO ₂ :(0.050~1.000) × 10 ⁻²	U _{rel} =1.7%~1.1%		
				CO ₂ :(>1.00~5.00) × 10 ⁻²	U _{rel} =1.4%~1.2%		



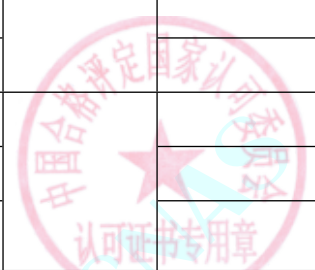
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				CO ₂ :(>5.00~20.00)×10 ⁻²	U _{rel} =1.1%		
62	*Electrochemical Oxygen Meter	gas concentration	Verification Regulation of Electrochemical Oxygen Meter JIG 365	0.1×10 ⁻² ~10×10 ⁻²	U _{rel} =2.8%~0.9%		
				>10×10 ⁻² ~50×10 ⁻²	U _{rel} =0.8%		
				>50×10 ⁻² ~100×10 ⁻²	U _{rel} =0.7%		
63	*Zirconia Oxygen Analyzers	gas concentration	Verification Regulation of Zirconia Oxygen Analyzers JIG 535	0.1×10 ⁻² ~10×10 ⁻²	U _{rel} =2.8%~0.9%		
				>10×10 ⁻² ~50×10 ⁻²	U _{rel} =0.8%		
				>50×10 ⁻² ~100×10 ⁻²	U _{rel} =0.7%		
64	*Paramagnetic Oxygen Analyzer	gas concentration	Verification Regulation of Paramagnetic Oxygen Analyzer JIG 662	0.1×10 ⁻² ~10×10 ⁻²	U _{rel} =2.7%~0.9%		
				>10×10 ⁻² ~50×10 ⁻²	U _{rel} =0.8%		
				>50×10 ⁻² ~100×10 ⁻²	U _{rel} =0.7%		
65	*thermal conductivity hydrogen analyzer	gas content	verification regulation of thermal conductivity hydrogen analyzer JIG663	(0.50~9.99)×10 ⁻²	U _{rel} =1.4%~0.8%		
				(10.0~100.0)×10 ⁻²	U _{rel} =1.1%~0.8%		
66	*Sulfur Hydrogen Gas Detectors	gas concentration	Verification Regulation of Sulfur Hydrogen Gas Detectors JIG 695	5×10 ⁻⁶ ~100×10 ⁻⁶	U _{rel} =2.5%~1.5%		
				>100×10 ⁻⁶ ~500×10 ⁻⁶	U _{rel} =1.7%~1.5%		
67	*Sulfur Dioxide Gas Detectors	gas concentration	Verification Regulation of Sulfur Dioxide Gas Detectors JIG 551	2×10 ⁻⁶ ~100×10 ⁻⁶	U _{rel} =2.7%~1.4%		
				>100×10 ⁻⁶ ~500×10 ⁻⁶	U _{rel} =1.7%~1.5%		
				>500×10 ⁻⁶ ~10000×10 ⁻⁶	U _{rel} =1.4%		
68	*Flue Gas Analyzers	gas concentration	Verification Regulation of Flue Gas Analyzers JIG 968	CO:10×10 ⁻⁶ ~1000×10 ⁻⁶	U _{rel} =2.0%~1.2%		

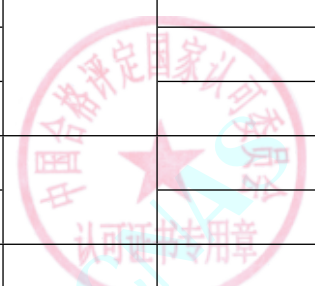


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				CO: $> 1000 \times 10^{-6} \sim 10000 \times 10^{-6}$	$U_{rel}=1.1\%$		
				O ₂ : $1 \times 10^{-2} \sim 3 \times 10^{-2}$	$U_{rel}=2.0\% \sim 1.1\%$		
				O ₂ : $> 3 \times 10^{-2} \sim 30 \times 10^{-2}$	$U_{rel}=0.8\%$		
				SO ₂ : $2 \times 10^{-6} \sim 500 \times 10^{-6}$	$U_{rel}=2.7\% \sim 1.4\%$		
				SO ₂ : $> 500 \times 10^{-6} \sim 10000 \times 10^{-6}$	$U_{rel}=1.4\%$		
				NO: $10 \times 10^{-6} \sim 500 \times 10^{-6}$	$U_{rel}=2.0\% \sim 0.7\%$		
				NO: $> 500 \times 10^{-6} \sim 10000 \times 10^{-6}$	$U_{rel}=0.7\%$		
69	*Micro Oxygen Analyzers	gas concentration	Verification Regulation of Micro Oxygen Analyzers JJG 945	1×10^{-6}	$U_{rel}=3.5\%$		
				$2 \times 10^{-6} \sim 10 \times 10^{-6}$	$U_{rel}=2.4\% \sim 1.6\%$		
				$> 10 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=1.4\% \sim 0.8\%$		
				$> 100 \times 10^{-6} \sim 1000 \times 10^{-6}$	$U_{rel}=0.7\%$		
70	*Volatile Organic Compounds Photo Ionization Detectors	gas concentration	Calibration Specification for Volatile Organic Compounds Photo Ionization Detectors JJF 1172	$1 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=3.0\% \sim 1.4\%$		
				$> 100 \times 10^{-6} \sim 400 \times 10^{-6}$	$U_{rel}=1.8\% \sim 1.5\%$		
				$> 400 \times 10^{-6} \sim 2000 \times 10^{-6}$	$U_{rel}=1.4\%$		
71	*ammonia gas detectors	gas content	verification regulation of ammonia gas detectors JJG1105	$(20.0 \sim 99.9) \times 10^{-6}$	$U_{rel}=3.4\% \sim 2.1\%$		
				$(100 \sim 300) \times 10^{-6}$	$U_{rel}=2.7\% \sim 2.2\%$		
72	*chlorine alarm detectors	gas content	Calibration Specification for Chlorine Alarm Detectors JJF1433	$(10.0 \sim 99.9) \times 10^{-6}$	$U_{rel}=4.8\% \sim 2.2\%$		



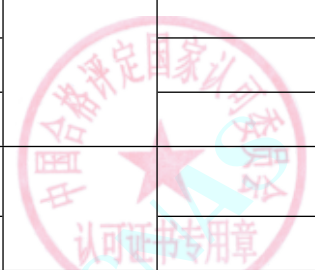
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
73	*Alarmer detector of sulfur hexafluoride	gas content	Calibration Specification for the Alarmer Detector of Sulfur Hexafluoride JJF1263	$(10 \sim 100) \times 10^{-6}$	$U_{rel}=6.2\% \sim 1.6\%$		
				$(>100 \sim 1000) \times 10^{-6}$	$U_{rel}=1.5\% \sim 1.2\%$		
74	*Chemiluminescent NO/NO _x Analyzers	gas content	Verification Regulation of Chemiluminescent NO/NO _x Analyzers JJG801	NO: $(10.0 \sim 99.9) \times 10^{-6}$	$U_{rel}=3.8\% \sim 1.0\%$		
				NO: $(100 \sim 1000) \times 10^{-6}$	$U_{rel}=2.5\% \sim 0.8\%$		
				NO: $(>1000 \sim 5000) \times 10^{-6}$	$U_{rel}=0.7\%$		
75	*Air Samplers	Flow	Verification Regulation of Air Samplers JJG956	$(0.1 \sim 6) \text{L/min}$	$U_{rel}=1.4\%$		
		Time		$(0 \sim 3600) \text{ s}$	$U=0.1\text{s}$		
76	*Dust Sampler	Flow	Verification Regulation of Dust Sampler JJG520	$(0.1 \sim 60) \text{L/min}$	$U_{rel}=1.2\%$		
		Time		$(0 \sim 3600) \text{ s}$	$U=0.1\text{s}$		
77	Samplers for Stack Dust	Flow	Verification Regulation of Samplers for Stack Dust JJG680	$(0.2 \sim 120) \text{L/min}$	$U_{rel}=1.4\%$		
		Temperature		$(0 \sim 300) ^\circ\text{C}$	$U=1^\circ\text{C}$		
				$(300 \sim 400) ^\circ\text{C}$	$U=1.6^\circ\text{C}$		
78	*Total Suspended Particulates Sampler	Flow	Verification Regulation of Total Suspended Particulates Sampler JJG943	$(80 \sim 150) \text{L/min}$	$U_{rel}=1.4\%$		
		Time		$(0.8 \sim 1.2) \text{m}^3 / \text{min}$	$U_{rel}=1.4\%$		
				$(0 \sim 3600) \text{ s}$	$U=0.1\text{s}$		
79	*Airborne Particle Counter	Particles concentration	Calibration Specification for Airborne Particle Counter JJF1190	$(35 \sim 350 \times 10^6) \text{particulate/m}^3 \cdot \text{su}$	$U_{rel}=14\%$		
		Time		$(0 \sim 3600) \text{ s}$	$U=0.1\text{s}$		
80	ozone gas analyzers	gas content	Verification Regulation of Ozone Gas Analyzers JJG1077	$(0.1 \sim 400) \times 10^{-6}$	$U_{rel}=(2.1 \sim 4.0)\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
81	*Static Light Scattering Particle Size Analyzers	Median particle size	calibration specification for static light scattering particle size analyzers JJF1211	(1~150) μm	$U_{rel}=(1.6\sim 4.6)\%$		
82	Calibration device for formaldehyde gas analyzers	content	Calibration Specification of Calibration Device for Formaldehyde Gas Analyzers NIMTT(CM) 091	(0.1~10) mg/m ³	$U_{rel}=2.9\%$		
83	formaldehyde gas analyzer	Concentration	Verification Regulation of Formaldehyde Gas Analyzers JJG1022	(0.08~2.0)×10 ⁻⁶	$U_{rel}=2.6\%$		
84	*Verifying Meter for Breath Alcohol Analyzers	content	Calibration Specification of Verification Device for for Breath Alcohol Analyzers NIMTT(CM) 059	(0.05~2) mg/L	$U_{rel}=(1.1\sim 1.4)\%$		
		temperature		(0~40) °C	$U=0.2\text{ °C}$		
		flow rate		(50~50000) mL/min	$U_{rel}=0.8\%$		
		pressure		(0~2500) Pa	$U=10\text{ Pa}$		
85	Breath Alcohol Analyzers	concentration	Verification Regulation of Breath Alcohol Analyzers JJG 657	(0.05~2)mg/L	$U_{rel}=1.1\%$		
86	*Gas Dilution device	Flow	Calibration Specification for Dilution device NIMTT(CM) 016	(50~50000)mL/min	$U_{rel}=0.6\%$		
		dilution ratio		0.1%~100%	$U_{rel}=2\%$		
87	*Polymerase Chain Reaction Analyzers	Temperature	Calibration Specification for Polymerase Chain Reaction Analyzers JJF1527	(10~110)°C	$U=(0.20\sim 0.34)\text{ °C}$		
88	*Melting-point Measurement Instruments	Melting-point	Verification Regulation of Melting-point Measurement Instruments JJG701	(50~300)°C	$U=0.13\text{ °C}$		



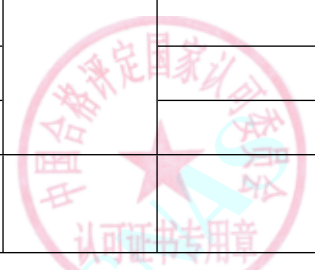
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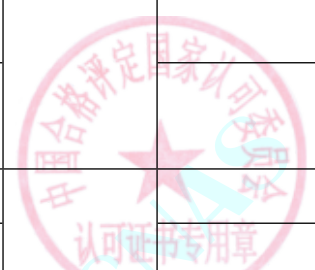
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
89	*Bomb Calorimeter	Calorific Value	Verification Regulation of The bomb calorimeter JJG672	(26000~27000) J/g	U=27J/g		
90	*Differential Scanning Calorimeters	Fusion Temperature	Verification Regulation of the Differential Scanning Calorimeters JJG936	(50~600)°C	U=0.06°C		
		Heat of Fusion		(20~110)J/g	U=0.18J/g		
91	*Open/Closed Cup Flash Point Testers	Open Cup Temperature	Calibration Specification for Open/Closed Cup Flash Point Testers JJF1384	(80~260)°C	U= (6.2~8.8) °C		
		Closed Cup Temperature		(60~200)°C	U= (3.2~4.4) °C		
92	*Thermogravimetric Analyzers	mass	Verification Regulation of Thermogravimetric Analyzers JJG 1135	(0~20) mg	U=0.15 mg		
		temperature		(100~800)°C	U=2 °C		
93	*Osmometer	Osmometer	Verification Regulation of Osmometers JJG1089	(99~101)mOsmol/kg	U=1.5mOsmol/kg		
				(199~201)mOsmol/kg	U=1.5mOsmol/kg		
				(299~301)mOsmol/kg	U=1.5mOsmol/kg		
				(399~401)mOsmol/kg	U=1.9mOsmol/kg		
				(499~501)mOsmol/kg	U=2.3mOsmol/kg		
				(599~601)mOsmol/kg	U=2.8mOsmol/kg		
				(699~701)mOsmol/kg	U=3.2mOsmol/kg		
94	*Automatic Amino Acid Analyzer	Detection limit	Verification Regulation of Automatic Amino Acid Analyzer JJG1064	histidine: ≤1nmol/L	U _{rel} =20%		



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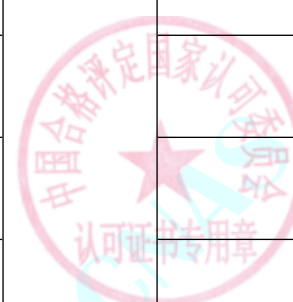
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
95	*Elemental Analyzers	Elemental content	Calibration Specification for Elemental Analyzers JJF 1321	Carbon, hydrogen and nitrogen analyzer、 Hydrogen detector C: 50%~80%	$U_{rel}=0.9\% \sim 0.3\%$		
				Carbon, hydrogen and nitrogen analyzer、 Hydrogen detector H: 2%~5%	$U_{rel}=6.5\% \sim 2\%$		
				Carbon, hydrogen and nitrogen analyzer、 Hydrogen detector N: 0.5%~2%	$U_{rel}=7.5\% \sim 2\%$		
				Full (semi) automatic nitrogen analyzer N: (0.5~20) mg/mL	$U_{rel}=0.4\%$		
				Oxygen, nitrogen and hydrogen detector O: 0.00058%~0.0120%	$U_{rel}=19\% \sim 5\%$		
				Oxygen, nitrogen and hydrogen detector N: 0.00075%~0.142%	$U_{rel}=15\% \sim 3\%$		
				Oxygen, nitrogen and hydrogen detector H: (0.9~6.6) $\times 10^{-6}$	$U_{rel}=23\% \sim 3.5\%$		
96	*Determinators for Total Sulfur in Coal	S content	Verification Regulation of Determinators for Total Sulfur in Coal JJG 1006	0.1%~<1.00%	$U=0.02\%$		
				1.00%~4.00%	$U=0.05\%$		
				>4.00%~6.00%	$U=0.06\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
97	*Carbon-sulfur Analyzers	C content	Verification Regulation for carbon-sulfur Analyzers JJG 395	Automatic high-speed carbon-sulfur analyzer: 0.030%~0.100%	U=0.001%		
				Automatic high-speed carbon-sulfur analyzer: >0.100%~0.500%	U=0.003%		
				Automatic high-speed carbon-sulfur analyzer > 0.500%~1.000%	U=0.007%		
				Automatic high-speed carbon-sulfur analyzer > 1.00%~4.00%	U=0.01%		
				Infrared carbon-sulfur analyzer: 0.005%~0.010%	U=0.0002%		
				Infrared carbon-sulfur analyzer: > 0.010%~0.100%	U=0.001%		
				Infrared carbon-sulfur analyzer: > 0.100%~1.00%	U=0.003%		
				Infrared carbon-sulfur analyzer: > 1.00%~4.00%	U=0.01%		
		S content		Automatic high-speed carbon-sulfur analyzer: 0.003%~0.010%	U=0.0002%		
				Automatic high-speed carbon-sulfur analyzer: >0.010%~0.050%	U=0.001%		

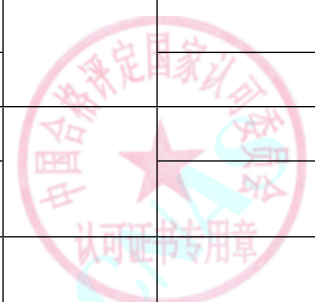


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	Automatic high-speed carbon-sulfur analyzer: >0.050%~0.100%	U=0.001%		
				Automatic high-speed carbon-sulfur analyzer: >0.100%~0.200%	U=0.003%		
				Infrared carbon-sulfur analyzer: 0.003%~0.010%	U=0.0002%		
				Infrared carbon-sulfur analyzer: >0.010%~0.100%	U=0.001%		
				Infrared carbon-sulfur analyzer: >0.100%~0.200%	U=0.003%		
98	*Industrial Analyzers	ash content	Verification Regulation of Industrial Analyzers JJG 1140	1%~15%	U=0.10%~0.11%		
				>15%~30%	U=0.13%~0.19%		
				>30%~40%	U=0.12%		
		volatile matter		1%~20%	U=0.19%~0.33%		
				>20%~40%	U=0.31%~0.34%		
99	*Hand-held X-ray Fluorescence Spectrometer	Detection limit	Calibration Specification for Hand-held X-ray Fluorescence Spectrometer JJF(chuan) 165	Cr: ≤0.05%	U _{rel} =48%		
				Ni: ≤0.05%	U _{rel} =48%		
100	*Low-level Total Organic Carbon Analyzer	total organic carbon	Calibration Specification for Low-level Total Organic Carbon Analyzer JJF(chuan) 141	(200~1000) μg/L	U _{rel} =5%		

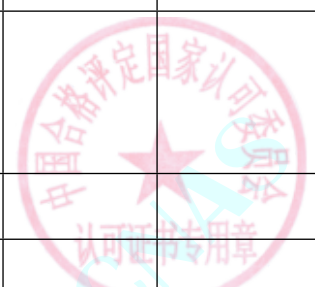


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
101	*Oxidation-reduction Potential Meters	Potential	Calibration Specification for Oxidation-reduction Potential Meters NIMTT(CM) 052	electronic unit: -2000 mV~+2000 mV	$U=0.1$ mV		
		temperature		solution: 49, 94, 218, 263, 293, 462 mV (25 °C)	$U=0.4$ mV		
				(0~50) °C	$U=0.1$ °C		
102	*Liquid chromatograph-Atomic Fluorescence Spectrometers	Minimum detection quantity	Verification Regulation of Liquid chromatograph-Atomic Fluorescence Spectrometers JJG 1151	As(V)≤1.0ng; DMA、MMA≤0.7ng	$U_{rel}=58\%$		
103	*Gas Chromatographs with Helium Ionization Detector	LOD	C. S. for Gas Chromatographs with Discharge Helium Ionization Detector JJF(Chuan) 167	≤10 pg/s	$U_{rel}=14\%$		
104	*Gas Chromatographs with Discharge Helium Ionization Detector	LOD	C. S. for Gas Chromatographs with Discharge Helium Ionization Detector NIMTT(CM) 062	≤10 pg/s	$U_{rel}=25\%$		
105	*Water Quality Automatic Analyzers of Permanganate Index	Concentration	C. S. for Water Quality Automatic Analyzers of Permanganate Index JJG(Zhe) 128	(0.1~30) mg/L	$U_{rel}=3.1\%$		
106	*Residual Chlorine Meter	Concentration	C. S. for Residual Chlorine Meter JJF 1609	(0.1~10) mg/L	$U_{rel}=1.6\%$		
107	*Alarmer Detectors of Benzene	gas concentration	Calibration Specification for Alarmer Detectors of Benzene JJF 1674	$1 \times 10^{-6} \sim 10 \times 10^{-6}$	$U_{rel}=5.1\% \sim 2.3\%$		
				$> 10 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=2.1\%$		



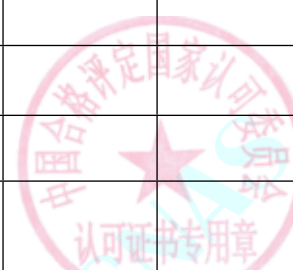
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
108	*Sulfur Hexafluoride Decomposition Products Detectors	gas concentration	Calibration Specification for Sulfur Hexafluoride Decomposition Products Detectors JJF 1711	SO ₂ : 1 × 10 ⁻⁶ ~ 100 × 10 ⁻⁶	U _{rel} =3.3% ~ 2.4%		
				H ₂ S: 1 × 10 ⁻⁶ ~ 100 × 10 ⁻⁶	U _{rel} =3.3% ~ 2.4%		
				CO: 10 × 10 ⁻⁶ ~ 500 × 10 ⁻⁶	U _{rel} =2.5% ~ 2.3%		
109	*Alarms and Detectors of Chloroethylene Gas	gas concentration	Verification Regulation of Alarms and Detectors of Chloroethylene Gas JJG 1125	10 × 10 ⁻⁶ ~ 100 × 10 ⁻⁶	U _{rel} =2.4% ~ 2.2%		
110	Optical Cavity Ring-Down Moisture Meter	Dew temperature	Calibration Specification of Optical Cavity Ring-Down Moisture Meter JJF(chuan) 166	(-90 ~ +20) °C	U=(0.4 ~ 0.2) °C		
		moisture content		(0.096 ~ 23625) × 10 ⁻⁶ mol/mol	U _{rel} =0.3% ~ 0.8%		
十、电离辐射测量仪器							
1	α、β Surface Contamination Monitors	Activity	α、β Surface Contamination Monitors JJG 478	α : (2.0 × 10 ² ~ 7.84 × 10 ⁵) (min · 2 π sr) ⁻¹	U _{rel} =10%		
				β : (3.0 × 10 ³ ~ 8.15 × 10 ⁵) (min · 2 π sr) ⁻¹	U _{rel} =10%		
2	Radon Measuring Instruments	Activity	Radon Measuring Instruments JJG 825	(100 ~ 12000) Bq/m ³	U _{rel} =7.1%		
3	γ Ray Spectrometers	Activity	γ Ray Spectrometers JJG 417	(10 ~ 1 × 10 ⁶) Bq	U _{rel} =11%		
4	Radioactivity Meter	activity	Radioactivity Meter JJG 377	(3.7 × 10 ⁴ ~ 3.7 × 10 ¹⁰) Bq	U _{rel} =4.5%		
5	*Gamma Radio-immunoassay Counters	activity	Gamma Radio-immunoassay CoUnters JJG 969	(500 ~ 3300) Bq	U _{rel} =6.0%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*Ge- γ -Ray Spectrometer	activity	Verification Regulation of Activity Standard Device for Ge- γ -ray Trometer JJG 752	$(10 \sim 4 \times 10^4) \text{Bq}$	$U_{\text{rel}}=5.0\%$		
7	*Low Background Alpha/Beta Measuring Instruments	Activity	Low Background Alpha/Beta Measuring Instruments JJG 853	$\alpha : (0.005 \sim 2.46 \times 10^4) (\text{min} \cdot 2 \pi)^{-1}$ $\beta : (0.15 \sim 1.45 \times 10^4) (\text{min} \cdot 2 \pi)^{-1}$	$U_{\text{rel}}=7.0\%$ $U_{\text{rel}}=7.0\%$		
8	*Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT)	dose index	Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT) JJG 961	$(1.0 \sim 1000) \text{mGy}$	$U_{\text{rel}}=7.5\%$		
		CT number		$(-4 \sim 4) \text{HU}$	0.1HU		
		slice thickness		$(0.5 \sim 15) \text{mm}$	$U=0.04 \text{mm}$		
9	*Medical Diagnostical X-ray Radiation Source	Air kerma	Medical Diagnostical X-ray Radiation Source JJG 744	$(0.01 \sim 199) \text{mGy}$	$U_{\text{rel}}=4.2\%$		
10	*Medical Diagnostical X-ray Radiation Source	Air kerma	Verification Regulation of Medical Diagnostic X-ray Source for Dental Panorama JJG 1101	$(0.01 \sim 199) \text{mGy}$	$U_{\text{rel}}=4.2\%$		
11	*Medical Diagnostical X-ray Radiation Source	Air kerma	Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography JJG 1067	$(0.01 \sim 199) \text{mGy}$	$U_{\text{rel}}=4.2\%$		
12	*Medical Diagnostical X-ray Radiation Source	Air kerma	Verification Regulation of X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG 1078	$(0.01 \sim 199) \text{mGy}$	$U_{\text{rel}}=4.2\%$		



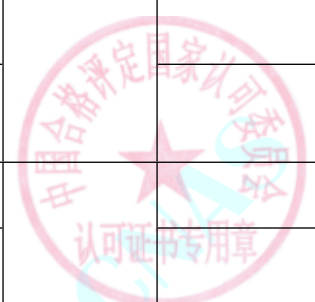
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
13	*Medical Diagnostical X-ray Radiation Source	Air kerma	Verification Regulation of X-ray Radiation Source for Radiotherapy Simulating Localization JJG 1028	(0.01~199)mGy	$U_{rel}=4.2\%$		
14	*Apparatus for Gamma Radiography	Air kerma rate	Apparatus for Gamma Radiography JJG 933	(0.01~10)Gy/min	$U_{rel}=5.0\%$		
15	*X-ray Flaw Detectors	Air kerma rate	X-ray Flaw Detectors JJG 40	(0.01~10)Gy/min	$U_{rel}=5.0\%$		
16	*Radiotherapy unit	Absorbed Dose	Radiation Source Used in the External Beam Radiotherapy JJG 589	Photon Beam:(0.01~10.00)Gy	$U_{rel}=3.8\%$		
				Electron Beam:(0.01~10.00)Gy	$U_{rel}=4.0\%$		
		Absorbed Dose rate		Photon Beam:(0.01~10.0)Gy/min	$U_{rel}=3.8\%$		
				Electron Beam:(0.01~10.0)Gy/min	$U_{rel}=4.0\%$		
17	Portable Ambient Dose Equivalent (Rate) Meters and Monitors for X and γ Radiations	air kerma	Verification Regulation of Portable Ambient Dose Equivalent (Rate) Meters and Monitors for X and γ Radiations JJG 393	1 μ Gy~1 Gy	$U_{rel}=3.8\%$		
		Air kerma rate		1 μ Gy/h~400 mGy/h	$U_{rel}=3.8\%$		
		dose equivalent		10 μ Sv~1 Sv	$U_{rel}=5.6\%$		
		dose equivalent rate		1 μ Sv/h~700 mSv/h	$U_{rel}=5.6\%$		
18	Personal dose equivalent Hp(10) Monitors for X and γ Radiation	dose equivalent	Personal dose equivalent Hp(10) Monitors for X and γ Radiation JJG 1009	10 μ Sv~1 Sv	$U_{rel}=5.6\%$		
		dose equivalent rate		1 μ Sv/h~700 mSv/h	$U_{rel}=5.6\%$		

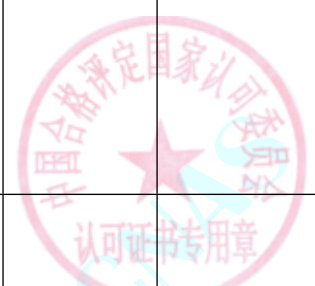


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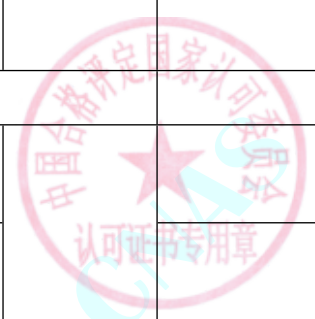
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
19	*X-ray Security Inspection Equipment	Air kerma rate	Calibration Specification for X-ray Security Inspection Equipment JJF 1275	0.01 μ Sv/h~50mSv/h	$U_{rel}=8.7\%$		
20	*Installed Personnel α、β Surface Contamination Monitoring Assemblies	activity	Installed Personnel α、β Surface Contamination Monitoring Assemblies JJG 1102	$\alpha: (10^4 \sim 10^6) / (\text{min} \cdot 2 \pi \text{sr})$ $\beta: (10^4 \sim 10^6) / (\text{min} \cdot 2 \pi \text{sr})$	$U_{rel}=6.0\%$		
21	Diagnostic dosimeters for X-ray	Air kerma rate	Calibration Specification for Diagnostic Dosimeters JJF1621, Calibration Specification in Diagnostic Dosimeters for X-ray ZCY/JZF032, Calibration Specification for Non-invasive X-ray Tube Voltage Meters Used in Medical Diagnosis JJF1474, Calibration Specification for Medical Non- invasive X-ray Tube Voltage Testers ZCY/JZF 042, Calibration Specification for Medical Diagnostics X-ray Non- invasive Exposure Time JJF1432	$(6 \times 10^{-5} \sim 1) \text{Gy/min}$	$U_{rel}=2.0\%$		
		Air kerma lenth		$(1 \times 10^{-6} \sim 50) \text{Gycm}$	$U_{rel}=2.0\%$		
		tube voltage		$(20 \sim 50) \text{kV}$	$U_{rel}=1.0\%$		
				$(> 50 \sim 150) \text{kV}$	$U_{rel}=0.8\%$		
		Exposure time		$(10 \sim 6000) \text{ms}$	$U=0.05 \text{ms}$		
22	Dose Area Product	Dose area product	Calibration Specification for Dose Area Product Meters JJF1479	$(0.01 \sim 5 \times 10^3) \mu \text{Gym}^2$	$U_{rel}=2.0\%$		



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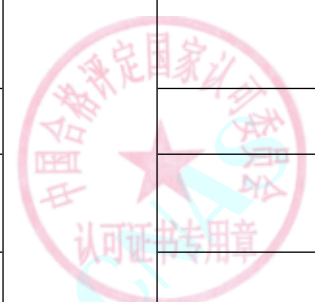
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
23	Monitor of Radiouclide Identification	Dose equivalent rate	Calibration Specification for Hand-held Radiation Monitors for Detection and Identification of Radianuclides JJF1687	($2 \times 10^{-6} \sim 1 \times 10^{-4}$) Sv/h	$U_{rel}=4.8\%$		
24	γ Ray Spectrometers of Scintillation Detectors	activity	Calibration Specification of γ Ray Spectrometers of Scintillation Detectors JJF1744	($5 \times 10^2 \sim 1 \times 10^4$) Bq	$U_{rel}=12\%$		
25	real-time focus meter	focal spot	Calibration Specification for Real-time Focus Meters JJF1688	(0.1~6.0) mm	$U=0.04\text{mm}$		
26	3D-watertank	position	Calibration Specification for 3D-Watertank NIMTT(CM) 049	(0~200) mm	$U=0.05\text{mm}$		
27	Half-value Layer Instrument	Half-value Layer	Calibration Specification for Half-value Layer Instrument NIMTT 045	(0.1~14)mmAl	$U_{rel}=2.0\%$		
28	*Medical X-ray Radiation Sources for Mammographic Equipment	Absorbed dose	Medical X-ray Radiation Sources for Mammographic Equipment JJG1145	(0.1~199)mGy	$U_{rel}=4.2\%$		
十一、专用测量仪器							
1	*Gasoline Vehicles Exhaust Emission tester in Loader Mode	diameter of the main cylinder	Calibration Specification for Chassis Dynamometers for Automobile Emissions Testing JJF 1221, Calibration Specification for Exhaust Pollutants from Gasoline Vehicle under Steady-state	(50~500) mm	$U_{rel}=0.15\%$		
		the radial circular run-out of main cylinder		(0.1~30) mm	$U_{rel}=0.06\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		depth of parallelism about generatrix	Loaded Mode Measurement System JJF 1227	(0.1~50) mm/m	U=0.3mm/m		
		torque force		(1~8000)N	U _{rel} =0.80%		
		speed		(0~80)km/h	U=0.12km/h		
		HC		(1~5000)×10 ⁻⁶	U _{rel} =1.2%		
		CO		(0.10~10.00)×10 ⁻²	U _{rel} =1.4%		
		CO2		(0.1~18.0)×10 ⁻²	U _{rel} =1.2%		
		NO		(1~4000)×10 ⁻⁶	U _{rel} =1.3%		
		O2		(0.1~25.0)×10 ⁻²	U _{rel} =1.5%		
		dynamometer inertia weight		(1~2000)kg	U _{rel} =0.62%		
		slipping time under fixed load		(1~150)s	U _{rel} =0.28%		
		slipping time under varying load		(1~150)s	U _{rel} =0.34%		
		load response time		(1~150)s	U=12ms		
		mean time between failure		(1~150)s	U=12ms		
		internal loss power		(0.1~2.5)kW	U _{rel} =3.8%		

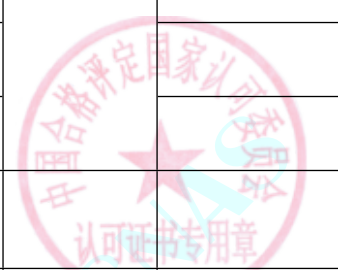


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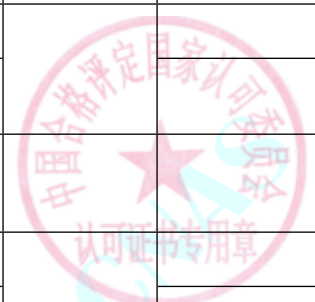
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Slip plate type automobile side slip tester	indication error of side slip	Verification Regulation of Slip plate type automobile side slip tester JJG 908	(1~10)m/km	$U=(0.05\sim0.07)m/km$		
3	*Tester for wheel deviation of motorcycles	indication error of wheel deviation	Verification Regulation of Slip plate type automobile side slip tester JJG 910	(1~10) mm	$U=(0.05\sim0.07) mm$		
4	*Tester for wheel deviation of motorcycles	indication error of wheel deviation	Verification Regulation of Tester for wheel deviation of motorcycles JJG 1014	(1~15000)kg	$U_{rel}=0.62\%$		
5	*Roller type speedometer tester	indication error of speed	Verification Regulation of Roller type speedometer tester JJG 909	(1~120) km/h	$U_{rel}=0.24\%\sim0.32\%$		
6	*Roller opposite forces type brake tester	Brake force	Verification Regulation of Roller opposite forces type brake tester JJG 906	1N~30kN	$U_{rel}=1.0\%$		
		Adhesion Coefficient		0.01~1	$U=0.012$		
		Slip Ratio		5%~40%	$U=4.8\%$		
7	*Head lamp tester for motor vehicle	luminous intensity	Verification Regulation of Headlamp tester for motor vehicle JJG 745	(5000~60000)cd	$U_{rel}=5.0\%$		
		offset of ray axes		up:3°~down:3°;Left:3°~right:3°	0° : $U=4.1'$		
				up:3°~down:3°;Left:3°~right:3°	1° : $U=4.6'$		
		up:3°~down:3°;Left:3°~right:3°	$U=5.2'$				
8	*Smoke meter	Smoke thickness	Verification Regulation of Filter-type smoke meter JJG 847	(1~10)BSU	0.22BSU		
9	*Vehicle exhaust emission measuring instruments	Exhaust emission concentration	Verification Regulation of vehicle exhaust emission measuring instruments JJG	CO:(1~16%)	$U_{rel}=1.4\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	instruments		688	C ₃ H ₈ : (1~9999)×10 ⁻⁶	U _{rel} =1.2%		
				CO ₂ : (1~18%)	U _{rel} =1.2%		
				NO: (1~5000)×10 ⁻⁶	U _{rel} =1.3		
				O ₂ : (1~25)×10 ⁻²	U _{rel} =1.5%		
10	Vehicle travelling data recorder	Velocity	Verification Regulation of Vehicle travelling data recorder JJG(CHUAN)90	(0~180) km/h	U=0.3km/h		
		Mileage		(0~10)km	U=0.02km		
11	Calibrators for headlamp tester of motor vehicle	Illuminant intensity	Verification Regulation of Calibrators for headlamp tester of motor vehicle JJG 967	(1~60000)cd	U _{rel} =1.5%		
		light axis		up:3°~down:3°;Left:3°~right:3°	U=1.6'		
				up:3°~down:3°;Left:3°~right:3°	1 °: U=1.7'		
				up:3°~down:3°;Left:3°~right:3°	U=1.8'		
				up:3°~down:3°;Left:3°~right:3°	3 °: U=1.9'		
12	Motor vehicle tester for steering force and steering angle	Steering force	Calibration Specification for Manipulating force tester for automotive brake JJF 1196	(1~1000)N	U _{rel} =0.6%		
		Steering angle		(0~1080)°	U=1.0°		
13	Turning Angle Testers for Automobile	angle	Calibration Specification for Turning Angle Testers for Automobile JJF 1141	(-50~50) °	U=0.32°		
14	Non-contact Automotive Speedmeter	Speed	Calibration Specification for Non-contact Automotive Speedmeter JJF 1193	(10~50)km/h	U=0.30 km/h		
				(>50~180) km/h	U _{rel} =0.30%		

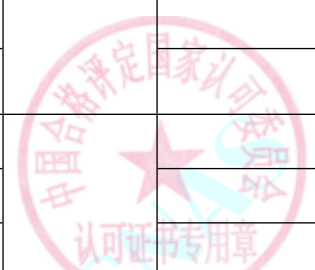


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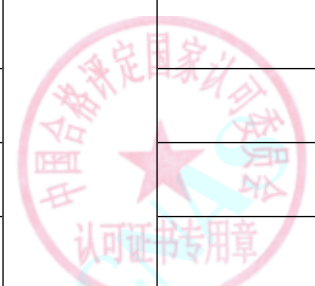
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Distance		(1.0~30)m (>30~9999.9) m	U=0.10m U _{rel} =0.32%		
15	Wheel Dynamic Balancers Proving Rotor	unbalance mass angle	Verification Regulation of Wheel Dynamic Balancers Proving Rotor JJG (Traffic) 019	(1~40) kg (0~360)°	U=0.95g U=0.65°		
16	automobile engine analyzer	number of revolution	Automobile engine Measuring Instruments JJG(Traffic) 013	(100~7200) r/min	U _{rel} =0.28%		
		angle		Platinum closed angle (0~90)°	U=0.32°		
				Ignition advance angle (0~50)°	U=0.34°		
		voltage		Standard voltage: (1~30) V	U _{rel} =0.51%		
		current		Standard current: (1~30) A	U _{rel} =0.74%		
	time	Time of accelerating: (200~2000) ms	U _{rel} =0.54%				
17	*Automotive Suspension Tester	loading wheel mass	Calibration Specification for Automotive Suspension Tester JJF 1192	(1~15000)kg	U _{rel} =0.62%		
		vibration frequency		(0.83~1333.3)Hz	U _{rel} =0.96%		
18	*Four-wheel Alignmerter	angle	Calibration Specification for Four-wheel Alignmerter JJF 1154	toe: -3° ~3°	U=1.2'		
				camber: -10° ~10°	U=2.8'		
				caster: -15° ~15°	U=3.6'		
19	Opacimeters	light absorptance	Verification Regulation of Opacimeters JJG 976	light absorptance N: (0~98.6) %	U=0.68%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				light absorption factor K: (0~9.99)m-1	$U=0.016 \text{ m}^{-1}$		
20	portable braking performance tester for vehicles	deceleration dynamic calibration	Calibration Specification for portable braking performance tester for vehicles JJF 1168	(0~4.9) m/s ²	$U=0.04 \text{ m/s}^2$		
				(>4.9~9.8) m/s ²	$U_{\text{rel}}=0.82 \%$		
				(1~9.8) m/s ²	$U_{\text{rel}}=1.6 \%$		
21	Automobile fuel consumption meter	mass type	Verification Regulation of Calibration Specification for Four Pistons Linkage Type Consumption Meter JJG (Traffic) 009	(1~160)g	$U_{\text{rel}}=0.16\%$		
		volume type		(1~500)mL	$U_{\text{rel}}=0.16\%$		
				(>500~1500)mL	$U_{\text{rel}}=0.26\%$		
22	Calibration Specification for Transmittance Meter of Automobile	transmittance	Calibration Specification for Transmittance Meter of Automobile JJF1225	0~100%	$U=0.40\%$		
23	*Near Headlamp Tester of Motor Vehicle	Illuminant intensity	Verification Regulation of Calibrators for Near Headlamp Tester of Motor Vehicle JJG 1001	(2000~15000)cd	$U_{\text{rel}}=2.2\%$		
				(>15000~40000)cd	$U_{\text{rel}}=2.4\%$		
		the rotation of light and shadow cut-off line		up:3°~down:3°;Left:3°~right:3°	$0^\circ: U=1.6'$		
				up:3°~down:3°;Left:3°~right:3°	$U=1.7'$		
				up:3°~down:3°;Left:3°~right:3°	$U=1.8'$		
				up:3°~down:3°;Left:3°~right:3°	$3^\circ: U=1.9'$		
24	*Platform Brake Tester	Brake force	Verification Regulation of Platform Brake Tester JJG	(1~30)kN	$U_{\text{rel}}=0.9\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		wheel load	1020	(1~15000)kg	$U_{rel}=0.62\%$		
		adhesion coefficient		(0~1)	$U=0.011$		
		levelness		(0~50) mm/m	$U=0.8\text{mm/m}$		
25	*Automobile exhaust flow analyzer	Flow	Calibration Specification for Flow Analyzer for Short	(95~180)L/s	$U_{rel}=2.0\%$		
		concentration	Transient Loaded Mode of Gasoline Vehicles JJF 1385	5.0%~20.9%	$U=1.6\%$		
26	*Specification for Wheel Dynamic Balancers	Amount of unbalance	Calibration Specification for Wheel Dynamic Balancers JJF 1151	(0~200)g • mm/kg	$U=4.2\text{g}$		
		Phase angle		(0~360)°	$U=0.6^\circ$		
27	Motor Vehicle Engine speed Measuring Instrument	Rotate speed	Calibration Specification for Motor Vehicle Engine Speed Measuring Instruments JJF 1375	(500~6000)r/min	$U_{rel}=0.32\%$		
28	Manipulating force tester for automotive brake	Force value	Calibration Specification for Manipulating force tester for automotive brake JJF 1169	(1~1000)N	$U_{rel}=1.2\%$		
29	*Bump Testing Machines	Acceleration	Verification Regulation of Bump Testing Machines JJG 497	(0.5~1000)m/s ²	$U_{rel}=5.0\%$		
		Time		(1~100) ms	$U_{rel}=3.0\%$		
30	*Measuring Apparatus for Mine Airspeed Measuring Instrument	air speed	Verification Regulation of Measuring Apparatus for Mine Airspeed Measuring Instrument JJG(MT)02	(0.1~40)m/s	$U=0.56\text{m/s}+1.4\%V$		
		air speed	Anemorumbometer JJG613,Air flow meter NIMTT(CM) 108,Mine	(0.2~30)m/s	$U=0.56\text{m/s}+1.4\%V$		



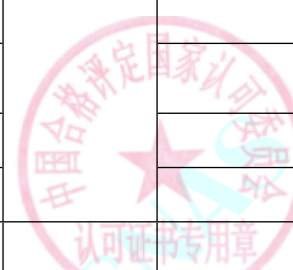
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		air flow hood	Anemometer JJG(MT)01, The pitot static tube anemometer NIMTT(CM) 107, Portable Induction Anemometer JJG515, portable 3-CUP anemometer JJG431, hot ball shaped anemometer JJG(JS)0001, Cigarette verification regulation of anemometer for smoking machine JJG(Tobacco) 19	(1~3500)m ³ /h	$U_{rel}=2.0\%$		
32	Pyranometer	Sensitivity	Verification Regulation of Pyranometer JJG 458	$(7\sim 14) \mu V \cdot W^{-1} \cdot m^2$	$U_{rel}=2.4\%$		
		Irradiance		$(1\sim 2000)W \cdot m^{-2}$	$U_{rel}=2.4\%$		
33	Measuring instruments of paper-thickness	Length	Paper measuring instruments JJG(chuan)(54-75)-1999 JJG (J1) (54-75)	$(0\sim 2)mm$	$U=1 \mu m$		
34	*Urine Analyzers	pH	Calibration Specification of Urine Analyzers JJF1129	pH: 5.5~7.5	$U_{rel}=4\%$		
		PRO		PRO: (0.01~2.02) g/L	$U_{rel}=4\%$		
		GLU		GLU: (0.1~42.8) mmol/L	$U_{rel}=4\%$		
		SG		SG: 1.005~1.08	$U=0.003$		
		time		(0~3600) s	$U=0.1 s$		
35	*Blood Cell Analyzers	WBC	Verification Regulation of Blood Cell Analyzers JJG 714	$(2\sim 25) \times 10^9/L$	$U=3.0\%$		
		RBC		$(2\sim 8) \times 10^{12}/L$	$U=2.5\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		HGB		(40~180) g/L	U=2.5%		
		PLT		(50~500) × 10 ⁹ /L	U=3.5%		
36	*Semiautomatic Clinical Chemistry Analyzers	wavelength	Verification Regulation of Semiautomatic Clinical Chemistry Analyzers JJG 464	(300~800) nm	U=0.3 nm		
		absorbance		0.5~1.0	U=0.002		
37	*ELISA Analytical Instruments	Wavelength	Verification Regulation of ELISA Analytical Instruments JJG861	(360~800)nm	U=0.3 nm		
		Absorbance		0.2~1.5	U=0.002~0.006		
38	Sphygmomanometers Digital electronic Sphygmomanometers	PressUre	Non-Automated Sphygmomanometers JJG 692	(0~40) kPa	U=0.14kPa		
39	*Multi-Parameter Patient Monitor	heart rate	Verification Regulation for Multifunction Patient Monitoring Instruments JJG1163	(30~300)min ⁻¹	U=1.4min ⁻¹		
		pressure		(0.1~30)kPa	U=0.16kPa		
		oxygen saturation		40%~<75%	U=3.5%		
		Respiratory rate		75%~100%	U=2.4%		
40	*cardiac defibrillators	tidal volume	Calibration Specification for Cardiac Defibrillators JJF1149	(0~<100)J	U=3.6J		
				(100~360)J	U=5.7J		
		heart rate		(30~300)min ⁻¹	U=1.4min ⁻¹		
41	*lung ventilators	tidal volume	Calibration Specification for Lung Ventilators JJF1234	(10~1000)mL	U= (0.023V+1.7) mL		
		frequency		(1~150)min ⁻¹	U= (0.0024f+0.14) min ⁻¹		



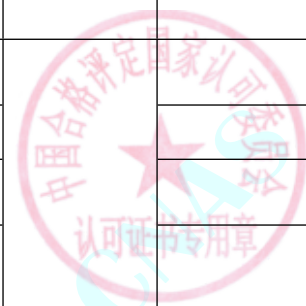
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Pressure		(0.1~12)kPa	$U = (0.0035P + 0.014)$ kPa		
42	hemodialysis equipment	conductivity	Calibration Specification for Hemodialysis Equipment JJF1353	(13.5~14.5) mS/cm	$U_{rel} = 1.2\%$		
		temperature		(35~40) °C	$U_{rel} = 0.60\%$		
		pH		(7.1~7.5)	$U_{rel} = 0.78\%$		
		Flow		(450~550) mL/min	$U_{rel} = 1.5\%$		
43	*Baby IncuBator	temperature	Calibration Specification for Baby Incubator JJF1260	(25~40) °C	$U = 0.14^{\circ}\text{C}$		
		relative humidity		(25~85) %	$U = 3.6\%$		
44	*Electrosurgical Generator	output power	Calibration Specification for Electrosurgical Generator JJF1217	(1~400) W	$U = (0.063P - 0.12)$ W		
		leakage current		(30~300) mA	$U_{rel} = 3.0\%$		
45	*the pulmonary function Measuring instrumen	VC	Calibration Specification for the Pulmonary Function Measuring Instrument JJF1213	(0.5~<2) L	$U = 0.026\text{L}$		
				(2~8)L	$U_{rel} = 0.74\%$		
		Flow		(0~<3) L/s	$U = 0.072$ L/s		
				(3~14) L/s	$U_{rel} = 2.4\%$		
46	Multiparameter Physiological Simulators	Amplitude of ECG signal	Calibration Specification for Multiparameter Physiological Simulators JJF1470	(0.1~3.0) mV	$U_{rel} = 1.2\%$		
		heart rate		(30~300) min ⁻¹	$U_{rel} = 0.08\%$		
		Respiratory impedance		(100~3000) Ω	$U_{rel} = 0.84\%$		
		Analogue signal of blood pressure		(0.1~200) mV	$U_{rel} = 0.7\%$		



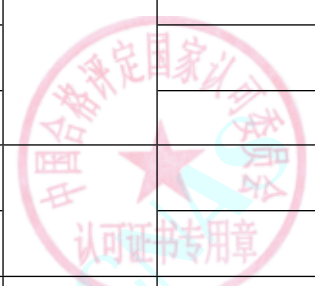
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Cardiac output signal	ilac-MER	(10~20) kΩ	$U_{rel}=0.8\%$		
		Temperature analog signal		(1~100) kΩ	$U_{rel}=0.7\%$		
		Amplitude of Reference waveforms		(0.1~3) mV	$U_{rel}=1.2\%$		
		rate of Reference waveforms		(0.05~150)Hz	$U_{rel}=0.08\%$		
47	Medical Syringe Pump and Infusion Pump Analyzers	flow rate	Verification Regulation of Medical Syringe Pump and Infusion Pump Analyzers JJG1098	(5~<20)mL/h	$U=0.06$ mL/h		
				(20~200) mL/h	$U=0.3$ mL/h		
				(>200~1000) mL/h	$U=0.98$ mL/h		
		occlusion pressure		(1~200) kPa	$U_{rel}=0.8\%$		
48	Precision microinjection pump	flow rate	Calibration Specification for Precision microinjection pump NIMTT(CM) 098	(1~ 1000) mL/h	$U=0.01$ mL/h		
49	Electrosurgical Generator Analyzers	power	Calibration Specification for Electrosurgical Generator Analyzers NIMTT(CM) 104	(1~300) W	$U_{rel}=1.2\%$		
		leakage current		(5~1000) mA	$U_{rel}=0.42\%$		
		Respiratory		(50~10000) Ω	$U_{rel}=0.84\%$		
50	Spo2 Simulator	oxygen saturation	Calibration Specification for Spo2 Simulator JJF1542	35%~100%	$U=1.4\%$		
		pulse rate value		(30~250) min ⁻¹	$U=1.2$ min ⁻¹		
51	Baby Incubator Detector	temperature	Calibration Specification for Baby Incubator Analyzers	(20~50) °C	$U=0.04$ °C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		relative humidity	NIMTT(CM) 096	(10%~90%)	$U=1.3\%$		
52	Hemodialysis Equipment Tester	conductivity	Calibration Specification for Hemodialysis Equipment Tester JJF1541	(12.5~15.5)mS/cm	$U=0.04\text{mS/cm}$		
		temperature		(10~50)°C	$U=0.03\text{°C}$		
		pressure		(-110~150)kPa	$U=0.12\text{kPa}$		
		pH		(0~14)	$U=0.01$		
		Flow		(100~2000) mL/min	$U_{\text{rel}}=0.4\%$		
53	*Medical Magnetic Resonance Image	Magnetic field intensity	Calibration Specification of Medical Magnetic Resonance Image NIMTT(CM) 047	(0.02~2)T	$U_{\text{rel}}=2.5\%$		
54	*Electrocardiogram machine	Volt	Electrocardiograph JJG543	30 μV ~30V	$U=15\ \mu\text{V}$		
55	Lung Ventilators Analyzer	flow	Calibration Specifications of Lung Ventilator Analyzer NIMTT(CM) 099	(0.5~180) L/min	$U_{\text{rel}}=1.0\%$		
		tidal volume		(5~2000) mL	$U_{\text{rel}}=1.0\%$		
		pressure		(-2~12) kPa	$U=0.012\text{kPa}$		
				(>12~60) kPa	$U=0.15\text{kPa}$		
		Breathing rate		(1~150) min^{-1}	$U_{\text{rel}}=1.0\%$		
oxygen concentration	(21%~100%)	$U=1.0\%$					
56	Standard respiratory simulator	VC	Standard respiratory simulator of calibration specifications NIMTT(CM) 040	(0.1~9) L	$U=(1.2+0.67V)\ \text{mL}$		
		PEF		(1~100) Nm^3/h	$U_{\text{rel}}=1.4\%$		



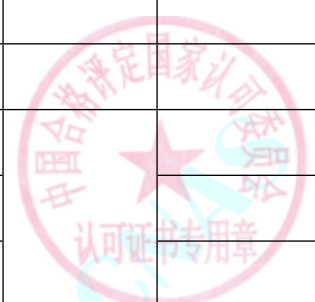
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
57	NIBP Simulators	Analogue blood pressure indication repeatability	Calibration Specification for NIBP Simulators JJF1626	(1.3~34.0) kPa	U=0.08 kPa		
		Pulse rate		(30~250) min ⁻¹	U _{rel} =1.0%		
		Static pressure		(1~53.3) kPa	U=0.052 kPa		
		Volume		(50~3000) mL	U=0.19mL~1.7mL		
58	Calibration Device for Electrocardiograph and Electroencephalograph	Distortion	Verification Regulation of Verification Instrument for Electrocardiograph and Electroencephalograph JJG749	0.1%~30%,(10Hz~200Hz)	U _{rel} =10%		
		Voltage		0.1mV~20V	U _{rel} =0.7%		
		Frequency		0.01Hz~500Hz	U _{rel} =8×10 ⁻⁵		
59	Standard Gauge Railway	Length	Verification Regulation of Track Gage for Standard Gauge Railway JJG219	(1338~1470)mm	U=0.07mm		
60	Railway Track Gage	Length	Verification Regulation of Calibrator for Railway Track Gage JJG404	(1410~1470)mm	U=0.01mm		
61	Mud Density Meter	Density	Verification Regulation of Mud Density Meter JJG1045	(960~3000)kg/m ³	U=2 kg/m ³		
62	Pile Dynamic Measuring Instrument	Acceleration	Pile Dynamic Measuring Instrument JJG 930	(0.1~300)m/s ²	U _{rel} =3.0%		
		Velocity		(0.1~50)cm/s	U _{rel} =3.0%		
		Dynamic strain		(10~1000)μ ε	U _{rel} =5.0%		
		Frequency		(10~2000)Hz	U _{rel} =1.0%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
63	Rebound Test Hammer	Rebound Value	Rebound Test Hammer JJG 817	74、80、83、88	$U_{rel}=3.0\%$		
64	*Verification Regulation of Vibrator for Compacting Mortar Specimen	Frequency	Verification Regulation of Vibrator for Compacting Mortar Specimen JJG 918	(5~5000)Hz	$U_{rel}=1.0\%$		
		Displacement		(10~1000) μ m	$U_{rel}=5.0\%$		
65	Determining Penetration of Bituminous Materials	Length	Calibration Specification for Apparatus for Determining Penetration of Bituminous Materials JJF1208	(0~100)mm	$U=0.1$ mm		
		Length		Φ :(0~20)mm	$U=(3+6L) \mu$ m(L:m)		
		Surface roughness		Ra(0.02~10) μ m	$U_{rel}=4.0\%$		
		Angle		0° ~30°	$U=1'$		
66	*I-V Curve measuring instrument	Open circuit voltage	Calibration Specification of I-V Curve Measuring Instrument NIMTT(CM) 120	10mV~80V	$U_{rel}=1.0\%$		
		Short-circuit current		(0.1~20) A	$U_{rel}=1.4\%$		
67	Ultrasonic Partial Discharge Tester	Frequency	Calibration Specification for Ultrasonic Partial Discharge Tester NIMTT(CM) 127	(20~500)kHz	$U_{rel}=0.1\%$		
		Amplitude linear		-200dB~200dB	$U=1.8$ dB		
		Sensitivity		-80dB~85dB	$U_{rel}=1\%$		
		Stability		-200dB~200dB	$U=1.8$ dB		
68	electrostatic discharge simulators	charging voltage	calibration specification for electrostatic discharge simulators JJF1397	$\pm(0.1\sim30)$ kV	$U_{rel}=3.2\%$		
		discharge current(peak)		$\pm(0.1\sim30)$ A	$U_{rel}=6\%$		
		rise time		(0.7~1.0)ns	$U_{rel}=13\%$		



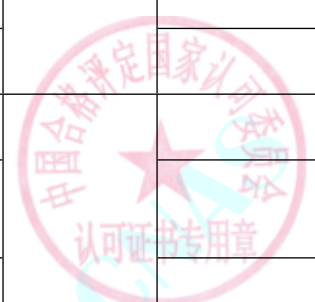
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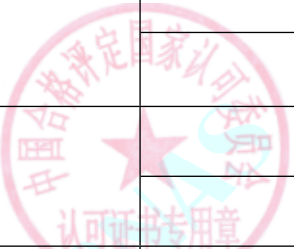
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		discharge current		$\pm(0.1\sim 30)A$	$U_{rel}=10\%$		
69	Electric Fast Transient Burst generator	Voltage(Peak)	calibration specification for electrical fast transient/burst simulators JJF1672	(0.25~4)kV	$U_{rel}=5\%$		
		Single pulse rise time		(1~10)ns	$U_{rel}=7\%$		
		Single pulse duration time		(10~150)ns	$U_{rel}=7\%$		
		repetition frequency		(5~100)kHz	$U_{rel}=6\%$		
		Burst Duration		(0.75~300)ms	$U_{rel}=8\%$		
70	Surge generator	Voltage(Peak)	calibration specification for Electrical Surge generator JJF(DZ)30803	0.1kV~6kV	$U_{rel}=4\%$		
		Voltage rise time		(0.5~10) μs	$U_{rel}=4\%$		
		Voltage duration time		(10~1000) μs	$U_{rel}=4\%$		
		current(peak)		0.01kA~8kA	$U_{rel}=3\%$		
		current rise time		(0.5~10) μs	$U_{rel}=4\%$		
		current duration time		(10~1000) μs	$U_{rel}=4\%$		
71	Voltage dips, short interruptions and voltage variations generator	voltage amplitude	calibration specification for voltage dips, short interruptions and voltage variation tests generator JJF1673	0.1V~400V	$U_{rel}=2\%$		
		Time at Reduced Voltage		1ms~10s	$U_{rel}=6\%$		
		Load current		0.1A~40A	$U_{rel}=5\%\sim 7\%$		
72	*Power frequency	current	calibration specification for	(0.01~1000)A	$U_{rel}=3\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	magnetic field generator	Magnetic field intensity	Power frequency magnetic field generator JJF(DZ)30808	(1~5000)A/m	$U_{rel}=11\%$		
73	*Impulse Voltage generator	Voltage(Peak)	calibration specification for impulse voltage generator NIMTT(CM) 122	1V~7000V	$U_{rel}=4\%$		
		Voltage rise time		1ns~1s	$U_{rel}=4\%$		
		Voltage duration time		0.1 μs~60s	$U_{rel}=4\%$		
		current (Peak)		0.1A~8000A	$U_{rel}=3\%$		
		current rise time		5ns~1s	$U_{rel}=4\%$		
		current duration time		0.1 μs~60s	$U_{rel}=4\%$		
74	Microwave radiation and leakage measuring instrument(Including Microwave field probe)	Power density	Verification Regulation for Microwave Radiation and Leakage Energy Measuring Instruments JJG776	(1~1000) μW/cm ² , (915MHz,2450MHz)	$U=1.7dB$		
				(1000~5000) μW/cm ² , (915MHz,2450MHz)	$U=1.7dB$		
75	Current Probe(EMC)	Transfer impedance	calibration specification for Current probe NIMTT(CM) 064	(-40~80)dB Ω, (10kHz~10MHz)	$U=0.5dB$		
				(-40~80)dB Ω, (10MHz~200MHz)	$U=0.6dB$		
76	Voltage Probe(EMC)	Insert Loss	calibration specification for voltage probe NIMTT(CM) 065	(0~80)dB, (10kHz~10MHz)	$U=2.0dB$		
				(0~80)dB, (10MHz~200MHz)	$U=2.3dB$		
77	vehicles transient disturbance/load	voltage	calibration specification for vehicles transient disturbance simulators NIMTT(CM) 008	(-700~-1)V, (1~300)V	$U_{rel}=4\%$		
		rise time		1ns~10ms	$U_{rel}=7\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	dump simulators	duration time		1ms~5s	$U_{rel}=4\%$		
78	*Bituminous Materials' Determining Ductility	Temperature	Bituminous Materials' Determining Ductility JJG (Traffic) 023	(0~50) °C	$U=0.12^{\circ}\text{C}$		
79	*Apparatus for Softening Point of Bitumen	geometrical dimensions	Verification Regulation of Apparatus for Softening Point of Bitumen JJG (Traffic) 057	(0~200) mm	$U=0.05\text{mm}$		
		weight		(0~200) g	$U=1.2\text{mg}$		
		heating rate		(0~20) °C/min	$U=0.4^{\circ}\text{C}/\text{min}$		
		Temperature		(0~200)°C	$U=0.07^{\circ}\text{C}$		
80	*Asphalt Aging Oven	geometrical dimensions	V.R.of Asphalt Aging Oven JJG (Traffic) 056	(0~200) mm	$U=0.06\text{mm}$		
		Temperature		(0~300)°C	$U=0.3^{\circ}\text{C}$		
81	*Asphalt Mixture's Mixing Machine	Temperature	Asphalt Mixture's Mixing Machine JJG(Traffic) 064	(0~250) °C	$U=0.6^{\circ}\text{C}$		
		heating rate		(0~250) °C/min	$U=0.4^{\circ}\text{C}/\text{min}$		
82	Detecting device of vehicle travelling data recorder	Speed	Calibration Specification for Detecting device of vehicle travelling data recorder NIMTT(CM) 029	(20~180) km/h	$U_{rel}=0.6\%$		
		Mileage		(1~5000) m	$U_{rel}=0.6\%$		
		Time		(0~3600) s	$U=0.7\text{s}$		
83	*Calibration Specification of Vehicle Contour Dimensions Testers	Length	Calibration Specification of Vehicle Contour Dimensions Testers JJF 1749	(1~30)m	$U_{rel}=0.4\%$		
84	*Loading Method Automobile Brake	Lifting Height	Loading Method Automobile Brake Testers JJG 1160	(0~500.00) mm	$U=0.5\text{mm}$		

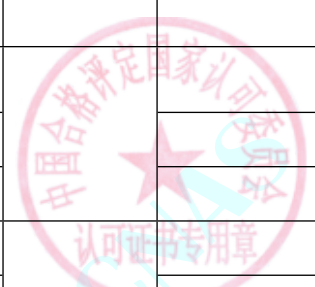


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Testers	Braking force	ilac-MRA INTERNATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(1~50000)N	$U_{rel}=1.0\%$		
		Slip adhesion coefficient of roller		0.01~1	$U=0.012$		
		Slip ratio of driving motor stop		5%~40%	$U=4.8\%$		
		Axle wheel weight		1kg~15t	$U_{rel}=0.62\%$		
85	Defibrillators Analyzer	heart rate	Calibration Specification for Defibrillator Analyzers NIMTT(CM)103	(30~300) min ⁻¹	$U_{rel}=0.08\%$		
		Respiratory		(10~2000) Ω	$U_{rel}=0.84\%$		
		output energy		(2~360) J	$U_{rel}=1.4\%$		
		Amplitude		(0.1~3) mV	$U_{rel}=1.2\%$		
		Square wave signal frequency		(0.125~10)Hz	$U_{rel}=0.08\%$		
86	respiratory rhythm generator	respiratory rate	Calibration Specification for respiratory rhythm generator NIMTT(CM)043	(3~60)min ⁻¹	$U=0.22\text{min}^{-1}$		
87	Oscilloscope voltage probes	Attenuation ratio	Calibration Specification for Oscilloscope Voltage Probes JJF1437	1~1000	$U_{rel}=0.6\%$		
		Bandwidth		250kHz~2GHz	$U_{rel}=5\%$		
		Rise time		58ps~50ns	$U_{rel}=5\%$		
88	*Vibrating Table for Concrete Test	Frequency	Calibration Specification of Vibrating Table for Concrete Test JJF(chuan) 170	(20~100)Hz	$U=2.0\%$		
		Amplitude		(0.1~10)mm	$U=3.0\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
89	*apparatus of fluidity of cement mortar	Fall distance	Calibration Specification for Flow Table for Determine Cement Mortar Fluidity JJF(chuan) 164	(9~11)mm	U=0.1mm		
		Time		(0~86400)s	U=0.1s		
90	*cement testing apparatus of the normal consistency and setting time	Size	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF1090	(0~300)mm	U=0.03mm		
		Mass		(0~5000)g	U=0.2g		
91	*Electroencephalograph	Volt	Electroencephalograph JJG1043	30 μ V~30V	U=15 μ V		



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