

Name: Suzhou Saibao Calibration Technology Co., Ltd.

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Registration No. CNAS L2336

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

Effective Date: 2025-10-24 Expiry Date: 2028-12-23

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
Geometry measuring instruments							
1	*Linear Displacement Sensors	Length	C.S. for Linear Displacement Sensors JJF 1305	(0.1~10)mm	$U=2 \mu m$		
				(10~1000)mm	$U=0.02\%FS$		
				(1000~2000)mm	$U=0.04\%FS$		
2	Tape	Length	V.R. of Steel Measuring Tapes JJG 4	(0~100)m	$U=0.2mm+2 \times 10^{-5}L$	except for Steel sounding tape measure.	
3	Fiber Tapes And Measuring Ropes	Length	V.R. of Fiber Tapes And Measuring Ropes JJG 5	(0~100)m	$U=0.2mm+1 \times 10^{-4}L$		
4	π ruler	Length	π - ruler calibration specification JJF 1423	(9~5000)mm	$U=0.02mm+4 \times 10^{-6}L$		
5	Steel Rule	Length	Verification Regulation of Steel Rule JJG 1	(0~600)mm	$U=0.06mm$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(600~1500)mm	$U=0.10\text{mm}$		
				(1500~2000)mm	$U=0.15\text{mm}$		
6	*Capacitive grating digital display scale	length	Calibration specification for capacitive grating digital display scale JJF 1280	(0~500)mm	$U=0.01\text{mm}$		
				(500~1000)mm	$U=0.02\text{mm}$		
7	*Cable Length Meter	Length	V.R. of Cable Length Meter JJG 987	(10~1000) m	$U_{\text{rel}}=0.18\%$		
8	*Tool Microscope	Length	V.R. of Universal Measuring Microscopes and Makers Microscopes JJG 56	(0~200)mm	$U=0.5 \mu\text{m}+2 \times 10^{-6}L$		
9	*Reading and measuring microscope	Length	V.R. of Measuring Microscope JJG 571	measuring microscope: (0~50)mm	$U=2 \mu\text{m}$		
		Length		Reading microscope: (0~6)mm	$U=2 \mu\text{m}$		
10	*Metallurgical Microscope	Length	C.S. for Biological Microscopes JJF 1402	(0~10) mm	$U=1.2 \mu\text{m}$		
				(4×~125×)	$U_{\text{rel}}=1.2\%$		
11	*Imaging Probe Measuring Machines	Length	C.S. for Imaging Probe Measuring Machines JJF 1318	(0~1000)mm	$U=0.5 \mu\text{m}+2 \times 10^{-6}L$		
12	*Projector	Length	C.S. for Projectors JJF 1093	(0~200)mm	$U=1.1 \mu\text{m}+5 \times 10^{-6}L$		
13	*Level Rule	Length	Calibration Specification for projectors Detecting The Notch of Tehe Sample JJF(Zhe) 1133	(0~100)mm	$U=6 \mu\text{m}$		
				50×	$U_{\text{rel}}=0.3\%$		
		Angle		(43~47)°	$U=2'$		
14	*Metallurgical Microscope	Length	Calibration Specification for Metallurgical Microscopes	(0~10) mm	$U=1.2 \mu\text{m}$		



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			JJF 1914	4×~125×	$U_{rel}=1.2\%$		
15	*Stereomicroscope	Length	C.S. for Stereomicroscope JJF(Min) 1063	0.5×~5×	$U_{rel}=1.2\%$		
16	Gauge Block	Length	V.R. of Gauge Blocks JJG 146	(0.5~1000)mm	$U=0.14\mu\text{m}+1.4\times 10^{-6}Ln$		
17	Internal Micrometers	Length	V.R. of Internal Micrometers JJG 22	(0~2000)mm	$U=1.5\mu\text{m}+6\times 10^{-6}L$		
18	*Micrometer for measuring internal dimension	Length	C.S. for Micrometers for Measuring Inside Dimension JJF 1411	Internal: (5~200)mm	$U=3\mu\text{m}$		
				three grasp: (6~200)mm	$U=2\mu\text{m}$		
19	*Micrometers	Length	V.R. of Micrometer JJG 21	(0~100)mm	$U=1.3\mu\text{m}+3\times 10^{-6}L$		
				digital: (0~100)mm	$U=0.7\mu\text{m}+4\times 10^{-6}L$		
				(100~500)mm	$U=1.5\mu\text{m}+5\times 10^{-6}L$		
				digital: (100~500)mm	$U=0.8\mu\text{m}+4\times 10^{-6}L$		
				Measuring rod: (25~500)mm	$U=0.5\mu\text{m}+6\times 10^{-6}L$		
20	*Outside micrometer of large size	Length	C.S. for Large Dimension Outside Micrometers JJF 1088	(500~1000)mm	$U=1.5\mu\text{m}+6\times 10^{-6}L$		
				Measuring rod: (500~1000)mm	$U=0.5\mu\text{m}+6\times 10^{-6}L$		
21	*Pointed outside micrometer	length	Calibration specification for pointed outside micrometers JJF (Zhe) 1045	(0~150)mm	$U=2\mu\text{m}$		
22	*Wafer micrometer	length	Calibration specification for micrometers JJF (Zhe) 1090	(0~200)mm	$U=2\mu\text{m}$		

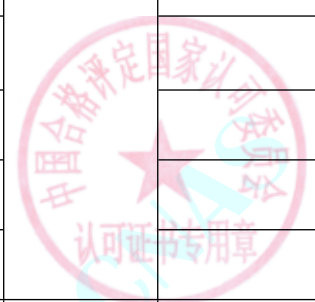


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
23	*Micrometer with small probe	length	Calibration specification for micrometer with small probe JJF(Zhe)1131	(0~100)mm	$U=2 \mu m$		
24	*Micrometer with round probe	Length	Calibration specification for micrometers with circular probe JJF(Zhe)1132	(0~200)mm	$U=2 \mu m$		
25	*Depth Micrometer	Length	V.R. of Depth Micrometers JJG 24	(0~300)mm	$U=1.2 \mu m+5 \times 10^{-6}L$		
26	Micrometers with Dial Comparater and Indicating Snap Gauge	Length	V.R. of Micrometers with Dial Comparater and Indicating Snap Gauge JJG 26	(0~200)mm	$U=1.0 \mu m$		
27	*Micrometers with Gauge	Length	V.R. of Micrometers with Gauge JJG 427	(0~100)mm	$U=0.7 \mu m+4 \times 10^{-6}L$		
28	*Indicator table	Length	V. R. of Dial Gauges JJG 34	dial reading in 0.001mm: (0~5)mm	$U=1.8 \mu m+3 \times 10^{-4}L$		
				digital reading in 0.001mm: (0~1)mm	$U=1.4 \mu m$		
				digital reading in 0.001mm: (1~10)mm	$U=2.4 \mu m$		
				dial reading in 0.01mm: (0~10)mm	$U=5 \mu m$		
				digital reading in 0.01mm: (0~10)mm	$U=7 \mu m$		
				dial Large range dial indicator:(10~50)mm	$U=8 \mu m$		
				digital Large range dial indicator:(10~50)mm	$U=0.01mm$		
29	*Dial Test Indicator	Length	V.R. of Dial Test Indicator JJG 35	reading in 0.01mm: (0~1)mm	$U=2.7 \mu m$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				reading in 0.001mm: (0~0.4)mm	$U=1.2\mu\text{m}$		
30	*Bore Dial Indicators	Length	C.S. for Bore Dial Indicators JJF 1102	Inner diameter dial gauge:(6~450)mm	$U=3\mu\text{m}$		
				Inside dial indicator:(6~450)mm	$U=1.9\mu\text{m}$		
31	*Depth Dial Gauge	Length	V.R.of Depth Dial Gauge JJG 830	(0~10) mm	$U=1\mu\text{m}$		
				(10~100)mm	$U=2\mu\text{m}$		
32	*Current Calipers	Length	V.R. of Current Calipers JJG 30	(0~500)mm	$U=0.01\text{mm}$		
				(500~1000)mm	$U=0.02\text{mm}$		
				(1000~1500)mm	$U=0.03\text{mm}$		
				(1500~2000)mm	$U=0.04\text{mm}$		
33	*Height Gauge	Length	V. R. of Feeler Gauge JJG 31	(0~500)mm	$U=0.01\text{mm}$		
				(500~1000)mm	$U=0.02\text{mm}$		
34	*Dial Snap Gauges	Length	C.S.for Dial Snap Gauges JJF 1253	(5~100)mm	$U=9\mu\text{m}$		
35	*Thickness Gauges	Length	C.S.for Thickness Gauges JJF 1255	(0~50)mm	$U=2\mu\text{m}$		
36	*Tester for Dial Indicator Gauges	Length	V.R. of Tester for Dial Indicator Gauges JJG 201	(0~50)mm	$U=0.2\mu\text{m}+2\times 10^{-5}L$		
37	*Micrometers with Prismatically Arranged Measuring Faces	Length	V.R.of Micrometers with Prismatically Arranged Measuring Faces JJG 182	(1~50)mm	$U=1.4\mu\text{m}$		



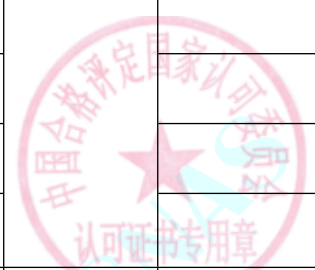
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38	*Rubber, plastic film thickness gauge	Length	C.S. for rubber, plastic film thickness gauge JJF 1488	(0~30) mm	$U=3 \mu m$		
39	Ultrasonic flaw detection test block	Length	C.S. for ultrasonic flaw detection block JJF 1487	(0~300) mm	$U=4 \mu m$		
40	*Inside Calipers	Length	C.S. for Inside Calipers JJF(Zhe) 1091	(0~500) mm	$U=0.01mm$		
41	*Brick Calipers	Length	C.S. for Brick Calipers JJF(Zhe) 1130	(-50~+50) mm	$U=0.01mm$		
42	*Recess Measuring Micrometer	Length	V.R. of Measuring Micromete JJG(JG) 56	(0~50) mm	$U=3 \mu m$		
43	*Wide Rande Electronic Digital Display Dial Indicator	Length	C.S. for Wide Rande Electronic Digital Display Dial Indicator JJF(Zhe) 1135	(0~50) mm	$U=2 \mu m$		
44	Box Plates	Verticality	V.R. of Box Plates JJG 194	(100~400)mm	$U=2.8 \mu m$		
45	Square	Perpendicularity	V.R. of Squares JJG 7	wide-stand square: H(0~630)mm	$U=2 \mu m+3 \times 10^{-6}H$		
				Knife edge square: H(0~200)mm	$U=2 \mu m$		
				Parallel square: H(0~500)mm	$U=3 \mu m$		
				Triangle square: H(0~630)mm	$U=0.5 \mu m+1 \times 10^{-6}H$		
				Linear steel square: (0~500) mm	$U=0.06mm$		
46	Straight Edge	Linearity	V.R. of Straight Edge JJG 63	(75~175) mm	$U=0.4 \mu m$		



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				(175~300)mm	$U=0.8 \mu\text{m}$		
				(300~500)mm	$U=1.4 \mu\text{m}$		
47	Square Gauge	Perpendicularity	V.R. of Square Gauge JJG 1046	H:(100~630)mm	$U=0.2 \mu\text{m}+2 \times 10^{-6}H$		
48	*General Bevel Protractor	Angle	C.S. for General Bevel Protractors JJF 1959	(0~360)°	$U=1'$		
49	*Composite angle gauge	Angle	C.S. for Composite Type Angle Rules JJF 1132	(0~180)°	$U=4'$		
		Length		(0~300)mm	$U=0.05\text{mm}$		
50	Frame Levels and Shaft Levels	Angle	C.S. for Frame Levels and Shaft Levels JJF 1084	(0.02~0.10) mm/m	$U_{\text{rel}}=6\%$		
51	*Calibrators for the Level	Angle	V.R. of Calibrators for the Level JJG 191	(0.005~1.5)mm/m	$U_{\text{rel}}=2\%$		
52	clinometers	Angle	Calibration Specification for Clinometers JJF 1915	(0~360)°	$U=0.01^\circ$		
53	Level Rule	Angle	C.S. for Level Rules JJF 1085	(0.5~10) mm/m	$U_{\text{rel}}=4\%$		
		Length		(0~1000)mm	$U=0.1\text{mm}$		
54	*Image contact angle tester	angle	Calibration specification for image contact angle tester JJF (Su) 219	(10~170) °	$U=0.20^\circ$		
55	*Digital Display Height Measuring Instrument	Length	C.S. for Height Measuring Instrument with Digital JJF 1254	(0~1000)mm	$U=0.5 \mu\text{m}+1.5 \times 10^{-6}L$		
56	*Concentricity Testers	Length	C.S. for Concentricity Testers JJF 1109	(20~30) μm	$U=2 \mu\text{m}$		
57	*Tooth thickness caliper	length	Calibration specification for tooth thickness caliper JJF 1072	Modulus: (1~50) mm	$U=0.01\text{mm}$		

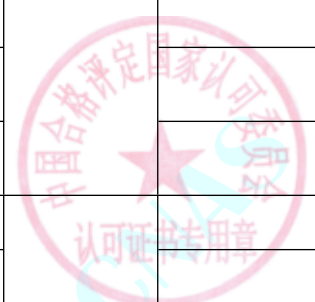


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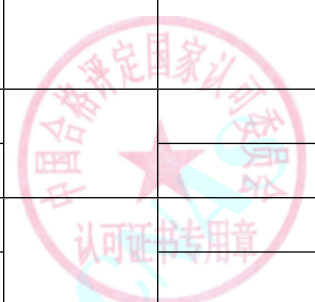
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
58	*Common Normal Micrometer	Length	V.R. of Common Normal Micrometer JJG 82	(0~200)mm	$U=1.2 \mu m+5.5 \times 10^{-6}L$		
59	*Thread micrometer	length	Verification regulation of thread micrometer JJG25	(0~200)mm	$U=1 \mu m+7 \times 10^{-6}L$		
60	Screw Templates	Length	V.R. of Screw Templates JJG 60	(0.4~6.35)mm	$U=2 \mu m$		
61	Working gauge for petroleum thread	Length	C.S. for OCTG Thread Working Gauges JJF 1108	Pitch: (0.941~3.175)mm	$U=4.0 \mu m$		
				Medium diameter: (5~200)mm	$U=3.4 \mu m+6 \times 10^{-6}L$		
62	*Coordinate Measuring Machine	Length	C.S. for Coordinate Measuring Machines JJF 1064	(0~1000)mm	$U=0.5 \mu m+1 \times 10^{-6}L$	except for the coordinate measuring machine with rotary table as the fourth axis.	
				(1000~7000)mm	$U=2 \mu m+1 \times 10^{-6}L$		
63	*Roundness instrument	Roundness	Measurement Standard Instrument of Roundness and Cylindricity JJG 429	(1~11) μm	$U_{rel}=6\%$		
				(19~20) μm	$U_{rel}=4\%$		
64	*Flat Plate	Flatness	V.R. of Surface Plates JJG 117	160mm×100mm~630mm×400mm	$U=0.9 \mu m$		
				630mm×400mm~1600mm×1000mm:	$U=2.2 \mu m$		
				1600mm×1000mm~3000mm×2000mm:	$U=3.5 \mu m$		
65	Feeler gauge	Length	V. R. of Feeler Gauge JJG 62	(0.02~0.10)mm	$U=2 \mu m$		
				(0.10~3.00)mm	$U=3 \mu m$		
66	Standard Ring Gauge	Length	V.R. of Standard Ring Gauge JJG 894	(2~200) mm	$U=0.7 \mu m+6 \times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
67	*Snap Gauge Reading in 0.01mm	Length	V.R. of Snap Gauge Reading in 0.01mm JJG 109	(0~200)mm	$U=4 \mu m$		
68	Cylindrical Thread Gauges	Length	C.S. for Cylindrical Thread Gauges JJF 1345	Gauge:(1~500)mm	$U=3.4 \mu m+6 \times 10^{-6}L$		
				Ring:(2~500)mm	$U=3.4 \mu m+6 \times 10^{-6}L$		
69	Sealing pipe thread gauge	Length	Calibration specification for thread gauge of 55° sealing pipe JJF (Su) 223	Medium diameter: (7~165)mm	$U=3.4 \mu m+6 \times 10^{-6}L$		
70	Smooth limit gauge	Length	V.R. of Plain Limit Gauges JJG 343	External dimension:(1~500)mm	$U=0.5 \mu m+4 \times 10^{-6}L$		
				inside dimension:(1~500)mm	$U=1.0 \mu m+3 \times 10^{-6}L$		
71	Pin Gauge, Thread Measuring Wires	Length	C.S. for Cylindrical Measuring Pin JJF 1207	Thread Measuring Wires: (0.118~6.585)mm	$U=0.3 \mu m$		
				Pin Gauge: (0.1~25)mm	$U=0.5 \mu m$		
72	*Optimeter	Length	V.R. of Optimeter JJG 45	(-100~+100) μm	$U=0.12 \mu m$		
73	*Length Measuring Instruments	Length	C.S. for Length Measuring Instruments JJF 1066	(0~3000)mm	$U=0.2 \mu m+2 \times 10^{-6}L$		
74	*Length Measuring Instrument	Length	C.S. for Length Measuring Instrument JJF 1189	(0~50)mm	$U=0.2 \mu m$		
				(50~500)mm	$U=0.2 \mu m+2 \times 10^{-6}L$		
75	*Laser Diameter Measuring Gauges	Length	C.S. for Laser Diameter Measuring Gauges JJF 1250	(0.1~30)mm	$U=0.5 \mu m$		
				Standard gauge: (0.1~30)mm	$U=0.3 \mu m$		

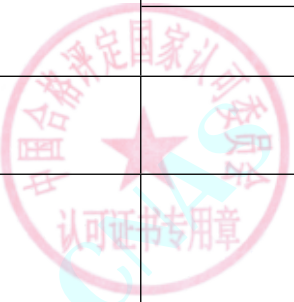


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76	*Microcator	Length	V.R. of Microcator JIG 118	(-300~300) μm	U=0.14 μm		
77	*Comparator of Machinery Type	Length	V.R. of Comparator of Machinery Type JIG 39	(-1000~1000) μm	U=0.12 μm		
78	*Inductive Micrometers	Length	C.S. for Inductive Micrometers JJF 1331	Resolution 0.01 μm: (-10~+10) μm	U=0.03 μm		
				Resolution 0.1 μm: (-100~+100) μm	U=0.2 μm		
				Resolution 1 μm: (-1000~+1000) μm	U=1 μm		
79	*Grating Micrometer	Length	C.S. for Grating Micrometers JJF 1682	0.2 μm grade; (0~25) mm	U=0.09 μm		
				0.5 μm grade; (0~50) mm	U=0.16 μm		
				1 μm grade; (0~100) mm	U=0.3 μm		
				2 μm grade; (0~100) mm	U=0.9 μm		
				5 μm grade; (0~100) mm	U=2 μm		
				10 μm grade; (0~100) mm	U=2 μm		
80	Roughness CoMParison Specimens	Roughness	Calibration specification for surface roughness comparison blocks JJF 1099	Ra(0.012~6.3) μm	U _{rel} =7.6%		
81	*Contact Instruments of Surface RoughnessMeters by the profile	Roughness	C.S. for Contact (Stylus) Instruments of Surface Roughness Measurement by the profile Method JJF 1105	Ra:(0.04~0.1) μm	U _{rel} =6.0%		



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	Method			Ra:(1.4~6.9) μm	$U_{rel}=4.0\%$		
82	Fineness of Grind Gauge	Length	V.R.of Fineness of Grind Gage JJG 905	(0~25) μm	$U=0.6 \mu m$		
				(25~50)mm	$U=1.0 \mu m$		
				(50~150)mm	$U=1.3 \mu m$		
83	*Contact (Stylus) Surface Contour Tester	Length	C.S. for Contact (Stylus) Surface Contour Tester JJF(Min) 1043	Z axis: (0~50)mm	$U=0.5 \mu m+3 \times 10^{-5}L$		
				X axis: (0~100)mm	$U=0.8 \mu m$		
				radius: 10mm	$U=0.9 \mu m$		
		Angle	0~90°	$U=40''$			
84	*Tool Presetting and Measuring Instruments	Length	V.R. of Tool Presetting and Measuring Instruments JJG 938	(0~1000)mm	$U=1.7 \mu m+2.2 \times 10^{-6}L$		
85	*Magnetic and Eddy Current Measuring Instrument for Coating Thickness	Length	V.R. of Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG 818	Magnetic : (0~2000) μm	$U=0.4 \mu m+6 \times 10^{-3}L$		
				(0~2000) μm	$U=0.4 \mu m+6 \times 10^{-3}L$		
				(10~2000) μm	$U_{rel}=0.6\%$		
86	*X-Ray Thickness Gauge	Length	C. S. for X-Ray Fluorescence Coating Thickness Instruments JJF 1306	(0.053~0.2) μm	$U_{rel}=10\%$		
				(0.2~15) μm	$U_{rel}=6\%$		
87	*Ultrasonic Thickness Instrument	Length	C.S. for Ultrasonic Thickness Instrument JJF 1126	(0.5~15) mm	$U=0.02mm$		
				(15~75) mm	$U=0.03mm$		
				(75~200)mm	$U=0.07mm$		



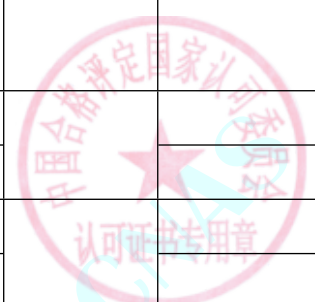
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88	*Pneumatic measuring instrument for micrometers	Length	V.R.of Pneumatic Measuring Instrument for Micrometers JJG 356	Buoy-type read in 0.5 μ m: (0~8) μ m	U=0.2 μ m		
				Buoy-type read in 1 μ m: (0~15) μ m	U=0.4 μ m		
				Buoy-type read in 2 μ m: (0~40) μ m	U=0.6 μ m		
				Buoy-type read in 5 μ m: (0~80) μ m	U=1.3 μ m		
				Electronic column type read in 0.2 μ m: (0~10) μ m	U=0.2 μ m		
				Electronic column type read in 0.5 μ m: (0~25) μ m	U=0.4 μ m		
				Electronic column type read in 1 μ m: (0~50) μ m	U=0.9 μ m		
89	Radius Gauges	Length	C.S.for Radius Gauge JJF 2187	(R1~R25)mm	U=10 μ m		
90	Wedge-feet Calibrator for Micrometers	Length	V.R.of Wedge-feet Calibrator for Micrometers JJG 525	(0~2000) μ m	U=0.3 μ m		
91	*Welding Inspection Callipers	Angle	C.S. for Callipers for Welding Inspection Callipers JJF 2161	(0~320)°	U=8'		
		Length		(0~60)mm	U=0.03mm		
92	*Staight Edges	Linearity	C.S.for Staight Edges JJF 1097	(300~1000) mm	U=0.7 μ m		
				(1000~2000)mm	U=1.0 μ m		
				(2000~3000)mm	U=1.4 μ m		

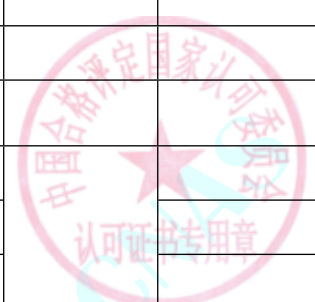


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
93	*Surface profile table	Length	Calibration specification for Surface profile gauges JJF 1476	(0~6.5) mm	$U=1.7 \mu m$		
94	*Tensile stretch tester	elongation	Verification procedure for test equipment of enamelled winding wire- Part3:Elongation tester JB/T4279.3	1%~60%	$U=0.3\%$		
95	*Articulated arm type coordinate measuring machine	length	Calibration specification for articulated arm CMM JJF 1408	(0~1000)mm	$U=6 \mu m+4 \times 10^{-6}L$		
96	*Laser micrometer	length	Calibration specification for laser micrometer JJF 1663	(0.1~6)mm	$U=0.024\%FS$		
				(6~100)mm	$U=0.015\%FS$		
97	*Solder Paste Inspection Instruments	length	Calibration Specification for Solder Paste Inspection Instruments JJF1965	(75~400) μm	$U=1.5 \mu m$		
98	*Drop Test Machine for Packages	Length	Drop Test Machine for Packages JJG (Yue) 045	(10~2000)mm	$U=0.7mm$		
		Angle		0~5°	$U=0.6^\circ$		
99	*Extensometer	Length	Verification Regulation for Extensometer JJG 762	(0~1/3) mm	$U=0.5 \mu m$		
				(1/3~25) mm	$U_{rel}=0.18\%$		
100	Microscale	Length	C.S.for Micropattern Standards JJF 1917	line spacing: (0~10)mm	$U=0.5 \mu m$		
				diameter: (0~10)mm	$U=0.8 \mu m$		
		Angle		(0~360) °	$U=16''$		
101	Optical instrument	Length	C.S. for Material Measures of Length Measuring Instrument	Eccentric shafte: e(20~30) μm	$U=0.8 \mu m$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	inspection tool	Length	with Optical Principle JJF1941	Standard mandrel: (0~500)mm	$U=0.5 \mu m$		
102	*Center distance caliper	Length	C.S. for Center Distance Calipers JJF (Su) 199	(0~500)mm	$U=0.01mm$		
				(500~1000)mm	$U=0.02mm$		
103	*Chamfer caliper	Length	C.S. for Calipers and gauges of Chamfer JJF (Su) 211	(1.2~10)mm	$U=0.02mm$		
104	Gauges for plugs and sockets for household and similar purposes	Length	C.S. for plugs and Socket-outlets gauges for Household and Similar Purposes JJF (Zhe) 1119	(0~60)mm	$U=0.004mm$		
		Angle		(119~121)°	$U=2'$		
105	One dimensional and two-dimensional geometric dimensions	Length	C.S. for one-dimensional and two-dimensional geometric dimension measurement JJF(Xin)68	(0~500)mm	$U=0.5 \mu m+5 \times 10^{-6}L$		
				(500~1000)mm	$U=0.7 \mu m+5 \times 10^{-6}L$		
		Angle		(0~360)°	$U=8''$		
106	Hand-held Laser Distance Meters	Length	V.R. of Hand-held Laser Distance Meters JJG 966	(0~30) m	$U=1.0mm+2 \times 10^{-5}D$		
107	*Quick Video Measuring Machines	Length	C.S. for Quick Video Measuring Machines JJF (Zhe) 1194	(0~500)mm	$U=0.5 \mu m+2 \times 10^{-6}L$		
108	Levels	Angle	V.R. of Levels JJG 425	(-25~+25)''	$U=3''$		
109	Optical Theodolites	Angle	V.R. of Optical Theodolites JJG 414	(0~360)°	$U=0.4''$		
110	Protection of person and equipment by enclosures-Probe for verification	Length	C.S. for Protection of person and equipment by enclosures-Probe for verification JJF(Liao) 288	(0~100)mm	$U=0.004mm$		
				(100~200)mm	$U=0.007mm$		
				(200~300)mm	$U=0.04mm$		
				(300~500)mm	$U=0.05mm$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
		Angle		(0~360)°	U=4'			
111	Laser Alignment Instrument	Length	C.S.for Laser Alignment Instrument JJF(Zhe) 1196	(-20~+20)mm	U=3 μm			
		Angle		(0~360)°	U=0.1°			
112	*Step Gauges	Length	C.S.for Step Gauges JJF(Ji) 154	(-50~+50) mm	U=0.01mm			
113	*Vertical Axis Deviation Measuring Instrument	Length	C.S.for Vertical Axis Deviation Measuring Instrument JJF (Ji) 153	(0~300) mm	U=0.007mm			
114	*Bottom Wall Thickness Measuring Instrument	Length	C.S.for Bottom Wall Thickness Measuring Instrument JJF(Ji) 152	(0~20) mm	U=0.003mm			
115	*Optical 3D Measuring Systems Based on Structured Light Scanning	Length	C.S.for Optical 3D Measuring Systems Based on Structured Light Scanning JJF 1951	(0~1200)mm	U=7 μm+3×10 ⁻⁶ L	No single perspective system type equipment		
116	*Conical Ruler	Length	C.S. of Conical Ruler JJF (Wan) 89	(0~60) mm	U=0.01mm			
117	Taper Thread Gauges	Length	C.S.for Taper Thread Gauges JJF (Xiang) 47	(6~165)mm	U=3.6 μm+6×10 ⁻⁶ L			
118	*Wide Face Caliper	Length	C.S.for Wide Face Caliper JJF(Zhe) 1172	(0~300) mm	U=0.01mm			
119	*Hall Effect Thickness Gauge	Length	V.R.of Hall Effect Thickness Gauge JJG(Yue) 034	(0~20)mm	U=2 μm+4×10 ⁻³ H			
Thermology measuring instruments								



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
1	Working Noble Metal Thermocouples	Temperature	V.R.of Working Noble Metal Thermocouples JJG 141	(300~1100) °C	U=0.8 °C		
				(1100~1500) °C	U=2.6 °C		
2	Base Metal Thermocouples	Temperature	C. S. for Base Metal Thermocouples JJF 1637	(-40~300) °C	U=0.3 °C		
				(300~1200) °C	U=1.1 °C		
3	Sheathed Thermocouples	Temperature	C. S. for Sheathed Thermocouples JJF1262	(-40~300) °C	U=0.3 °C		
				(300~1100) °C	U=1.1 °C		
4	Industrial Platinum and Copper Resistance Thermistor	Temperature	V. R. of Industrial Platinum and Copper Resistance Thermistor JJG 229	Platinum Resistance:(-80~300) °C	U=0.09 °C		
				Copper Resistance:(0~150) °C	U=0.12 °C		
5	Standard Mercury-in-Glass Thermometers	Temperature	V.R.of Standard Mercury-in-Glass Thermometers JJG 161	(-60~300) °C	U=0.04 °C		
6	Liquid-in-Glass Thermometers for Working	Temperature	V.R. of Liquid-in-Glass Thermometers for Working JJG 130	(-80~300) °C	U=0.06 °C		
7	Electric contact mercury-in-glass thermometers	Temperature	V.R. of Electric Contact Mercury-in-Glass Thermometers JJG 131	(-30~100) °C	U=0.05 °C		
				(100~300) °C	U=0.08 °C		
8	Clinical Electronic Thermometer	Temperature	V.R. for the Clinical Electronic Thermometer JJG 1162	(35~41) °C	U=0.03 °C		
9	Clinical Thermometers	Temperature	V.R. of the Clinical Thermometers JJG 111	(30~43) °C	U=0.03 °C		
10	*Bimetallic Thermometers	Temperature	Calibration Specification for Bimetallic Thermometers JJF 1908	(-80~300) °C	U=0.5 °C		

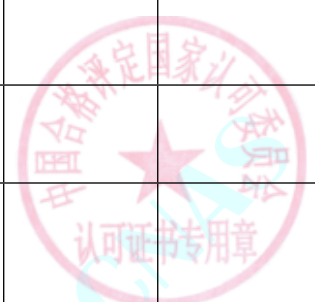


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	*Filled System Thermometers	Temperature	Calibration Specification for Filled System Thermometers JJF 1909	(-80~300)°C	U=0.5°C		
12	Surface Thermometers	Temperature	C.S.for the Surface Thermometers JJF 1409	(50~400)°C	U=1.8°C		
13	Surface Platinum Resistance Thermometers	Temperature	C.S. for Surface Platinum Resistance Thermometers JJF 2137	(-30~50)°C	U=0.8°C		
				(50~300)°C	U=1.6°C		
14	*Digital Thermometer	Temperature	C.S.for digital thermometer JJF(Su) 95	(-196~0)°C	U=0.3°C		
				(-80~300)°C	U=0.04°C		
				(300~1000)°C	U=0.90°C		
15	Thermistor Thermometer	Temperature	C. S. for Thermistor Thermometers JJF1379	(15~35)°C, Resolution 0.001°C	U=0.013°C		
				(-50~200)°C, Resolution 0.1°C	U=0.1°C		
16	*Thermometers of Clinic Autoclave	Temperature	C.S. for Thermometers of Clinic Autoclave JJF 1308	(20~150)°C	U=0.1°C		
17	WBGT-index Meters	Temperature	C.S. for Thermometers of WBGT-index Meters JJF 1407	(5~120)°C	U=0.3°C		
18	Fiber-optic Distributed Thermometers	Temperature	C.S. for Fiber-optic Distributed Thermometers JJF 1630	(-20~100)°C	U=0.4°C		
19	Working Copper/Copper-Nick Thermocouple	Temperature	V.R.of the Working Copper/Copper-Nickel Thermocouple JJG368	(-80~300)°C	U=0.2°C		

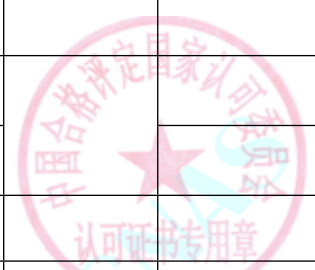


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
20	*Temperature Indicators and Simulators by Electrical Simulation and Measurement	Temperature	C.S.for Temperature Indicators and Simulators by Electrical Simulation and Measurement JJF 1309	(-200~1600)°C	U=0.02°C		
21	Recorders for Industrial Process Measurement	Temperature	V.R. of the Recorders for Industrial Process Measurement JJG 74	With Platinum thermal resistance:(-200~800)°C	U=0.2°C		
				With Thermocouple: (-200~1600) °C	U=0.8°C		
22	Temperature Data Acquisition Instruments	Temperature	C. S. for Temperature Data Acquisition Instruments JJF 1366	(-80~300)°C	U=0.08°C		
23	Temperature and Humidity Itinerant Detecting Instruments	Temperature	Calibration Specification for Temperature and Humidity Itinerant Detecting Instruments JJF 1171	(-80~300)°C	U=0.04°C		
				(300~1200)°C	U=0.67°C		
		Humidity		10%RH~95%RH	U=1.6%RH		
24	*Analogue Temperature Indicators and Controllers	Temperature	V.R.of Analogue Temperature Indicators and Controllers JJG 951	With Platinum Thermal Resistance:(0~850)°C	U=1.0°C		
				With Thermocouple:(0~1300)°C	U=1.0°C		
25	*Digital Temperature Indicators and Controllers	Temperature	V.R.of Digital Temperature Indicators and Controllers JJG 617	With Platinum Thermal Resistance:(-100~600)°C	U=0.4°C		
				With Thermocouple: (-100~1300) °C	U=0.6°C		
26	*Iron Thermometer	Temperature	C.S. for Soldering Iron Thermometers JJF 1629	(50~600)°C	U=1.5°C		
27	Temperature transmitters	Temperature	C.S.for Temperature Transmitter JJF 1183	With Platinum Thermal Resistance: (-80~300)°C	U=0.2°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Without Platinum Thermal Resistance: (- 200~800)°C	U=0.6°C		
				With Thermocouple: (- 80~1100)°C	U=1.0°C		
				Without Thermocouple: (- 200~1300)°C	U=1.2°C		
28	*Temperature Indicators	Temperature	C.S. for Temperature Indicators JJF 1664	With Platinum Thermal resistance: (-100~850) °C	U=0.4°C		
				With Thermocouple: (- 200~1300) °C	U=0.6°C		
29	*Thermostatic Baths for Temperature Calibration	Temperature	Measurement and Test Norm of Thermostatic Bath's Technological Characteristics JJF 1030	Uniformity: (-80~300)°C	U=0.007°C		
				Volatility: (-80~300)°C	U=0.009°C		
30	*Temperature Block Calibrators	Temperature	Calibration Guideline of the Temperature Block Calibrators JJF 1257	(-60~400)°C	U=0.32°C		
31	*Equipment of the Environmental Testing	Temperature	C. S. for the Equipment of the Environmental Testing for Temperature and Humidity Parameters JJF 1101	(-80~300)°C	U=0.5°C		
		Humidity		20%RH~95%RH	U=1.5%RH		
32	*Equipment of the Chamber Electric Furnace	Temperature	C.S. for the Equipment of the Chamber Electric Furnace JJF 1376	(100~1100)°C	U=1.5°C		
33	*Steam Sterilizer	Temperature	C.S. for Steam Sterilizer's Temperature and Pressure JJF(Su) 96	(40~140)°C	U=0.5°C		
		Pressure		(1~200)kPa	U=0.5kPa		
34	*Salt Mist Testing Chambers	Temperature	Calibration Specification for Salt Mist Testing Chambers	(0~60)°C	U=0.6°C		

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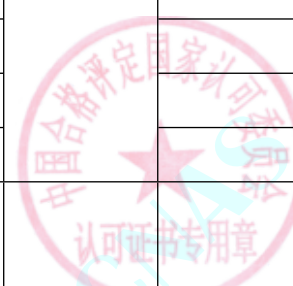
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Mist Rate	JJF 2168	(1~2)mL/(h•80cm ²)	U=0.4mL/(h•80cm ²)		
35	*Natural Ventilation Thermal Aging Test Oven	Temperature	Verification Procedure for Test Equipment of Rubber Plastic Wire and Cable -Part 6:Natural Ventilation Thermal Aging Test Oven JB/T4278.6	(20~300)°C	U=0.8°C		
		Ventilation		(8~20)Times/Hour	U=1Times/Hour		
36	*Electro-thermal Incubator	Temperature	Calibration Method of Electro-thermal Incubator SL144.4	(0~50)°C	U=0.6°C		
37	*Unsaturated Pressurized Vapour Damp Heat/steady State Testing Equipments	Temperature	V.R.of Unsaturated Pressurized Vapour Damp Heat/steady State Testing Equipments JJG(DZ) 31504	(100~170) °C	U=0.5°C		
		Humidity		50%RH~90%RH	U=1.8%RH		
38	*Electrically-heated Thermostatic Water bath	Temperature	C.S. of Electrically-heated Thermostatic Water bath JJF(Liao) 118	(0~100)°C	U=0.2°C		
39	*Vacuum Drying Chamber	Temperature	C.S. for Temperature and Pressure of Vacuum Drying Chamber JJF(Su) 177	(40~150)°C	U=0.6°C		
		Pressure		(0~101)kPa	U=2.4kPa		
40	*Equipment of Biological Artificial Climate	Temperature	C.S. for Equipment of Biological Artificial Climate JJF(Zhe)1103	(5~40)°C	U=0.6°C		
		Humidity		50%RH~95%RH	U=1.7%RH		
		Illumination		(100~10000)lx	U _{rel} =3.0%		
41	*Dry Bath Incubator for Biological	Temperature	C.S. for Dry Bath Incubator for Biological Experiments JJF(Zhe)1149	(-10~150) °C (Temperature Deciation)	U=0.13°C		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Experiments			(-10~150) °C (Temperature Uniformity)	U=0.07°C		
				(-10~150) °C (Temperature Volatility)	U=0.10°C		
42	*Temperature and Humidity Standard Chambers	Temperature	C.S. for Temperature and Humidity Standard Chambers JJF1564	(5~50)°C (uniformity)	U=0.05°C		
		Temperature change rate		(5~50)°C (fluctuation)	U=0.02°C		
		Humidity		(0~5)°C/min	U=0.03°C/min		
				20%RH~90%RH (Uniformity)	U=0.6%RH		
				20%RH~90%RH (Fluctuation)	U=0.3%RH		
		Humidity change rate		0RH/min~1%RH/min	U=0.6%RH/min		
43	Working Radiation Thermometers	Temperature	V.R. of the Working Radiation Thermometers JJG 856	(50~400)°C	U=1.3°C		
				(400~800)°C	U=1.7°C		
				(800~1000)°C	U=2.0°C		
				(1000~1200)°C	U=3.0°C		
44	Infrared Thermometers for Measurement of Human Temperature	Temperature	C.S. for Infrared Thermometers for Measurement of Human Temperature JJF 1107	(22.0~40.0) °C	U=0.14°C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
45	Thermal Imagers	Temperature	C. S. for Thermal Imagers JF 1187	(50~300)°C	U=1.5°C		
				(300~500)°C	U=1.8°C		
				(500~900)°C	U=2.4°C		
				(900~1200)°C	U=3.0°C		
46	Mechanical Thermo-hygrometers	Temperature	V.R. of Mechanical Thermo-hygrometers JJG 205	(5~50)°C	U=0.6°C		
		Humidity		30%RH~90%RH	U=1.8%RH		
47	Digital Temperature-hygrometers	Humidity	C.S. for Digital Temperature-hygrometers JJF 1076	10%RH~90%RH	U=0.6%RH~1.5%RH		
		Temperature		(-10~50)°C	U=0.4°C		
48	Temperature and Humidity Transmitter	Temperature	C.S. for Temperature and Humidity Transmitter JJF(Zhe)1035	(5~50)°C	U=0.4°C		
		Humidity		20%RH~90%RH	U=1.9%RH		
49	*Dust and Sand Testing Equipments	Temperature	C. S. for Dust and Sand Testing Equipments JJF(JG) 18	(21~75) °C	U=0.4°C		
		Humidity		20%RH~30%RH	U=1.5%RH		
		Wind Velocity		(0.5~2.5) m/s	U _{rel} =12%		
				(7.7~10.1) m/s	U _{rel} =3.2%		
				(18~29) m/s	U _{rel} =2.8%		
Dust Concentration	(0~20)g/m ³	U=0.76g/m ³					
50	*Rain Testing Equipments	Rainfall Intensity	C. S. for Rain Testing Equipments JJF(JG) 17	(90~110) mm/h	U _{rel} =2.6%		
		Wind Velocity		(16~20) m/s	U _{rel} =4.6%		

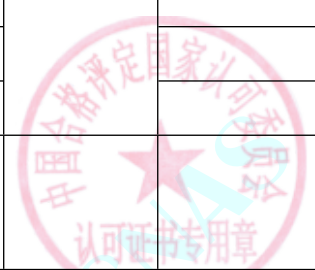


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
51	*Carbon Dioxide Incubator	Temperature	C.S. for Carbon Dioxide Incubator JJF (Liao) 463	(20~55) °C	U=0.2°C		
		Carbon dioxide concentration		0.1%~10%	U _{rel} =2.4%		
52	*Oxygen Transmission Rate Testers	Oxygen transmittance	C.S. for Oxygen Gas Transmission Rate Testers JJF (Xiang) 66	(0.02~20)cm ³ /(m ² ·24h)	U _{rel} =9%		
				(20~70) cm ³ /(m ² ·24h)	U _{rel} =7%		
		Temperature		(20~40) °C	U=0.26°C		
53	*Gas Transmittance Meter	Gas transmittance	C. S. for Gas Transmittance Meter JJF(Qian) 42	(0.01~10)[cm ³ /(m ² ·24h·0.1MPa)]	U _{rel} =26%		
				(10~12) [cm ³ /(m ² ·24h·0.1MPa)]	U _{rel} =20%		
		Temperature		(20~40) °C	U=0.4°C		
54	*Water Vapor Transmission Rate Tester	Water vapor transmittance	C.S. of Water Vapor Transmission Rate Tester JJF(Ji) 191	(0.01~2)g/(m ² ·24h)	U _{rel} =17%		
				(2~5) g/(m ² ·24h)	U _{rel} =19%		
		Temperature		(0~50) °C	U=0.14°C		
		Humidity		10%RH~95%RH	U=1.3%RH		
55	*Industrial Temperature Measurement System	Temperature	Calibration Specification for Industrial Temperature Measurement System JJF (Gan) 018	(-90~400) °C	U=0.1°C		
56	*Liquid constant temperature testing equipment	Temperature	Measurement specification for temperature performance of liquid constant temperature	Temperature deviation: (-80~300)°C	U=0.2°C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature	testing equipment JJF 2019	Temperature uniformity: (-80~300) °C	U=0.02°C		
		Temperature		Temperature fluctuation: (-80~300) °C	U=0.04°C		
57	*Large steam sterilizers	Temperature	Calibration Specification for Temperature, Pressure and Time Parameters of Large Steam Sterilizers JJF 2088	(0~150) °C	U=0.12°C		
		Pressure		(0~400)kPa	U=1.2kPa		
		Time		(1~3600)s	U=1s		
58	*Medical Cold Storage and Transportation Equipment	Temperature	Calibration Specification of Medical Cold Storage and Transportation Equipment JJF(Liao)310	(2~10) °C	U=0.2°C		
		Humidity		10%RH~90%RH	U=1.6%RH		
		Time		(1~3600)s	U=0.2s		
59	*Temperature Alternating and Temperature Shock Testing Equipments	Temperature	Calibration Specification for Temperature Alternating and Temperature Shock Testing Equipments JJF(Min)1121	(-80~300) °C	U=0.4°C		
		Temperature Rate of Change		(0~30) °C/min	U=0.08°C/min		
		Time		(0~3600) s	U=0.4s		
60	*Ozone Aging Test Chambers	Temperature	Calibration Specification for Ozone Aging Test Chambers JJF 2051	(0~100) °C	U=0.4°C		
		Humidity		10%RH~90%RH	U=1.3%RH		
		Ozone concentration		(0~400) μ mol/mol	(0.019~17) μ mol/mol		
61	*The Constant Temperature Culture	Temperature	Calibration Specification for the Constant Temperature Culture	(0~300) °C	U=0.4°C		
		Oscillation frequency		(0~1000) r/min	U=1.0r/min		



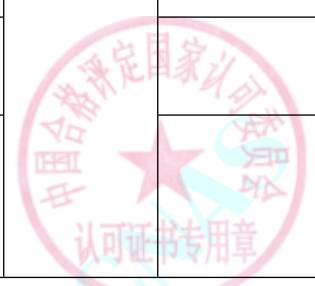
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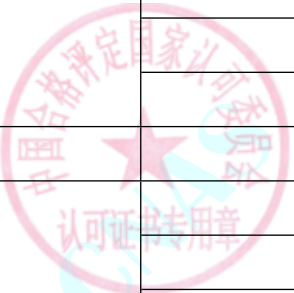
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	Oscillator	Amplitude	Oscillator JJF(Liao) 359	(0~150) mm	U=0.4mm		
62	Mechanical Thermometers of Refrigerator	Temperature	Calibration Specification for Mechanical Thermometers of Refrigerator JJF(Xin)47	(-40~50) °C	U=0.4°C		
63	Digital Thermometers of Refrigerator	Temperature	Calibration Specification for Digital Thermometers of Refrigerator JJF(Xin)63	Built-in: (-40~50) °C	U=0.3°C		
				External: (-40~50) °C	U=0.2°C		
64	Thermocouple compensation wire	Temperature	Calibration Specification for Base Metal Thermocouples (Appendix C Calibration Method for Thermocouple Compensation Wires) JJF1637	(-40~100) °C	U=0.2°C		
65	*Temperature/Humidity/Vibration Combined Environmental Testing System	Temperature	C. S. for Temperature/Humidity/Vibration Combined Environmental Testing System JJF 1270	(-75~200)°C	U=0.5°C		
		Humidity		20%RH~95%RH	U=1.7%RH		
		Acceleration		(1~980)m/s ²	U _{rel} =3.0%		
		Wind velocity		(0.1~20)m/s	U _{rel} =3.0%		
		Rate of temperature change		(0.5~60)°C/min	U _{rel} =5.0%		
		The test system operates at maximum noise		(30~130)dB	U=0.7dB		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Indication of acceleration amplitude in temperature cycle		(1~980)m/s ²	U _{rel} =2.6%		
		Vibration table additional table acceleration uniformity		0.1%~100%	U _{rel} =4.0%		
66	*Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp	UV Irradiance	C.S. for Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp JJF1525	(0.01~1000)W/m ²	U _{rel} =14%		
67	*Asphalt Aging Oven	Temperature	V.R. of Asphalt Aging Oven JJG(JT)056	(0~300)°C	U=0.16°C		
		Length		(0~300)mm	U=0.04mm		
		Rotate speed		(4~20)r/min	U=0.08r/min		
		Time		(0~200)min	U=5.2s		
		Flow		(3.5~4.5)L/min	U=56mL/min		
Mechanics measuring instruments							
1	Weights	Mass	V. R.of Weights JJG 99	(1~500)mg	U=(0.01~0.05)mg		
				(1~500)g	U=(0.07~1.2)mg		
				(1~25)kg	U=6mg~0.2g		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Mechanical Balance	Mass	V. R. of Mechanical Balance JIG 98	1mg~200g	U=0.03mg		
3	*Electronic Balance	Mass	V. R. of Electronic Balance JIG 1036, C. S. for Electronic Balances JJF 1847	(1~100)mg	U=(0.0014~0.06)mg		
				(0.1~10)g	U=(0.06~0.024)mg		
				(10~1000)g	U=(0.024~2)mg		
				(1~150)kg	U=(0.002~2)g		
4	*Torsion Balance	Mass	V. R. of Torsion Balance JIG 46	(5~2500)mg	U=(0.04~1.3)mg		
5	*Table Balance	Mass	V. R. of Table Balances JIG 156	(0.1~10)kg	U=(0.03~1.6)g		
6	*Non-self indication Weighing instruments	Mass	V. R. of Non-self-indication Weighing Instruments JJG 14	(0.02~2)kg	U=(0.5~1) g		
				(2~1000)kg	U=(0.001~0.1) kg		
				(100~2000)kg	U=(0.1~0.2) kg		
7	*Digital Indicating Weighing Instrument	Mass	V. R. of Digital Indicating Weighing Instrument JJG 539	(2~200)g	U=(0.02~0.2)g		
				(0.2~20)kg	U=(0.2~1.2)g		
				(20~2000)kg	U=1.2g~0.2kg		
				(2~10)t	U=(0.2~0.7)kg		
8	Working Glass Container	Volume	V. R. of Working Glass Container JJG 196	(0~0.1)mL	U=0.0008mL	Only weighing method	
				(0.1~0.25)mL	U=0.001mL		
				(0.25~1)mL	U=0.002mL		
				(1~2)mL	U=0.003mL		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(2~5)mL	U=0.005mL		
				(5~10)mL	U=0.006mL		
				(10~15)mL	U=0.008mL		
				(15~25)mL	U=0.010mL		
				(25~50)mL	U=0.016mL		
				(50~100)mL	U=0.024mL		
				(100~250)mL	U=0.05mL		
				(250~500)mL	U=0.08mL		
				(500~1000)mL	U=0.14mL		
				(1000~2000)mL	U=0.22mL		
9	Locomotive pipette	Volume	V. R. of Locomotive Pipette JIG 646	(0.1~10) μ L	U=0.014 μ L		
				(10~100) μ L	U=0.06 μ L		
				(100~1000) μ L	U=0.4 μ L		
				(1000~10000) μ L	U=4 μ L		
10	Float Meter	Flow	V. R. of Float Meter JIG257	(3.3~100)L/min,(gas)	U _{rel} =0.8%	Volumetric method only(grade 1.5 and below)	
11	*Electromagnetic Flowmeters	Flow	C. S. for Electromagnetic Flowmeters JJF(Su) 228	(0.5~8444)m ³ /h,DN:(15~1000)mm	U _{rel} =1.8%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
12	*liquid flowmeter	Flow	One Calibration Specification for liquid flowmeter JJF(Xin) 99	(0.5~8444)m ³ /h, DN:(15~1000)mm	$U_{rel}=1.8\%$		
13	*Elastic Element Precise Pressure Gauge and Vacuum Gauges	Pressure	V. R. of Elastic Element Precise Pressure Gauge and Vacuum Gauges JJG 49	(-0.1~100)MPa	$U=0.09\%FS$	(100 ~ 500) MPa cannot be calibrated on site	
				(100~500)MPa	$U_{rel}=0.03\%$		
14	*Elastic Element Precise Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use	Pressure	V. R. of Elastic Element Precise Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG 52	(-0.1~100)MPa	$U=0.6\%FS$	(100 ~ 500) MPa cannot be calibrated on site	
				(100~500)MPa	$U_{rel}=0.4\%$		
15	*Digital Pressure Gauges	Pressure	V. R. of Digital Pressure Gauges JJG 875	(-0.1~100)MPa	$U=0.09\%FS$	Under 100MPa: only grade 0.2 and below; 100MPa and above: only grade 0.02 and below; (100 ~ 500) MPa cannot be calibrated on site	
				(100~500)MPa	$U_{rel}=0.02\%$		
16	*Pressure Transducer(Static)	Pressure	V. R. of the Pressure Transducer(Static) JJG 860	(-0.1~100)MPa	$U=0.09\%FS$	Under 100MPa: only grade 0.2 and	

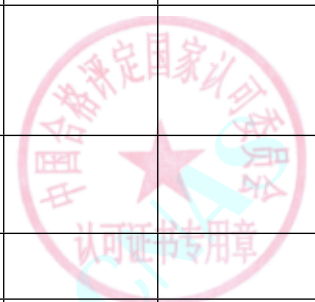
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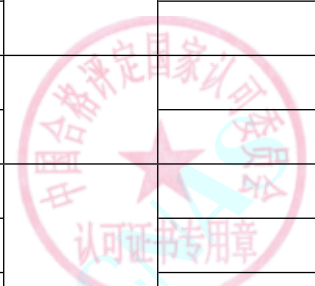


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(100~500)MPa	$U_{rel}=0.02\%$	below; 100MPa and above:only grade 0.05 and below; (100 ~ 500) MPa cannot be calibrated on site	
17	*Pressure Controller	Pressure	V. R. of Pressure Controller JIG 544	(-0.1~100)MPa	$U=0.09\%FS$	(100~500) MPa cannot be calibrated on site	
				(100~500)MPa	$U_{rel}=0.2\%$		
18	*Pressure Transmitter	Pressure	V. R. of Pressure Transmitter JIG 882	(-0.1~100)MPa	$U=0.07\%FS$	Under 100MPa:only grade 0.2 and below;(100 ~ 500) MPa cannot be calibrated on site	
				(100~500)MPa	$U_{rel}=0.02\%$		
19	Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	C. S. for Pressure Regulators with Bourdon Tube Pressure Gauge JJF 1328	(0.001~25)MPa	$U=0.9\%FS$		
20	*Point Type Micro-differential Pressure Gauge	Pressure	V. R. of Point Type Micro-differential Pressure Gauge JJG(Yue) 020	(-30~30)kPa	$U=0.7\%FS$		
21	Compensated Micro-manometer	Pressure	V. R. of Compensated Micro-manomete JJG 158	(-2500~2500) Pa	$U=0.7\%FS$		
22	Tilting Tube Micromanometers	Pressure	V. R. of Tilting Tube Micromanometers JJG 172	(-2~2)kPa	$U=1.0\%FS$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
23	*leak tester of digital difference pressure	Pressure	V. R. of leak tester of digital difference pressure GJB/J 5461	Span: (-1~1) kPa	$U=7.0\text{Pa}$		
				(-0.1~2) MPa	$U=0.3\%FS$		
24	Standard Dynamometers	Force	V. R. of Standard Dynamometers JJG 144	(10~1100) N	$U_{rel}=0.03\%$		
25	*Working Dynamometers	Force	V. R. of Working Dynamometers JJG 455	1cN~500N	$U_{rel}=0.1\%$		
				500N~600kN	$U_{rel}=0.15\%$		
				(600~5000)kN	$U_{rel}=0.36\%$		
26	*Working Force Measuring Machines for Special Purposes	Force	C. S. for Working Force Measuring Machines for Special Purposes JJF 1134	1cN~5MN	$U_{rel}=0.4\%$		
27	*Tension, Compression and Universal Testing Machines	Force	V. R. of Universal Testing and Compression Testing Machine JJG 139	0.01N~5MN	$U_{rel}=0.36\%$		
		Displacement		(1~1000)mm	$U_{rel}=0.36\%$		
28	*Electronic Universal Testing Machine	Force	V. R. of Electronic Universal Testing Machine JJG 475	0.01N~5MN	$U_{rel}=0.36\%$		
		Displacement		(1~1000)mm	$U_{rel}=0.36\%$		
		Rate		(0.1~1000) mm/min	$U_{rel}=0.36\%$		
29	*Electro-hydraulic Servo Universal Testing Machine	Force	V. R. of Electro-hydraulic Servo Universal Testing Machines JJG 1063	0.01N~1MN	$U_{rel}=0.3\%$		
				(1~3)MN	$U_{rel}=0.5\%$		
30	*Wire Bending Testing Machine	Angle	V. R. of Wire Bending Testing Machine JJG (Yue) 022	0° ~360°	$U=0.2^\circ$		
		Speed		(10~100)times/min	$U_{rel}=0.3\%$		
		Mass		(0.01~2)kg	$U=0.2\text{g}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
31	*Flexure Testing Machine	Force	V. R. of Flexure Testing Machines JJG 476	(0.01~10)kN	$U_{rel}=0.4\%$		
		Torque Speed		(40~60)N/s	$U=2N/s$		
32	*High-Temperature Creep and Stress-Rupture Testing Machines	Length	V. R. of High-Temperature Creep and Stress-Rupture Testing Machines JJG 276	(0.01~15) mm	$U_{rel}=0.08\%$		
		Force		0.01N~1000kN	$U_{rel}=0.4\%$		
		Temperature		(50~900)°C	$U=1.4^{\circ}C$		
				(900~1000)°C	$U=1.8^{\circ}C$		
		Alignment		(0.01~25) %	$U=3\%$		
Time	(0.01~3600) s	$U_{rel}=0.1\%$					
33	*Cupping Testing Machine	Force	V. R. of Cupping Testing Machine JJG 583	(9.5~10.5)kN	$U_{rel}=0.28\%$		
		Length		(15~60) mm	$U=0.02mm$		
34	*Hydraulic Jacks	Force	V. R. of Hydraulic Jacks JJG 621	(1~1000)kN	$U_{rel}=0.6\%$		
				(1~10)MN	$U_{rel}=0.7\%$		
35	Force Transducers	Force	V. R. of Force Transducers JJG 391	(100~1100)N	$U_{rel}=0.3\%$	Grade 0.3 and below only	
36	Screen Tension Meters	Force	C. S. for Screen Tension Meters JJF 1465	(5~50) N/cm	$U=1.5\%FS$		
37	*Pendulum Impact Testing Machines	Energy	V. R. of Pendulum Impact Testing Machines JJG 145	(1~30)J	$U_{rel}=2.0\%$		
				(30~110)J	$U_{rel}=1.9\%$		
				(110~300)J	$U_{rel}=1.8\%$		
		Length		(0.1~1000) mm	$U=0.02mm$		



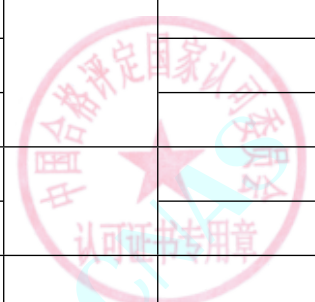
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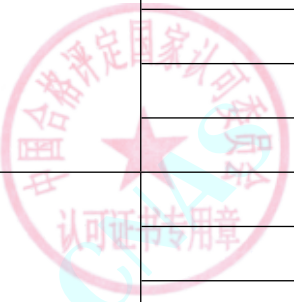
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
38	*Cantilever-Beam(Izod-Type)Impact Testing Machine	Energy	V. R. of Cantilever-Beam(Izod-Type) Impact Testing Machine JJG 608	(1~150)J	$U_{rel}=0.5\%$		
		Length		(0.01~25) mm	$U=0.01\text{mm}$		
				(50~1000) mm	$U=0.06\text{mm}$		
39	*Calibration Instrument for Torque Wrenches	Torque	V. R. of Calibration Instrument for Torque Wrenches JJG 797	(0.2~100)Nm	$U_{rel}=0.18\%$		
40	*Working Torque-meters	Torque	V. R. of Working Torque-meters JJG1146	(0.1~2000)Nm	$U_{rel}=0.4\%$		
41	Torque Wrenches	Torque	V. R. of Torque Wrenches JJG 707	(0.2~500)Nm	$U_{rel}=0.5\%$		
				(500~2000)Nm	$U_{rel}=0.4\%$		
42	*Electric and pneumatic torque wrenches	Torque	C. S. for Electric and Pneumatic Torque Wrenches JJF 1610	(0.5~180)Nm	$U_{rel}=1.2\%$		
43	*Equipment of Power Measuring	Torque	V. R. of Equipment of Power Measuring JJG 653	(0.01~500)Nm	$U_{rel}=0.5\%$	Non-contact type only(grade B、 grade C)	
		Rotate speed		(1~30000)r/min	$U_{rel}=0.2\%$		
44	*Metallic Brinell Hardness Testers	Hardness	V. R. of Metallic Brinell Hardness Testers JJG 150	(90~125)HBW	$U_{rel}=2.0\%$		
				(125~225)HBW	$U_{rel}=1.9\%$		
				(225~350)HBW	$U_{rel}=2.0\%$		
45	*Portable Brinell Hardness Tester	Hardness	C. S. for Portable Brinell Hardness Tester JJF 1595	(70~300)HBW	$U_{rel}=1.7\%$		
		Force		(0.06~30) kN	$U_{rel}=0.6\%$		
46	*Portable Rockwell Hardness Tester	Hardness	C. S. for Portable Rockwell Hardness Tester JJF 1594	(20~70)HRC	$U=1.0\text{HRC}$		
				(80~100)HRBW	$U=1.2\text{HRBW}$		



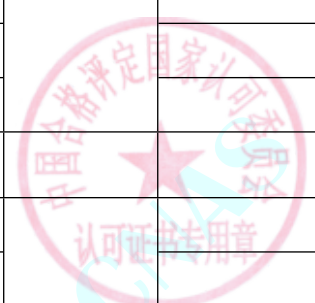
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
				(75~88)HRA	U=1.0HRA			
		Force		(0.08~1.5) kN	U _{rel} =0.6%			
47	*Metallic Rockwell Hardness Testing Machines	Hardness	V. R. of Metallic Rockwell Hardness Testing Machines JJG 112	(20~30)HRC	U=0.7HRC			
				(35~55)HRC	U=0.6HRC			
				(60~70)HRC	U=0.5HRC			
				(45~88) HRA	U=0.6HRA			
				(85~100) HRBW	U=0.7HRBW			
				(89~91) HR15N	U=0.9HR15N			
				(42~54) HR30N	U=1.0HR30N			
				(74~80) HR30N	U=0.9HR30N			
				(32~61) HR45N	U=1.1HR45N			
				(88~93) HR15TW	U=1.0HR15TW			
				(70~82) HR30TW	U=0.9HR30TW			
				Time	(0.1~20) s	U=0.4s		
				Length	(0~2) mm	U=0.6 μm		
Angle	(119~121) °	U=0.08°						
48	*Ultrasonic Hardness Testers	Hardness	C. S. for Ultrasonic Hardness Testers JJF 1436	(175~200)HV	U _{rel} =5.0%			
				(200~400)HV	U _{rel} =3.0%			
				(400~600)HV	U _{rel} =1.7%			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Force	V. R. of Plastic Rock Well Hardness Testing Machine JIG 884	(600~800)HV	$U_{rel}=1.4\%$		
				(20~70)HRC	$U=0.5HRC$		
				(85~650)HBW	$U_{rel}=3.0\%$		
				(1~98)N	$U_{rel}=1.2\%$		
49	*Plastic Rock Well Hardness Testing Machine	Hardness	V. R. of Plastic Rock Well Hardness Testing Machine JIG 884	(70~94)HRE	$U=0.9HRE$		
				(100~120)HRL	$U=0.8HRL$		
				(114~125)HRR	$U=0.9HRR$		
50	*Metallic Webster Hardness Testing Machines	Hardness	V. R. of Metallic Webster Hardness Testing Machines JIG 944	(8~17)HWA	$U=0.3HWA$		
				(4~6)HWB	$U=0.3HWB$		
51	*Equotip Hardness Tester	Mass Hardness	V. R. of Equotip Hardness Tester JIG 747	(0~30)g	$U=0.08g$		
				(490~570)HLD	$U=5HLD$		
				(590~670)HLD	$U=6HLD$		
				(750~830)HLD	$U=6HLD$		
				(460~540)HLG	$U=6HLG$		
				(550~630)HLG	$U=6HLG$		
52	*Shore Hardness Tester	Hardness	V. R. of Shore Hardness Tester JIG 346	(25~140)HSD	$U=0.8HSD$		
53	*Metal Vickers Hardness Testers	Hardness	V. R. of Metal Vickers Hardness Testers JIG 151	(700~800) HV5	$U_{rel}=2.7\%$		
				(175~225) HV5	$U_{rel}=3.9\%$		
				(400~600) HV10	$U_{rel}=2.6\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-MRA CHINA NATIONAL ACCREDITATION FOR COMPETENCY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(400~600) HV30	$U_{rel}=2.6\%$		
				(700~800) HV1	$U_{rel}=3.5\%$		
				(700~800) HV0.5	$U_{rel}=4.5\%$		
				(700~800) HV0.2	$U_{rel}=5.0\%$		
				(400~600) HV0.1	$U_{rel}=5.5\%$		
				(175~225) HV0.05	$U_{rel}=6.0\%$		
54	Shore A Durometers	Hardness	V. R. of Shore A Durometers JJG 304	(0~100)HA	$U=0.2HA$		
		Length		(0.5~2) mm	$U=0.01mm$		
		Angle		(34~36) °	$U=0.08°$		
		Force		(0.5~8.5) N	$U=0.03N$		
55	Shore D Durometer	Hardness	V. R. of Shore D Durometer JJG 1039	(0~100)HD	$U=0.2HD$		
		Length		(0.05~4) mm	$U=0.005mm$		
		Angle		(28~32) °	$U=0.08°$		
		Force		(0.05~45) N	$U=0.03N$		
56	*Type A Barcol Hardness Testers	Hardness	V. R. of Type A Barcol Hardness Testers JJG 610	(42~52)HBa	$U=0.7HBa$		
				(82~88)HBa	$U=1.2HBa$		
57	*Shore Durometer Calibrating Apparatus	Force	C. S. for Shore Durometer Calibrating Apparatus SBJZ-ZB-L002	1959mN	$U=2mN$	g=9.7946m/s ²	
				4897mN	$U=2mN$		
				9795mN	$U=3mN$		

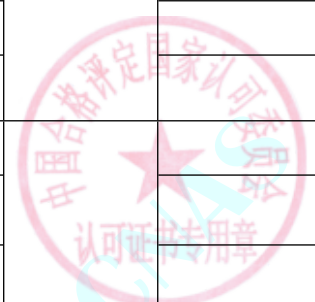


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				19589mN	$U=5\text{mN}$		
				48973mN	$U=8\text{mN}$		
		Length		(0~3)mm	$U=0.5\ \mu\text{m}$		
58	Vibration Displacement Transducer	Displacement	V. R.of Vibration Displacement Transducer JJG 644	(0.1~5)mm, (3~2000)Hz	$U_{\text{rel}}=1.8\%$		
59	Electromagnetic Velocity Transducer	Velocity	V. R.of Electromagnetic Velocity Transducer JJG 134	(0.1~100)cm/s, (3~2000)Hz	$U_{\text{rel}}=1.6\%$		
		Velocity sensitivity		(1~30)mV/(mm·s ⁻¹), (3~2000)Hz	$U_{\text{rel}}=1.6\%$		
60	Piezoelectric accelerometer	Acceleration	V. R.of Piezoelectric Accelerometer JJG 233	reference point:100m/s ² ,160Hz Passband: (1~441) m/s ² ,(2~52000)Hz	$U_{\text{rel}}=0.9\%$ $U_{\text{rel}}=1.2\%$	Comparative method only	
61	Portable Vibration Calibrator	Acceleration	V. R.of Portable Vibration Calibrator JJG1062	(1~980)m/s ² ,(3~3570)Hz (1~980)m/s ² ,(3570~5300)Hz	$U_{\text{rel}}=1.0\%$ $U_{\text{rel}}=1.5\%$		
		Frequency		(3~5300)Hz	$U_{\text{rel}}=0.01\%$		
		Distortion factor		1%~20%	$U_{\text{rel}}=1\%$		
62	*Standard Vibrators	Frequency	V. R.of Standard Vibrators JJG 298	(3~5000)Hz	$U_{\text{rel}}=0.02\%$		
		Acceleration		(1~980)m/s ² ,(3~5000)Hz	$U_{\text{rel}}=2.3\%$		
		Distortion factor		1%~50%	$U_{\text{rel}}=1\%$		

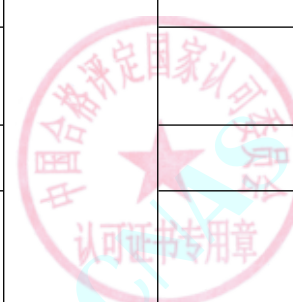


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Transverse vibration ratio		0.1%~50%	$U_{rel}=4.0\%$		
		Voltage		10mv~10v, (1~10)kHz	$U_{rel}=0.1\%$		
63	*Electrodynamic Vibration Testing Systems	Frequency	V. R. of Electrodynamic Vibration Testing Systems	(1~5000)Hz	$U_{rel}=0.02\%$		
		Acceleration	JJG 948	(1~980)m/s ² , (1~5000)Hz	$U_{rel}=2.6\%$		
		Distortion factor		0.1%~50%	$U_{rel}=1\%$		
		Velocity		Sinusoidal: (0.001~10)m/s	$U_{rel}=2.1\%$		
				Change of impact velocity: (0.1~30)m/s	$U_{rel}=3.2\%$		
		Displacement		(0.001~200)mm	$U_{rel}=2.1\%$		
		PSD		(0.001~100)m ² /s ³	$U_{rel}=4.7\%$		
		Impact acceleration amplitude		(30~3000)m/s ²	$U_{rel}=4.7\%$		
		pulse duration		(3~50)ms	$U_{rel}=3.2\%$		
		Random dynamic range		(20~100)dB	$U=0.3\text{dB}$		
		Sound pressure level		(30~130)dB	$U=0.7\text{dB}$		
		Vibration control channel consistency		(0.01~3)dB	$U=0.01\text{dB}$		

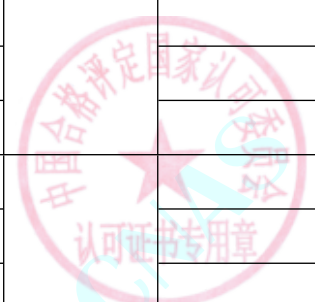


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Magnetic Induction		(0.01~20)mT	$U_{rel}=2.0\%$		
		Force		(1.0~700)kN	$U_{rel}=2.8\%$		
64	*Mechanical Vibration Generator for Tsetting	Frequency	V. R.of Mechanical Vibration Generator for Tsetting JJG 189	(3~2000)Hz	$U_{rel}=0.2\%$		
		Displacement		(0.1~50)mm	$U_{rel}=2.6\%$		
		Distortion factor		1%~50%	$U_{rel}=1\%$		
		Acceleration		(1~200)m/s ²	$U_{rel}=2.6\%$		
		Sound Pressure Level		(30~130)dB	$U=0.7dB$		
65	*Hydraulic Vibration Testing System	Frequency	V. R.of Hydraulic Vibration Testing System JJG 638	(1~5000)Hz	$U_{rel}=0.02\%$		
		Acceleration		(1~200)m/s ²	$U_{rel}=3.0\%$		
		Distortion factor		0.1%~50%	$U_{rel}=3\%$		
		Velocity		(0.001~10)m/s	$U_{rel}=2.1\%$		
		Displacement		(0.1~500)mm	$U_{rel}=2.1\%$		
		PSD		(0.001~100)m ² /s ³	$U_{rel}=4.7\%$		
		Noise		(30~130)dB	$U=0.7dB$		
66	*Shock and Bump Testing Machines	Acceleration	V. R.of Shock and Bump Testing Machines JJG 1174	(30~1000) m/s ²	$U_{rel}=5\%$		
				(1000~50000) m/s ²	$U_{rel}=7\%$		
		Time		(0.3~60)ms	$U_{rel}=5\%$		

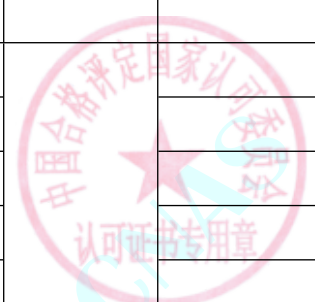


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Velocity		(0.01~20)m/s	$U_{rel}=4.2\%$		
		Repeat frequency of shock		(2~100) min ⁻¹	$U_{rel}=1.0\%$		
67	*Electrodynamic Horizontal Vibration Generator for Testing	Frequency	V. R. of Electrodynamic Horizontal Vibration Generator for Testing JJG 1000	(1~4000)Hz	$U_{rel}=0.05\%$		
		Acceleration		(1~980)m/s ² , (1~4000)Hz	$U_{rel}=2.6\%$		
		Displacement		(0.001~300)mm	$U_{rel}=2.6\%$		
		Distortion factor		0.1%~50%	$U_{rel}=1\%$		
		Sound pressure level		(30~130)dB	$U=0.7\text{dB}$		
68	Vibration Meters	Acceleration	V. R. of Vibration Meters JJG 676	(1~441)m/s ² , (2~6000)Hz	$U_{rel}=2.0\%$	Comparative method only	
		Speed		(0.1~1500)mm/s, (2~1000)Hz	$U_{rel}=2.0\%$		
		Displacement		(0.01~16)mm, (2~500)Hz	$U_{rel}=2.0\%$		
		Frequency		(2~6000)Hz	$U_{rel}=0.012\%$		
69	*Spring Hammers	Force	C. S. for Spring Hammers JJF 1475	10N	$U_{rel}=0.28\%$		
		Length		(9.8~10.2)mm	$U=0.06\text{mm}$		
		Energy		(0.18~0.22)J	$U_{rel}=2.0\%$		
				(0.32~0.38)J	$U_{rel}=2.0\%$		
				(0.46~0.54)J	$U_{rel}=2.5\%$		
				(0.65~0.75)J	$U_{rel}=2.3\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0.95~1.05)J	$U_{rel}=2.2\%$		
				(1.95~2.05)J	$U_{rel}=2.1\%$		
70	Tachometers	Rotate speed	V. R.of Tachometers JJG 105	(20~30000)r/min	$U_{rel}=0.02\%$		
71	*Table Friability Surveymeters	Rotate speed	C. S. for Table Friability Surveymeters JJF(Lu) 131	(1~200)r/min	$U_{rel}=1.5\%$		
		Count		(1~100)round	$U=1$ round		
		Length		(150~160)mm	$U=0.4$ mm		
72	*Flow Integration Meters	DC Electric current	V. R.of Flow Integration Meters JJG 1003	(0.1~20)mA	$U_{rel}=0.04\%$		
		DC Voltage		(0.01~5)V	$U_{rel}=0.04\%$		
		Resistance		(1~10000) Ω	$U_{rel}=0.04\%$		
		Frequency		(0.1~10)kHz	$U_{rel}=0.02\%$		
73	*Type Pressure Gauges	Pressure	V. R.of Type Pressure Gauges JJG 927	(0~2.5)MPa	$U=0.7\%$ FS		
74	*Simulation Test-bed for Road Transportation	Frequency	C. S. for Simulation Test-bed for Road Transportation JJF 1271	(3~400)Hz	$U_{rel}=2.0\%$		
		Acceleration		(0.1~100)m/s ²	$U_{rel}=3.0\%$		
75	*Tablet Hardness Tester Needle Tube	Force	C.S. for Tablet Hardness Tester Needle Tube JJF(E) 46	1N~500N	$U_{rel}=0.1\%$		
76	*Analogue Indicating Weighing Instruments	Mass	V. R of Analogue Indicating Weighing Instruments JJG 13	(0.02~100) kg	$U=1.2g\sim 0.5kg$		
77	*Stature and Weight Instrument	Mass	C. S for Stature and Weight Instrument JJF (E) 96	Analogue Indicating: (0.1~300) kg	$U= (0.012\sim 1.2)$ kg		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Digital Indicating: (0.1~30) kg	$U = (0.006 \sim 0.29)$ kg		
		Length		(20~200) cm	$U = 0.12$ cm		
78	Liquid Level Gauges	Length	V.R of Liquid Level Gauges JJG 971	Vertical method: (0~2000)mm	$U = 0.7$ mm		
				Horizontal Simulation method: (0.1~50)m	$U_{rel} = 0.013\%$		
79	*Constant Revolution Speed Sources	Rotate speed	C. S. for Constant Revolution Speed Sources JJF(Ji) 146	(100~300)r/min	$U_{rel} = 0.1\%$		
80	Plastic Containers	Volume	C. S. for Plastic Containers JJF(Ji) 108	(0.1~1)mL	$U = (0.001 \sim 0.003)$ mL		
				(1~10)mL	$U = (0.003 \sim 0.010)$ mL		
				(10~100)mL	$U = (0.010 \sim 0.03)$ mL		
				(100~500)mL	$U = (0.03 \sim 0.08)$ mL		
				(500~1000)mL	$U = (0.08 \sim 0.14)$ mL		
				(1000~2000)mL	$U = (0.14 \sim 0.22)$ mL		
				(2000~5000)mL	$U = (0.22 \sim 1.4)$ mL		
81	Bottle Top Dispenser	Volume	C. S. for Bottle Top Dispenser JJF(Ji) 181	(0.1~10)mL	$U = 0.007$ mL		
				(10~50)mL	$U = 0.03$ mL		
				(50~100)mL	$U = 0.05$ mL		
				(100~200)mL	$U = 0.08$ mL		
82	Micro sampling syringe	Volume	V. R.of Micro sampling syringe JJG(Ji) 166	(0.1~1) μ L	$U = 0.016$ μ L		



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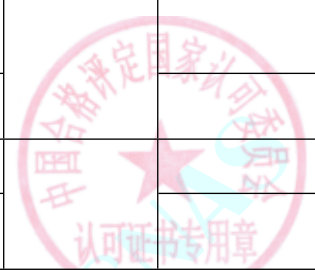
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(1~25) μL	U=0.08 μL		
				(25~100) μL	U=0.2 μL		
				(100~1000) μL	U=1.0 μL		
83	Soil meter	Density	V. R.of Working Glass Hydrometers JJG 42	Type I: (-5~50) s° Type II: 0.995~1.030	U=0.2s° U=0.0005	Only use direct comparison method.	
84	*Abrasion Resistance Instruments	Length	C. S. for Abrasion Resistance Instruments JJF(Zhe)1070	(0.01~25) mm	U=0.01mm		
		Angle		(80~100) °	U=0.2°		
		Rotational speed		(100~300) r/min	U _{rel} =0.2%		
		Mass		(500~2000) g	U=0.1g		
		Time		(0.1~1200) s	U=0.3s		
85	Pile Dynamic Measuring Instrument	Acceleration	V. R.of Pile Dynamic Measuring Instrument JJG 930	(2~450)m/s ² , (2~5000)Hz	U _{rel} =2.0%		
86	*Concrete Batching Scales	Mass	V. R.of Concrete Batching Scales JJG 1171	(0.2~3000) kg	U= (0.01~0.7) kg		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
87	*Asphalt Mixture and Cement Concrete Mixing Device Measure System	Mass	V.R. of Asphalt Mixture and Cement Concrete Mixing Device Measure System JJG (JT) 071	(2~3000) kg	$U_{rel}=0.08\%$	Only for (static) of the indication of the measuring device for the preparation of component materials	
88	*Density of Abrasive Grains Testers	Volume	C. S. for Density of Abrasive Grains Testers JJF (JX) 1076	(195~205) cm ³	$U=0.08\text{cm}^3$	Only for ordinary abrasive bulk density measuring instrument	
		Length		(10~300) mm	$U=0.03\text{mm}$		
Electromagnetism measuring instruments(including magnetism)							
1	*Charge Amplifiers	Voltage	V.R.of Charge Amplifiers JJG338	10mV~10V	$U_{rel}=0.1\%$		
		Amplitude Frequency Characteristic		10mV~10V,(0.01~20)kHz	$U_{rel}=0.1\%$		
		Distortion factor		0.01%~100%	$U_{rel}=5\%$		
2	*Instantaneous Discontinuity Testing Instruments	Resistance	Calibration Specification of Instantaneous Discontinuity Testing Instruments JJF(DZ)0042	10m Ω ~99.99 Ω	$U_{rel}=1.0\%$		
		Time		(0.01~99.99) μ s	$U_{rel}=0.2\%$		
3	*Process Calibrators	IN-DC resistor	Calibration specification for process calibrators JJF 1472	(10~400) Ω	$U_{rel}=0.012\%$		

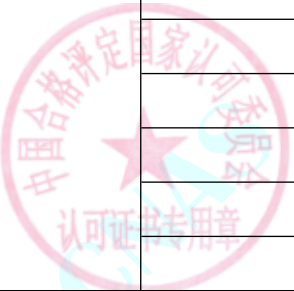


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(400~4000) Ω	$U_{rel}=0.010\%$		
		IN-DC current		(0.2~2)mA	$U_{rel}=0.013\%$		
				(2~100)mA	$U_{rel}=0.015\%$		
				(10~1000)mV	$U_{rel}=0.007\%$		
		IN-DC voltage		(1~50)V	$U_{rel}=0.006\%$		
				(10~1000)mV (10Hz~ 20kHz)	$U_{rel}=0.02\%$		
		IN-AC voltage		(1~20)V (10Hz~ 20kHz)	$U_{rel}=0.01\%$		
				10Hz~50kHz	$U_{rel}=0.009\%$		
		IN-Frequency					
		IN- Temperature(TC)		(-100~1300)°C	$U=0.4^{\circ}\text{C}$		
		IN- Temperature (RTD)		(-100~800)°C	$U=0.3^{\circ}\text{C}$		
		OUT-DC resistor		(10~400) Ω	$U_{rel}=0.007\%$		
				(400~10000) Ω	$U_{rel}=0.006\%$		
		OUT-DC current		(0.2~2)mA	$U_{rel}=0.008\%$		
				(2~24)mA	$U_{rel}=0.009\%$		
		OUT-DC voltage		(10~1000)mV	$U_{rel}=0.006\%$		
				(1~100)V	$U_{rel}=0.005\%$		

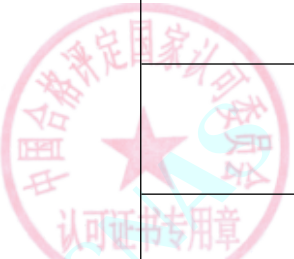


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		IN-Temperature (TC)		(-100~1300)°C	$U=0.2^{\circ}\text{C}$		
		IN-Temperature (RTD)		(-100~800)°C	$U=0.2^{\circ}\text{C}$		
4	*DC Standard Voltage Source	DC Voltage	Verification regulation of DC Standard Voltage Source JJG (JG) 193	10mV~330mV	$U_{\text{rel}}=0.0019\%$		
				0.33V~3.3V	$U_{\text{rel}}=0.0015\%$		
				3.3V~330V	$U_{\text{rel}}=0.0015\%$		
				330V~1000V	$U_{\text{rel}}=0.0016\%$		
5	*DC Voltage Stable Source	DC Voltage	DC Voltage Stable Source JJG(JG) 77	0.1V~100V	$U_{\text{rel}}=0.003\%$		
				100V~1000V	$U_{\text{rel}}=0.002\%$		
		DC Current		0.01A~20A	$U_{\text{rel}}=0.02\%$		
				20A~200A	$U_{\text{rel}}=0.03\%$		
		Regulation rate of regulated power supply		0.01%~10%	$U_{\text{rel}}=0.006\%$		
				0.01%~10%	$U_{\text{rel}}=0.01\%$		
		Regulated load adjustment rate					
Ripple voltage	0.1mV~1000mV	$U_{\text{rel}}=2\%$					
6	*Precise AC Voltage Calibration Source	AC Voltage	V.R.of Precise AC Voltage Calibration Source JJG 410	2V~400V(45Hz~1kHz)	$U_{\text{rel}}=0.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		40Hz~1kHz	$U_{rel}=0.015\%$		
		Distortion factor		0.01%~10%	$U=0.3\%$		
7	*DC Digital Voltmeter	DC Voltage	Verification regulation of DC Digital Voltmeter JJG (JG) 198	10mV~100mV	$U_{rel}=0.009\%$		
				0.1V~10V	$U_{rel}=0.0015\%$		
				10V~100V	$U_{rel}=0.0016\%$		
				100V~1000V	$U_{rel}=0.0017\%$		
8	*AC Digital Voltmeter	AC Voltage	V.R.of AC Digital Voltmeter JJG(JG)72	10mV~100mV (50Hz)	$U_{rel}=0.11\%$		
				10mV~100mV (1kHz)	$U_{rel}=0.11\%$		
				0.1V~100V (50Hz)	$U_{rel}=0.032\%$		
				0.1V~100V (1kHz)	$U_{rel}=0.032\%$		
				100V~1000V (50Hz)	$U_{rel}=0.038\%$		
				100V~1000V (1kHz)	$U_{rel}=0.038\%$		
9	*D.C.Potentiometers	DC Voltage	Verification Regulation Of D.C.Potentiometers JJG 123	10mV~200mV	$U_{rel}=0.01\%$		
				0.2V~2V	$U_{rel}=0.003\%$		
10	*Digital High Voltmeter	DC Voltage	Verification Regulation of Digital High Voltmeter DL/T973	0.1kV~50kV	$U_{rel}=0.1\%$		
		AC Voltage		0.1kV~50kV (50Hz,60Hz)	$U_{rel}=0.2\%$		
11	High Voltage Electrostatic Voltmeters	DC Voltage	V.R.of High Voltage Electrostatic Voltmeters JJG 494	0.1kV~50kV	$U_{rel}=0.1\%$		
		AC Voltage		0.1kV~50kV (50Hz,60Hz)	$U_{rel}=0.2\%$		



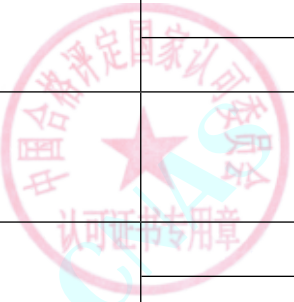
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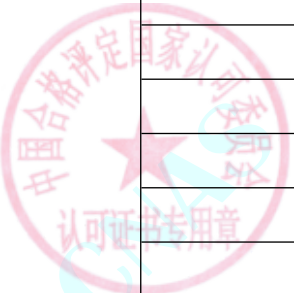
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
12	*DC Resistive Volt Ratio Box	DC Voltage	V.R.of the DC Resistive Volt Ratio Box JJG 531	(0.01~1000)V	$U_{rel}=0.005\%$		
13	*High-voltage Divider At Power Frequency	AC Voltage	Verification Regulation of High-voltage Divider At Power Frequency JJG 496	0.1kV~50kV(50Hz)	$U_{rel}=0.2\%$		
14	DC High voltage Divider	DC Voltage	Verification Regulation of DC High voltage Dividers JJG 1007	0.1kV~50kV	$U_{rel}=0.1\%$		
15	*AC Voltage Stable Source	Frequency	Calibration specification for Stable Character of AC Voltage Stable Source JJF(JG) 85	10Hz~40Hz	$U_{rel}=0.03\%$		
				40Hz~1kHz	$U_{rel}=0.012\%$		
		AC Voltage		0.1V~300V (40Hz~1kHz)	$U_{rel}=0.12\%$		
		Rate of adjustment of supply voltage		0.01%~10%	$U_{rel}=0.12\%$		
		Load adjustment rate		0.01%~10%	$U_{rel}=0.12\%$		
		Degree of distortion		0.01%~10%	$U=1.2dB$		
		Efficiency		0.1%~100%	$U=0.5\%$		
16	contactless electrostatic voltage measuring instrument	Voltage	Calibration specification for contactless electrostatic voltage measuring instrument JJF 1517	0.1kV~20kV	$U_{rel}=3\%$		
17	*Withstanding Voltage Testers	DC Voltage	V.R. of Withstanding Voltage Testers JJG 795	0.1kV~15kV	$U_{rel}=0.6\%$		
		AC voltage		0.1kV~15kV(50Hz, 60Hz)	$U_{rel}=0.6\%$		



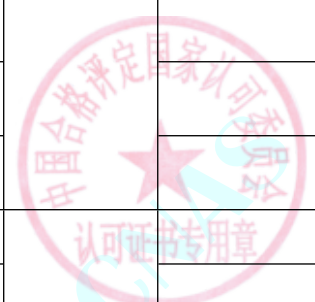
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Current	ilac-MRA	0.01mA~200mA	$U_{rel}=0.6\%$		
		AC current		0.01mA~200mA(50Hz,60Hz)	$U_{rel}=0.6\%$		
		Time		(0.01~999.99)s	$U=0.8\%T+0.03s$		
18	*DC Standard Current Source	DC Current	V.R.for Direct Current Standard Source JJG(JG) 69	0.01A~20A	$U_{rel}=0.05\%$		
				20A~200A	$U_{rel}=0.07\%$		
				200A~2000A	$U_{rel}=0.12\%$		
19	*DC Digital Amperemeter	DC Current	Verification regulation of DC Digital Amperemete JJG (JG) 197	10 μ A~100 μ A	$U_{rel}=0.11\%$		
				0.1mA~100mA	$U_{rel}=0.012\%$		
				0.1A~1A	$U_{rel}=0.025\%$		
				1A~3A	$U_{rel}=0.031\%$		
				3A~10A	$U_{rel}=0.058\%$		
				10A~20A	$U_{rel}=0.077\%$		
20	*AC Digital Amperemeter	AC Current	V.R.of AC Digital Ampere-meter JJG(JG)68	29 μ A~100 μ A (50Hz)	$U_{rel}=0.43\%$		
				29 μ A~100 μ A (1kHz)	$U_{rel}=0.38\%$		
				0.1mA~1mA (50Hz)	$U_{rel}=0.27\%$		
				0.1mA~1mA (1kHz)	$U_{rel}=0.26\%$		
				1mA~100mA (50Hz)	$U_{rel}=0.071\%$		
				1mA~100mA (1kHz)	$U_{rel}=0.070\%$		
				100mA~1A (50Hz)	$U_{rel}=0.075\%$		

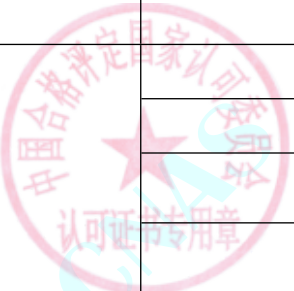


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				100mA~1A (1kHz)	$U_{rel}=0.074\%$		
				1A~3A (50Hz)	$U_{rel}=0.078\%$		
				1A~3A (1kHz)	$U_{rel}=0.077\%$		
				3A~10A (50Hz)	$U_{rel}=0.16\%$		
				3A~10A (1kHz)	$U_{rel}=0.15\%$		
				10A~20A (50Hz)	$U_{rel}=0.19\%$		
				10A~20A (1kHz)	$U_{rel}=0.17\%$		
21	*Clamp Ammeters	DC Current	C. S. of Clamp Ammeters JJF 1075	analog:1A~20A	$U_{rel}=0.4\%$		
				analog:2A~1000A	$U_{rel}=0.6\%$		
				digitale: 1A~20A	$U_{rel}=0.3\%$		
				digitale: 20A~1000A	$U_{rel}=0.6\%$		
		AC Current		analog:1A~20A (45Hz~60Hz)	$U_{rel}=0.5\%$		
				analog:20A~1000A (45Hz~60Hz)	$U_{rel}=0.7\%$		
				digitale: 1A~20A(45Hz~60Hz)	$U_{rel}=0.3\%$		
				analog:20A~1000A (45Hz~60Hz)	$U_{rel}=0.6\%$		
22	*Magnetic Yoke Detectors	DC current	Calibration specification of Magnetic Yoke Detectors JJF 1458	(0~20)A	$U=0.3A$		
		Lifting Power		(1~300)N	$U_{rel}=1\%$		



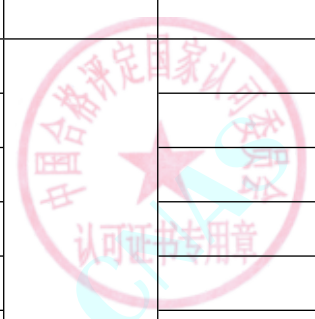
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
23	*instrument Current Transformers	AC Current	Verification Regulation of instrument Current Transformers JJG 313	(5~5000)/5 A (5%~120%)(50Hz)	$U_{rel}=0.07\%$		
		phase		(0~900)' , 5%~120%(50Hz)	$U=2'$		
24	Leakage Current Meter	AC Current	V.R. of Leakage Current Testers JJG 843	(0.1~2)mA (45Hz~60Hz)	$U=0.004mA$		
				(2~20)mA (45Hz~60Hz)	$U=0.04mA$		
		AC Voltage		(0.1~250)V (45Hz~60Hz)	$U=0.8V$		
		DC Current		(0.1~2)mA	$U=0.004mA$		
				(2~20)mA	$U=0.04mA$		
		DC Voltage		(0.1~250)V	$U=0.8V$		
Input Resistance	100 Ω ~ 1M Ω	$U_{rel}=0.3\%$					
25	*Electrolytic Capacitor Leakage Current Meter	DC Voltage	Electrolytic Capacitor Leakage Current Meter JJG(DZ) 306003	10V~1000V	$U_{rel}=0.08\%$		
		DC Current		0.1μA~200μA	$U_{rel}=0.6\%$		
				200μA~30mA	$U_{rel}=0.4\%$		
26	Hall effect current sensor	DC Current	Calibration specification of Hoare current sensor JJF(machinery) 1067	(1 ~ 100)A	$U_{rel}=0.02\%$		
				(100 ~ 2000)A	$U_{rel}=0.03\%$		
		AC Current		(1 ~ 100)A, (45~60)Hz	$U_{rel}=0.07\%$		
				(100 ~ 2000)A, (45~60)Hz	$U_{rel}=0.08\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(2000 ~ 6000)A, (45 ~ 60)Hz	$U_{rel}=0.6\%$		
27	*DC Standard Resistors	Resistance	V.R. of DC Standard Resistors JJG 166	0.01 Ω ~ 0.1 Ω	$U_{rel}=0.2\%$		
				0.1 Ω ~ 1 Ω	$U_{rel}=0.05\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.01\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.004\%$		
				100 Ω ~ 100k Ω	$U_{rel}=0.002\%$		
				100k Ω ~ 1M Ω	$U_{rel}=0.005\%$		
				1M Ω ~ 10M Ω	$U_{rel}=0.01\%$		
28	*DC Resistance Box	Resistance	V. R. of D.C. Resistance Boxes JJG 982	0.01 Ω ~ 0.1 Ω	$U_{rel}=0.2\%$		
				0.1 Ω ~ 1 Ω	$U_{rel}=0.05\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.01\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.005\%$		
				100 Ω ~ 100000 Ω	$U_{rel}=0.002\%$		
29	*DC Digital Ohmmeter	Resistance	Verification regulation of DC Digital Ohmmeter JJG (JG) 199	1 Ω ~ 10 Ω	$U=0.0045\%R_x+0.01 \Omega$		
				10 Ω ~ 100 Ω	$U=0.0035\%R_x+0.015 \Omega$		
				100 Ω ~ 100k Ω	$U=0.0035\%R_x+1 \Omega$		
				100k Ω ~ 1M Ω	$U=0.0035\%R_x+10 \Omega$		
				1M Ω ~ 10M Ω	$U=0.0015\%R_x+0.15k \Omega$		
				10M Ω ~ 100M Ω	$U=0.0055\%R_x+3k \Omega$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
30	*DC Low Resistance Meters	Resistance	V.R.of DC Low Resistance Meters JJG 837	(1~20) μΩ	U _{rel} =1.3%		
				(20~200) μΩ	U _{rel} =0.6%		
				(0.2~2)mΩ	U _{rel} =0.13%		
				(2~20) mΩ	U _{rel} =0.06%		
				20mΩ ~ 20kΩ	U _{rel} =0.013%		
31	*D.C Bridges	Resistance	V.R.of D.C Bridges JJG 125	(0.01~0.1) Ω	U _{rel} =6%		
				(0.1~1) Ω	U _{rel} =1.2%		
				(1~10) Ω	U _{rel} =0.12%		
				(10~100) Ω	U _{rel} =0.04%		
				100 Ω ~ 100k Ω	U _{rel} =0.03%		
32	*Insulation Resistance	Insulation Resistance	V.R. of Megohmmeter JJG 622	0.1M Ω ~ 10M Ω	U _{rel} =0.3%		
				10M Ω ~ 100M Ω	U _{rel} =0.6%		
				100M Ω ~ 1G Ω	U _{rel} =1.2%		
				1G Ω ~ 10G Ω	U _{rel} =3%		
		Terminal voltage		50V~10000V	U _{rel} =0.3%		
33	*Electronic Insulating Resistance Meters	Insulation Resistance	V.R. of Electronic Insulating Resistance meters JJG 1005	0.1M Ω ~ 10M Ω	U _{rel} =0.3%		
				10M Ω ~ 100M Ω	U _{rel} =0.6%		
				100M Ω ~ 1G Ω	U _{rel} =1.2%		
				1G Ω ~ 1000G Ω	U _{rel} =3%		



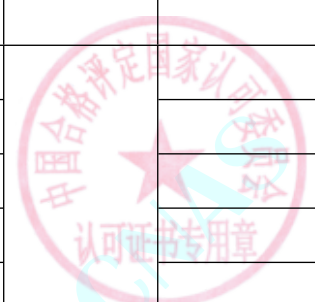
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Charging Voltage		10V~10000V	$U_{rel}=0.6\%$		
34	*High Insulation Resistance Meters	Resistance	C.S. for High Insulation Resistance Meters JJF 2225	1M Ω ~ 100M Ω	$U_{rel}=0.6\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
		Terminal voltage		1G Ω ~ 1000G Ω	$U_{rel}=3\%$		
		25V ~ 1kV	$U_{rel}=0.3\%$				
35	*Earth Resistance Meters	Resistance	V.R. of Earth Resistance Meters JJG 366	0.01 Ω ~ 0.1 Ω	$U_{rel}=7\%$		
				0.1 Ω ~ 1 Ω	$U_{rel}=1.2\%$		
				1 Ω ~ 1000 Ω	$U_{rel}=0.7\%$		
36	*Earth-Continuity Testers	Resistance	V.R. of Earth-Continuity Testers JJG 984	(0.01~0.1)m Ω	$U_{rel}=12\%$		
				(0.1~1)m Ω	$U_{rel}=5\%$		
				(1~10)m Ω	$U_{rel}=0.8\%$		
				(10~1000)m Ω	$U_{rel}=0.7\%$		
		Current		(0.1~60)A	$U_{rel}=0.4\%$		
37	*Clamp Earth Resistance Meters	Resistance	V.R. of Clamp Earth Resistance Meters JJG 1054	0.100 Ω ~ 9.999 Ω	$U_{rel}=0.6\%$		
				10.00 Ω ~ 99.99 Ω	$U_{rel}=0.5\%$		
				100.0 Ω ~ 199.9 Ω	$U_{rel}=0.7\%$		
				200 Ω ~ 400 Ω	$U_{rel}=1\%$		
				400 Ω ~ 600 Ω	$U_{rel}=3\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				600 Ω ~ 1111 Ω	$U_{rel}=5\%$		
38	*Wrist Strap Tester	Insulation Resistance	C.S. for Wrist Strap Tester JJF(DZ) 31502	0.01M Ω ~ 10M Ω	$U_{rel}=1.5\%$		
				10M Ω ~ 100M Ω	$U_{rel}=2\%$		
				100M Ω ~ 1G Ω	$U_{rel}=3\%$		
39	*Resistance	Resistance	C.S. for Surface Resistance Tester JJF 1285	0.001M Ω ~ 10M Ω	$U_{rel}=0.3\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.6\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1000G Ω	$U_{rel}=3\%$		
		Open circuit voltage	10V ~ 250V	$U_{rel}=0.3\%$			
40	*Loop Resistance Meters	Resistance	V.R. of Loop Resistance Testers JJG 1052	10 μ Ω ~ 2m Ω	$U_{rel}=0.4\%$		
				2m Ω ~ 200m Ω	$U_{rel}=0.2\%$		
		Current		(10 ~ 100)A	$U_{rel}=0.3\%$		
41	DC Shunt	Resistance	V. R. of DC Shunts JJG 1069	(0.001 ~ 10) Ω	$U_{rel}=0.08\%$		
42	*Air Ionizer	Voltage	Periodic Verification of Air Ionizers ANSI/ESDSP3.3, Calibration Specification for Ionizer JJF(DZ) 0110	(1 ~ 1000)V	$U=3V$		
		Time		(0.1 ~ 999.9)s	$U=0.2s$		
43	*Charged Plate Monitor	Electrostatic voltage	Calibration Regulation of Charged Plate Monitor JJF(DZ) 31003	(0.1 ~ 1000)V	$U_{rel}=0.3\%$		
		decay time		(0.01 ~ 60)s	$U_{rel}=0.1\%$		



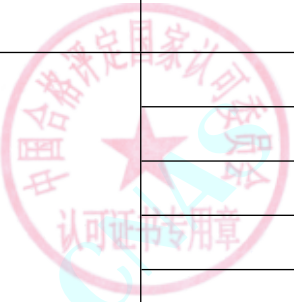
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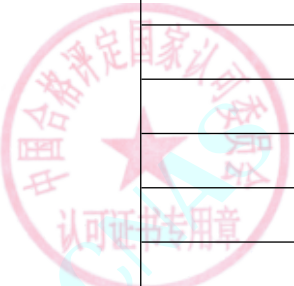
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
44	*Standard Digital Power Meters	AC Digital Powermeter	Calibration Specification for Standard Digital Power Meters JJF 2226	0.1W~20W (45Hz~65Hz)	$U_{rel}=0.10\%$	Only calibrate AC Digital Powermeter	
				20W~500W(45Hz~65Hz)	$U_{rel}=0.12\%$		
				500W~20kW(45Hz~65Hz)	$U_{rel}=0.15\%$		
		(1~600)V(45Hz~65Hz)		$U_{rel}=0.08\%$			
		AC Digital Voltmeter		10mA~20A (45Hz~65Hz)	$U_{rel}=0.09\%$		
		AC Digital Ampere-meter					
45	*Digital electric parameters test meter	Frequency	Calibration Specification for Digital AC Electrical Parameters Meter JJF 1491	40Hz~1000Hz	$U_{rel}=0.03\%$		
		AC Voltage		(1~600)V (40Hz~1kHz)	$U_{rel}=0.08\%$		
		AC Current		10mA~20A (40Hz~1kHz)	$U_{rel}=0.09\%$		
		AC Powermeter		500W~20kW (40Hz~1kHz)	$U_{rel}=0.15\%$		
46	*Industry Frequency Singlephase Phase Meter	Phase	V.R.of Industry Frequency Singlephase Phase Meter JJG 440	Phase: (0~360)° (50Hz)	$U=0.15^\circ$		
				Power factor: (0~1.000)(50Hz)	$U=0.001$		
47	*AC Impedance Parameter Testers	AC Voltage	C. S. of AC Impedance Parameter Testers JJF(Zhe) 1083	(10~1000)V (45~65)Hz	$U_{rel}=0.10\%$		
		AC Current		(0.1~20)A (45~65)Hz	$U_{rel}=0.12\%$		
		AC Power		1W~10kW(45~65)Hz	$U_{rel}=0.15\%$		
		Frequency		(45~65)Hz	$U_{rel}=0.02\%$		
		Phase		0° ~359.99°	$U=0.02^\circ$		



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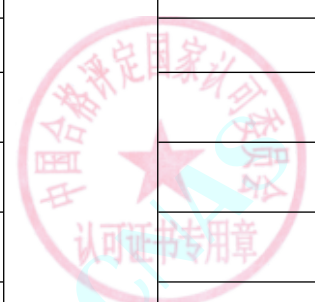
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
48	*Motor Stator Testing System	DC Resistance	Calibration Specification for Motor Stator Testing System JJF(Min)1060	1m Ω ~ 2m Ω	$U_{rel}=0.13\%$		
				(2~20) m Ω	$U_{rel}=0.06\%$		
				20m Ω ~ 20k Ω	$U_{rel}=0.02\%$		
		AC Voltage		(0.1~3)kV(45~65)Hz	$U_{rel}=0.7\%$		
		AC Current		(0.1~100)mA(45~65)Hz	$U_{rel}=0.8\%$		
		Insulation Resistance		(0.1~10)M Ω	$U_{rel}=0.3\%$		
				(10~100)M Ω	$U_{rel}=0.7\%$		
				(100~1000)M Ω	$U_{rel}=0.8\%$		
		DC Voltage		(500~1000)V	$U_{rel}=0.8\%$		
		Pulse voltage		(0.1~3)kV(45~65)Hz	$U_{rel}=1.2\%$		
Front time	(0.1~1.2) μ s	$U_{rel}=1.0\%$					
49	*Multifunction Calibrator	DC Voltage	Calibration Specification for Multifunction Standard Sources JJF 1638	10mV~200mV	$U=0.0011\%V_x+1.0 \mu V$		
				200mV~2V	$U=0.0010\%V_x+1.4 \mu V$		
				2V~10V	$U=0.00096\%V_x+4.8 \mu V$		
				10V~20V	$U=0.0010\%V_x+10 \mu V$		
				20V~200V	$U=0.0011\%V_x+0.12mV$		
				200V~1000V	$U=0.0013\%V_x+0.7mV$		
				AC Voltage	10mV~200mV(40Hz~20kHz)	$U=0.013\%V_x+12 \mu V$	



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				10mV~200mV(20kHz~50kHz)	$U=0.043\%V_x+12\mu V$		
				10mV~200mV(50kHz~100kHz)	$U=0.11\%V_x+36\mu V$		
				10mV~200mV(100kHz~300kHz)	$U=0.13\%V_x+36\mu V$		
				10mV~200mV(300kHz~500kHz)	$U=0.22\%V_x+48\mu V$		
				0.2V~2V(40Hz~20kHz)	$U=0.01\%V_x+8\mu V$		
				0.2V~2V(20kHz~50kHz)	$U=0.017\%V_x+24\mu V$		
				0.2V~2V(50kHz~100kHz)	$U=0.034\%V_x+96\mu V$		
				0.2V~2V(100kHz~300kHz)	$U=0.058\%V_x+0.18mV$		
				0.2V~2V(300kHz~500kHz)	$U=0.14\%V_x+0.5mV$		
				2V~20V(40Hz~20kHz)	$U=0.01\%V_x+84\mu V$		
				2V~20V(20kHz~50kHz)	$U=0.017\%V_x+0.24mV$		
				2V~20V(50kHz~100kHz)	$U=0.034\%V_x+0.5mV$		
				2V~20V(100kHz~300kHz)	$U=0.072\%V_x+1.7mV$		
				2V~20V(300kHz~500kHz)	$U=0.17\%V_x+6mV$		

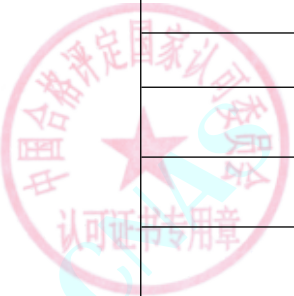


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	20V~200V(40Hz~20kHz)	$U=0.011\%Vx+1.2mV$		
				20V~200V(20kHz~50kHz)	$U=0.03\%Vx+5mV$		
				20V~200V(50kHz~100kHz)	$U=0.072\%Vx+12mV$		
				200V~1000V(40Hz~10kHz)	$U=0.0119\%Vx+5mV$		
		DC Current		10 μ A ~ 200 μ A	$U=0.007\%Ix+11nA$		
				200 μ A ~ 2mA	$U=0.007\%Ix+11nA$		
				2mA ~ 20mA	$U=0.007\%Ix+0.11 μ A$		
				20mA ~ 200mA	$U=0.007\%Ix+11 μ A$		
				200mA ~ 2A	$U=0.01\%Ix+33 μ A$		
				2A ~ 10A	$U=0.04\%Ix+0.53mA$		
				10A ~ 20A	$U=0.11\%Ix+0.83mA$		
		AC Current		(10~20)mA 40Hz~1kHz	$U=0.018\%Ix+0.4 μ A$		
				(10~20)mA (1~5)kHz	$U=0.077\%Ix+6 μ A$		
				(10~20)mA 5kHz~10kHz	$U=0.2\%Ix+11 μ A$		
				(20~200)mA 40Hz~1kHz	$U=0.02\%Ix+5 μ A$		
				(20~200)mA 1kHz~5kHz	$U=0.08\%Ix+60 μ A$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	(20~200)mA 5kHz~10kHz	$U=0.2\%Ix+0.11mA$		
				(0.20~2)A 40Hz~1kHz	$U=0.083\%Ix+44 \mu A$		
				(0.2~2)A 1kHz~5kHz	$U=0.094\%Ix+0.11mA$		
				(0.2~2)A 5kHz~10kHz	$U=1.1\%Ix+0.22mA$		
				(2~10)A 40Hz~1kHz	$U=0.051\%Ix+0.19mA$		
				(10~20)A 45Hz~100Hz	$U=0.13\%Ix+6mA$		
				(10~20)A 100Hz~1kHz	$U=0.17\%Ix+6mA$		
				(10~20)A 1kHz~5kHz	$U=0.33\%Ix+6mA$		
		AC Current		1 Ω ~ 10 Ω	$U_{rel}=0.022\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.0054\%$		
				100 Ω ~ 10k Ω	$U_{rel}=0.0014\%$		
				10k Ω ~ 100k Ω	$U_{rel}=0.016\%$		
				100k Ω ~ 1M Ω	$U_{rel}=0.0028\%$		
				1M Ω ~ 10M Ω	$U_{rel}=0.005\%$		
50	*Calibrators for Electrical Meters	DC voltage	Calibration Specification of Calibrators for Electrical Meters JJF 1284	(10~200)mV	$U_{rel}=0.003\%$	合格评定国家认可证书专用章	
				(0.2~1000)V	$U_{rel}=0.002\%$		
		AC voltage		10mV~1000V, (40Hz~2kHz)	$U_{rel}=0.04\%$		

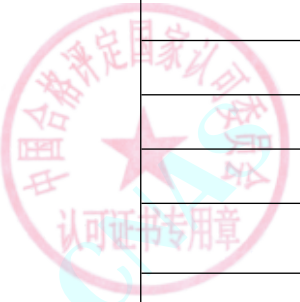


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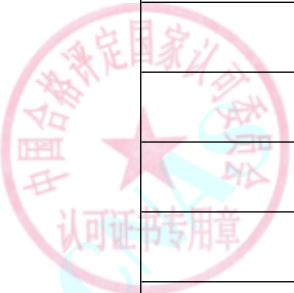
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC current	ilac-MRA	10 μ A ~ 20A	$U_{rel}=0.05\%$		
		AC current		(20~200) μ A(40Hz~2kHz)	$U_{rel}=0.1\%$		
				(0.2~200)mA,(40Hz~2kHz)	$U_{rel}=0.09\%$		
				(0.2~2)A(40Hz~2kHz)	$U_{rel}=0.15\%$		
				(2~20)A(40Hz~2kHz)	$U_{rel}=0.4\%$		
		resistance		(1~20) Ω	$U_{rel}=0.01\%$		
				20 Ω ~ 2M Ω	$U_{rel}=0.003\%$		
				(2~20)M Ω	$U_{rel}=0.004\%$		
				(20~200)M Ω	$U_{rel}=0.1\%$		
		Frequency		40Hz~10kHz	$U_{rel}=6 \times 10^{-6}$		
51	*Digital Multimeter	DC Voltage	Calibration Specification for Multimeter JJF 1587	10mV~220mV	$U=0.0009\%V_x+0.8 \mu V$		
				220mV~2.2V	$U=0.0008\%V_x+1.2 \mu V$		
				2.2V~11V	$U=0.0008\%V_x+4 \mu V$		
				11V~22V	$U=0.0008\%V_x+8 \mu V$		
				22V~220V	$U=0.0009\%V_x+100 \mu V$		
				220V~1000V	$U=0.0011\%V_x+0.6mV$		
		AC Voltage		(10~220)mV 40Hz~20kHz	$U=0.011\%V_x+10 \mu V$		
				(10~220)mV 20kHz~50kHz	$U=0.036\%V_x+10 \mu V$		

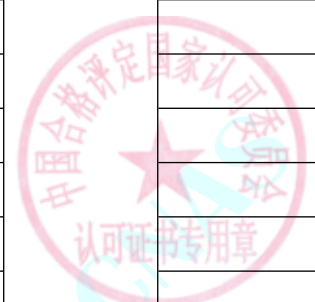


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(10~220)mV 50kHz~100kHz	$U=0.090\%V_x+30\mu V$		
				(10~220)mV 100kHz~300kHz	$U=0.11\%V_x+30\mu V$		
				(10~220)mV 300kHz~500kHz	$U=0.18\%V_x+40\mu V$		
				(10~220)mV 500kHz~1MHz	$U=0.36\%V_x+0.1mV$		
				(0.22~2.2)V 40Hz~20kHz	$U=0.0085\%V_x+7\mu V$		
				(0.22~2.2)V 20kHz~50kHz	$U=0.014\%V_x+20\mu V$		
				(0.22~2.2)V 50kHz~100kHz	$U=0.028\%V_x+80\mu V$		
				(0.22~2.2)V 100kHz~300kHz	$U=0.048\%V_x+0.15mV$		
				(0.22~2.2)V 300kHz~500kHz	$U=0.12\%V_x+0.4mV$		
				(0.22~2.2)V 500kHz~1MHz	$U=0.24\%V_x+1mV$		
				(2.2~22)V 40Hz~20kHz	$U=0.0085\%V_x+70\mu V$		
				(2.2~22)V 20kHz~50kHz	$U=0.014\%V_x+0.2mV$		
				(2.2~22)V 50kHz~100kHz	$U=0.028\%V_x+0.4mV$		
				100V~1000V(45Hz~10kHz)	$U_{rel}=2.0\times 10^{-4}\sim 9\times 10^{-4}$		
				(2.2~22)V 100kHz~300kHz	$U=0.060\%V_x+1.7mV$		



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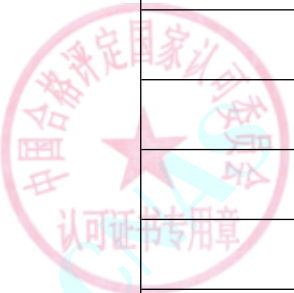
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(2.2~22)V 300kHz~500kHz	$U=0.14\%V_x+5mV$		
				(2.2~22)V 500kHz~1MHz	$U=0.30\%V_x+9mV$		
				(22~220)V 40Hz~20kHz	$U=0.0090\%V_x+1mV$		
				(22~220)V 20kHz~50kHz	$U=0.025\%V_x+4mV$		
				(22~220)V 50kHz~100kHz	$U=0.060\%V_x+10mV$		
				(22~220)V 100kHz~300kHz	$U=0.16\%V_x+0.11V$		
				(22~220)V 300kHz~500kHz	$U=0.54\%V_x+0.11V$		
				(22~220)V 500kHz~1MHz	$U=1.3\%V_x+0.22V$		
				(220~1000)V 40Hz~1kHz	$U=0.009\%V_x+4mV$		
		DC Current		10 μ A~220 μ A	$U=0.006\%I_x+10nA$		
				220 μ A~2.2mA	$U=0.0060\%I_x+10nA$		
				2.2mA~22mA	$U=0.0060\%I_x+100nA$		
				22mA~220mA	$U=0.0070\%I_x+1 μ A$		
				220mA~2.2A	$U=0.0095\%I_x+30 μ A$		
				2.2A~11A	$U=0.036\%I_x+0.48mA$		
				11A~20A	$U=0.1\%I_x+0.75mA$		



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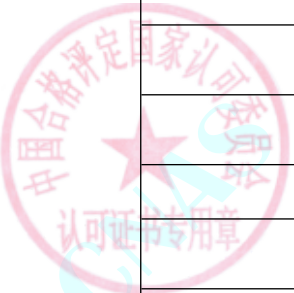
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current		(1~22)mA 40Hz~1kHz	$U=0.016\%I_x+0.4 \mu A$		
				(1~22)mA 1kHz~5kHz	$U=0.070\%I_x+5 \mu A$		
				(1~22)mA 5kHz~10kHz	$U=0.18\%I_x+10 \mu A$		
				(22~220)mA 40Hz~1kHz	$U=0.018\%I_x+4 \mu A$		
				(22~220)mA 1kHz~5kHz	$U=0.070\%I_x+50 \mu A$		
				(22~220)mA 5kHz~10kHz	$U=0.18\%I_x+0.1mA$		
				(0.22~2.2)A 40Hz~1kHz	$U=0.075\%I_x+40 \mu A$		
				(0.22~2.2)A 1kHz~5kHz	$U=0.085\%I_x+0.1mA$		
				(0.22~2.2)A 5kHz~10kHz	$U=1.0\%I_x+0.2mA$		
				(2.2~11)A 40Hz~1kHz	$U=0.046\%I_x+0.17mA$		
				(2.2~11)A 1kHz~5kHz	$U=0.095\%I_x+0.38mA$		
				(2.2~11)A 5kHz~10kHz	$U=0.36\%I_x+0.75mA$		
				(11~20)A 45Hz~100Hz	$U=0.12\%I_x+5mA$		
				(11~20)A 100Hz~1kHz	$U=0.15\%I_x+5mA$		
				(11~20)A 1kHz~5kHz	$U=0.3\%I_x+5mA$		
		DC Resistance		1 Ω	$U_{rel}=0.011\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-MRA CNAS CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMANCE ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	10 Ω	$U_{rel}=0.0027\%$		
				100 Ω	$U_{rel}=0.0012\%$		
				1k Ω	$U_{rel}=0.0010\%$		
				10k Ω	$U_{rel}=0.0010\%$		
				100k Ω	$U_{rel}=0.0013\%$		
				1M Ω	$U_{rel}=0.0023\%$		
				10M Ω	$U_{rel}=0.0046\%$		
				100M Ω	$U_{rel}=0.012\%$		
52	*Amperemeter, Voltmeter, Wattmeter And Ohmmeter	DC Voltage DC Current	V.R. of Amperemeters, Voltmeters, Wattmeters and Ohmmeter JJG 124	10mV~1000V	$U_{rel}=7 \times 10^{-4}$		
				1mA~1A	$U_{rel}=8 \times 10^{-4}$		
				1A~10A	$U_{rel}=1 \times 10^{-3}$		
				10A~20A	$U_{rel}=2 \times 10^{-3}$		
		AC Voltage		10mV~1000V(45Hz~1kHz)	$U_{rel}=8 \times 10^{-4}$		
				AC Current	1mA~10mA(45Hz~1kHz)		
		10mA~1A(45Hz~1kHz)			$U_{rel}=9 \times 10^{-4}$		
		1A~10A(45Hz~100Hz)			$U_{rel}=1 \times 10^{-3}$		
		10A~20A(45Hz~100Hz)			$U_{rel}=2 \times 10^{-3}$		
		DC Resistance		100 Ω ~ 1M Ω	$U_{rel}=7 \times 10^{-4}$		

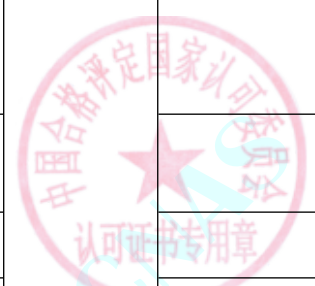


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Powermeter		(1~3000)W	$U_{rel}=0.09\%$		
		AC Powermeter		(1~3000)W(45Hz~65Hz)	$U_{rel}=0.10\%$		
				1MΩ~10MΩ	$U_{rel}=1 \times 10^{-3}$		
53	*DC Voltage Stable Source	DC Voltage	Calibration specification for DC Stabilized Power Supplies JJF 1597	0.1V~100V	$U_{rel}=0.007\%$		
				100V~1000V	$U_{rel}=0.008\%$		
		DC Current		10 μA~200A	$U_{rel}=0.07\%$		
				200A~1000A	$U_{rel}=0.09\%$		
		Regulated power supply adjustment rate		0.01%~10%	$U_{rel}=0.008\%$		
		Regulation rate of steady current power supply		0.01%~10%	$U_{rel}=0.09\%$		
		Regulated load adjustment rate		0.01%~10%	$U_{rel}=0.008\%$		
		Steady current load regulation rate		0.01%~10%	$U_{rel}=0.09\%$		
		Ripple voltage		0.1mV~1000mV	$U_{rel}=2\%$		
	Ripple current	0.1mA~10A	$U_{rel}=2.4\%$				

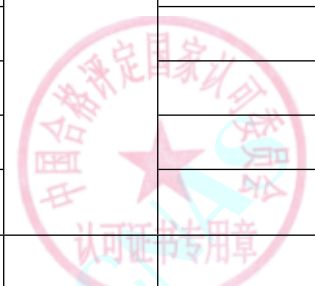


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
54	Resistance strain gauge indicators	Strain Gauge	Resistance strain gauge indicators JJG 623	(10~100000) $\mu \epsilon$	$U_{rel}=0.09\%$		
		Indication Stability		(10~100000) $\mu \epsilon$	$U_{rel}=0.09\%$		
55	*High-voltage Withstanding Voltage Tester	DC Voltage	Verification Regulation of High-voltage Withstanding Voltage Tester JJG(JG) 18	(1~15)kV	$U_{rel}=0.9\%$		
				(15~50)kV(45~65)Hz	$U_{rel}=1.0\%$		
		AC Voltage		(1~15)kV(45~65)Hz	$U_{rel}=0.9\%$		
				(15~50)kV(45~65)Hz	$U_{rel}=1.0\%$		
		DC Current		(0.1~100) mA	$U_{rel}=1.0\%$		
		AC Current		(0.1~100) mA(45~65)Hz	$U_{rel}=1.2\%$		
Time	(0.01~999.99)s	$U=0.8\%T+0.03s$					
56	*Strength Detector of Insulating Oils	AC Voltage	V. R. of Dielectric Strength Detector of Insulating Oils JJG (Ji)112	(1~50)kV(45Hz~65Hz)	$U_{rel}=1.5\%$		
		Speed of pressure Rise		(0.2~10)kV/s	$U_{rel}=2\%$		
57	*DC High Voltage Test Device	DC Voltage	Calibration Specification for DC High Voltage Test Device JJF(Zhe)1146	(10~50)kV	$U_{rel}=0.9\%$		
				(50~100)kV	$U_{rel}=1.2\%$		
		ripple voltage		(0.1~50)V	$U_{rel}=0.9\%$		
		DC Current		(0.1~100) mA	$U_{rel}=1.0\%$		
		Short Term Stability		(10~100)kV	$U_{rel}=0.9\%$		
58	*AC High Voltage Test Device	AC Voltage	Calibration Specification for AC High Voltage Test Device JJF(Zhe)1144	(10~50)kV(45Hz~65Hz)	$U_{rel}=0.9\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency		(50~100)kV(45Hz~65Hz)	$U_{rel}=1.2\%$		
		Total Harmonic Distortion		(45~65)Hz	$U_{rel}=0.02\%$		
		Short Term Stability		(0.1~100)%	$U_{rel}=0.9\%$		
				(10~100)kV	$U_{rel}=0.9\%$		
59	*Magnetic Partical Detector	DC current	Calibration specification for Magnetic Particle Flaw Detectors JJF 1273	(100~2000)A	$U_{rel}=1.2\%$		
		AC current		(200~10000)A, (50Hz~400Hz)	$U_{rel}=1.2\%$		
		Residual magnetic induction intensity		(0.01~0.2)mT	$U=0.05mT$		
		Magnetization time		(0.4~20)s	$U=0.03s$		
60	Fluxgate Magnetometer	magnetism	Calibration Specification for Fluxgate Magnetometer JJF 1519	-250 μ T~250 μ T	$U=1\%B+1 \mu$ T		
61	Magnetometer	magnetism	Calibration Specification for Magnetometers JJF 1656	(0.05~10) mT	$U_{rel}=1.6\%$		
62	Pointer Magnetometer	magnetism	Calibration Specification for Pointer Magnetometer JJF (JG) 75	50 μ T~5mT	$U=1\%B+1 \mu$ T		
63	Tesla meter	magnetism	Calibration Specification for(1 mT~2.5 T) Magnetometers JJF 1832	1mT~2.5T	$U_{rel}=0.3\%$		



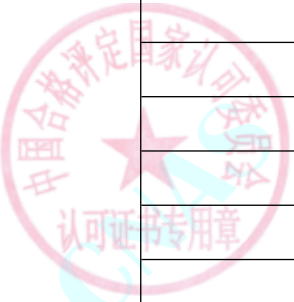
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
64	Alternating magnetometer	magnetism	Verification regulation of weak magnetic field alternating magnetometer JJG 1049	1pT~1mT	$U_{rel}=1\%$		
65	*Eddy current conductivity meter	Eddy current conductivity	C. S. fHr Eddy current conductivity meter JJF 1692	(0.58~58)MS/m	$U=(0.11\sim0.36) MS/m$		
66	*source meter	DC voltage (output)	Calibration specification for source meter JJF(DZ)0024	(0.5~1)mV	$U_{rel}=0.5\%$		
				(1~10)mV	$U_{rel}=0.2\%$		
				(10~200)mV	$U_{rel}=0.0018\%$		
				(0.2~200)V	$U_{rel}=0.0017\%$		
				(200~1000)V	$U_{rel}=0.0018\%$		
		DC current (output)		(10~20) μ A	$U_{rel}=0.16\%$		
				20 μ A~200mA	$U_{rel}=0.12\%$		
				(0.2~20)A	$U_{rel}=0.07\%$		
		DC voltage (measured)		(10~200)mV	$U_{rel}=0.0091\%$		
				(0.2~200)V	$U_{rel}=0.0022\%$		
				(200~1000)V	$U_{rel}=0.0025\%$		
				(10~200) μ A	$U_{rel}=0.11\%$		
		DC current (measurement)		(0.2~200)mA	$U_{rel}=0.012\%$		
(0.2~2)A	$U_{rel}=0.019\%$						
(2~10)A	$U_{rel}=0.061\%$						

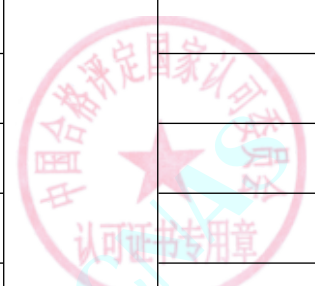


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC resistance (measurement)		(100 Ω ~ 1M Ω)	$U_{rel}=0.007\%$		
				(1M Ω ~ 10M Ω)	$U_{rel}=0.023\%$		
				(10M Ω ~ 100M Ω)	$U_{rel}=0.07\%$		
67	*Magnetic FLUX Meter	Magnetic FLUX	Calibration Specification for Magnetic Flux Meters JJF 1905	0.1mWb~1mWb	$U_{rel}=0.4\%$		
				1mWb~10Wb	$U_{rel}=0.07\%$		
68	*hand - held digital Multimeters	DC voltage	Calibration Specification for hand - held digital Multimeters JJF(DZ) 0023	(10~330)mV	$U=0.005\%V_x+0.78 \mu V$		
				(0.33~3.3)V	$U=0.006\%V_x + 1.6 \mu V$		
				(3.3~33)V	$U=0.006\%V_x + 16 \mu V$		
				(33~330)V	$U=0.007\%V_x + 0.12mV$		
				(330~1000)V	$U=0.007\%V_x + 1.2mV$		
		AC voltage		(10~33)mV(20~45)Hz	$U=0.10\%V_x+7 \mu V$		
				(10~33)mV(45Hz~10kHz)	$U=0.018\%V_x + 7 \mu V$		
				(33~330)mV(20Hz~45Hz)	$U=0.040\%V_x + 7 \mu V$		
				(33~330)mV(45Hz~10kHz)	$U=0.018\%V_x + 9 \mu V$		
				(0.33~3.3)V(20Hz~45Hz)	$U=0.04\%V_x + 38 \mu V$		
				(0.33~3.3)V(45Hz~10kHz)	$U=0.014\%V_x + 46 \mu V$		
		(3.3~33)V(20Hz~45Hz)	$U=0.04\%V_x + 0.7mV$				



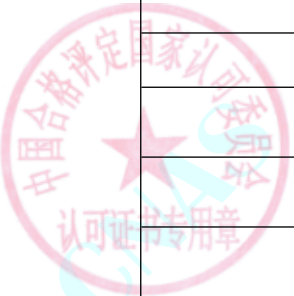
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC current		(3.3~33)V(45Hz~10kHz)	$U=0.014\%V_x + 0.5mV$		
				(33~330)V(45Hz~1kHz)	$U=0.022\%V_x + 5mV$		
				(33~330)V(1kHz~10kHz)	$U=0.03\%V_x + 12mV$		
				(330~1000)V(40Hz~1kHz)	$U=0.04\%V_x + 12mV$		
				(330~1000)V(1kHz~5kHz)	$U=0.03\%V_x + 12mV$		
				(10~330) μ A	$U=0.033\%I_x + 0.04 \mu A$		
				(0.33~3.3)mA	$U=0.020\%I_x + 0.039 \mu A$		
				(3.3~33)mA	$U=0.030\%I_x + 1.9 \mu A$		
				(33~330)mA	$U=0.030\%I_x + 1.9 \mu A$		
				(0.33~1.1)A	$U=0.03\%I_x + 31 \mu A$		
				(1.1~3)A	$U=0.03\%I_x + 32 \mu A$		
				(3~11)A	$U=0.04\%I_x + 0.26mA$		
		(11~20)A	$U=0.008\%I_x + 0.9mA$				
		AC current		(30~330) μ A(20~45)Hz	$U=0.22\%I_x + 0.2 \mu A$		
				(30~330) μ A(45Hz~1kHz)	$U=0.16\%I_x + 0.2 \mu A$		
				(0.33~3.3)mA(45Hz~1kHz)	$U=0.15\%I_x + 0.3 \mu A$		

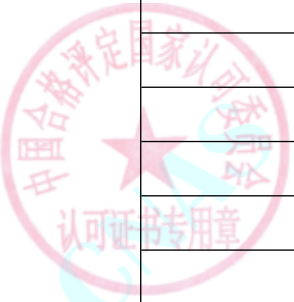


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.33~3.3mA)(100Hz~1kHz)	$U=0.12\%I_x + 0.3 \mu A$		
				(3.3~33)mA(45Hz~1kHz)	$U=0.11\%I_x + 3 \mu A$		
				(3.3~33)mA(45Hz~1kHz)	$U=0.06\%I_x + 3 \mu A$		
				(33~330)mA(20~45)Hz	$U=0.11\%I_x + 30 \mu A$		
				(33~330)mA(45Hz~1kHz)	$U=0.06\%I_x + 30 \mu A$		
				(0.33~1.1)A(20~45)Hz	$U=0.2\%I_x + 0.3mA$		
				(0.33~1.1)A(45Hz~1kHz)	$U=0.07\%I_x + 0.3mA$		
				1.1A~3A(20~45)Hz	$U=0.2\%I_x + 0.6mA$		
				1.1A~3A(45Hz~1kHz)	$U=0.07\%I_x + 0.6mA$		
				3A~11A(20~100)Hz	$U=0.07\%I_x + 3mA$		
				3A~11A(100Hz~1kHz)	$U=0.12\%I_x + 3mA$		
				11A~20A(20~45)Hz	$U=0.14\%I_x + 6mA$		
				11A~20A(45Hz~1kHz)	$U=0.17\%I_x + 6mA$		
		Resistance		1 Ω ~ 11 Ω	$U=0.07\%R_x + 0.04 \Omega$		
				11 Ω ~ 33 Ω	$U=0.06\%R_x + 0.06 \Omega$		
				33 Ω ~ 1.1M Ω	$U=0.06\%R_x + 0.08 \Omega$		
				1.1M Ω ~ 3.3M Ω	$U=0.08\%R_x + 0.1 \Omega$		

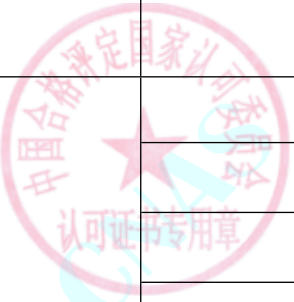


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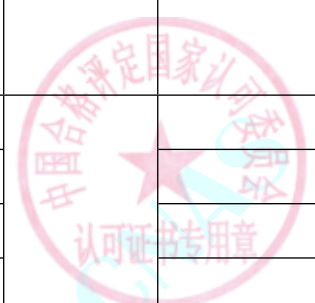
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency	Verification regulation of medical leakage current testers JIG 1188	3.3MΩ ~ 33MΩ	$U=0.3\%R_x + 0.3\Omega$		
				33MΩ ~ 100MΩ	$U=2.4\%R_x + 0.4\Omega$		
		Capacitors		10Hz~100kHz	$U=0.0003\%R_x + 6\mu\text{Hz}$		
				1nF ~ 10nF	$U=0.6\%C_x + 0.02\text{nF}$		
				10nF ~ 100nF	$U=0.3\%C_x + 0.1\text{nF}$		
				100nF ~ 1000nF	$U=0.3\%C_x + 0.7\text{nF}$		
				1μF ~ 10μF	$U=0.3\%C_x + 6\text{nF}$		
				10μF ~ 100μF	$U=0.5\%C_x + 60\text{nF}$		
				100μF ~ 1000μF	$U=0.5\%C_x + 0.6\mu\text{F}$		
				1mF ~ 10mF	$U=0.5\%C_x + 6\mu\text{F}$		
				10mF ~ 100mF	$U=1.3\%C_x + 60\mu\text{F}$		
				Temperature	With Thermocouple: (-200~1200)°C		
		Temperature		With Platinum thermal resistance: (-200~800)°C	$U=0.3^\circ\text{C}$		
		69		*Medical leakage current testers	DC leakage current		
AC leakage current	(0.001~20)mA(50Hz/60Hz)		$U_{\text{rel}}=0.2\%$				
Test voltage	100mV~600V(40Hz~60Hz)		$U_{\text{rel}}=0.2\%$				
DC input resistance	(0.3~3)kΩ		$U_{\text{rel}}=0.2\%$				



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Input impedance	ilac-M	(0.3~3)k Ω (10Hz~100kHz)	$U_{rel}=0.4\%$		
				(0.3~3)k Ω (100kHz~1MHz)	$U_{rel}=0.7\%$		
		Frequency response characteristics of transmission impedance		(-70~-0.01)dB(10Hz~1kHz)	$U=0.05dB$		
				(-70~-0.01)dB(1kHz~1MHz)	$U=0.1dB$		
70	*Touch Current Testers	AC leakage current	Verification Regulation for Touch Current Testers JJG(Yue) 027	(0.001~20)mA(10Hz~3000Hz)	$U_{rel}=0.2\%$		
				(0.001~20)mA(3kHz~1MHz)	$U_{rel}=0.6\%$		
		DC input resistance		(0.3~3)k Ω	$U_{rel}=0.2\%$		
		Input impedance		(0.3~3)k Ω (10Hz~1kHz)	$U_{rel}=0.4\%$		
				(0.3~3)k Ω (1kHz~1MHz)	$U_{rel}=0.7\%$		
71	*DC High Current Meters	DC Current	Verification Regulation for DC High Current Meters JJG(JG)195	100A~2000A	$U_{rel}=0.007\%$		
72	*The power supply of AC/DC electric welder	DC Voltage	Calibration Specification for the power supply of AC/DC electric welder JJF (Jin) 02	(15~500)V	$U_{rel}=0.08\%$		
		DC Current		(50~2000)A	$U_{rel}=0.12\%$		
		AC Voltage		(15~500)V/50Hz	$U_{rel}=0.08\%$		
		AC Current		(50~2000)A/50Hz	$U_{rel}=0.12\%$		
73	*Arc welding and	DC Voltage	Calibration Specification for	15V~500V	$U_{rel}=0.08\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	resistance welding	DC Current	Arc welding and resistance welding JJF(JX) 1025	50A~2000A	$U_{rel}=0.12\%$		
		AC Voltage		(15~500)V/50Hz	$U_{rel}=0.08\%$		
		AC Current		(50~2000)A/50Hz	$U_{rel}=0.12\%$		
		DC Power		10W~20kW	$U_{rel}=0.3\%$		
		AC Power		(10W~3.9kW)/50Hz	$U_{rel}=0.3\%$		
		Power factor		0.01~1.0	$U=0.02$		
		Frequency		40Hz~200Hz	$U_{rel}=0.3\%$		
		Conversion time		10ms~10s	$U_{rel}=0.3\%$		
		Duration		10s~600s	$U_{rel}=0.03\%$		
		Electrode Force		1N~50kN	$U_{rel}=1\%$		
74	*Uninterruptible power supply	No-load output voltage	Calibration Specification for Uninterruptible Power Supply JJF (DZ) 0027	(10~400)V (50Hz, 60Hz)	$U_{rel}=0.14\%$		
		Frequency		20Hz~1kHz	$U_{rel}=0.03\%$		
		Distortion		0.01%~10%	$U_{rel}=7\%$		
		Rated Output Power		(0.1W~6000W)/50Hz	$U_{rel}=0.3\%$		
		Efficiency		0.1%~100%	$U_{rel}=0.4\%$		
		Load adjustment rate		0.01% ~10%	$U_{rel}=0.2\%$		



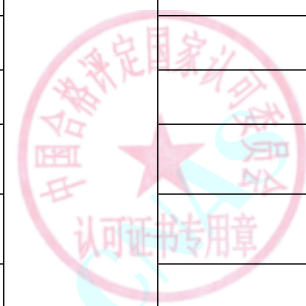
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Source voltage adjustment rate	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	0.01% ~10%	$U_{rel}=0.2\%$		
		Conversion time		0.1ms ~10ms	$U_{rel}=0.3\%$		
		Duration		1s~1000s	$U=0.02\%T_x+0.07s$		
75	*DC High Current Sources	DC Current	Verification Regulation of DC High Current Sources JJG(JG) 196	(100~2000)A	$U_{rel}=0.007\%$		
76	*DC Low Current Reference Sources	DC Current	Verification Regulation of DC Low Current Reference Sources JJG(JG) 19	5pA~200pA	$U_{rel}=1.2\%$		
				0.2nA~200nA	$U_{rel}=0.24\%$		
				200nA~20 μ A	$U_{rel}=0.12\%$		
				20 μ A~200 μ A	$U_{rel}=0.003\%$		
77	Hall Current (Voltage) Transducer	AC Current	Verification Regulation of Hall Current (Voltage) Transducer JJG(Chuan) 136	1A~20A,(40Hz~400Hz)	$U_{rel}=0.03\%$		
				1A~20A,(400Hz~1000Hz)	$U_{rel}=0.06\%$		
				20A~2000A,(50Hz)	$U_{rel}=0.03\%$		
		DC Current		1A~2000A	$U_{rel}=0.007\%$		
		AC Voltage		5V~300V,(45Hz~10kHz)	$U_{rel}=0.03\%$		
				300V~1000V,(45Hz~10kHz)	$U_{rel}=0.04\%$		
		DC Voltage		5V~1000V	$U_{rel}=0.003\%$		

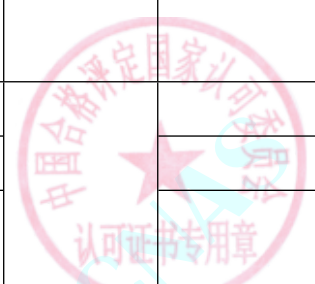


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
78	*Standard AC power source	AC Voltage	Verification regulation for standard AC power source JJG(JG) 6	10mV~200mV,(40Hz~20kHz)	$U=0.004\%V_x+0.002mV$		
				0.2V~1000V,(40Hz~20kHz)	$U_{rel}=0.003\%$		
		AC Current		1mA~20A,(40Hz~10kHz)	$U_{rel}=0.007\%$		
				20A~80A,(40Hz~1kHz)	$U_{rel}=0.03\%$		
		AC power		(1~1000)V,(0.001~80)A,(45Hz~60Hz)	$U_{rel}=0.03\%$		
		Phase		-150° ~ 150°	$U=0.009^\circ$		
		Frequency		40Hz~10kHz	$U_{rel}=0.002\%$		
		Voltage Distortion		0.1%~30%,(40Hz~1kHz)	$U_{rel}=7\%$		
Current distortion	0.1%~30%,(40Hz~1kHz)	$U_{rel}=7\%$					
79	*Current Transformer Volt-Ampere Characteristic Meters	AC Voltage	Calibration Specification for Current Transformer Volt-Ampere Characteristic JJF 1584	(1~200)V, (50Hz)	$U_{rel}=0.08\%$		
		AC Current		(0.1~5)A, (50 Hz)	$U_{rel}=0.12\%$		
80	*Mutual Inductor Error and Volt-ampere characteristic tester	voltage	Calibration Specification of Mutual Inductor Error and Volt-ampere characteristic tester JJF(Min) 1108	(1~200)V, (50Hz)	$U_{rel}=0.08\%$		
		current		(0.1~5)A, (50 Hz)	$U_{rel}=0.12\%$		
		Current Transformer Ratio		(5A~2000A)/(5A)	$U_{rel}=0.06\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Voltage Transformer Ratio	ilac-M	(0.1~10)kV, (0.1~35)kV, (0.1~50)kV/(0.1、0.1/√3)kV	$U_{rel}=0.06\%$		
		Ratio difference		0.01%~10%	$U=0.06\%$		
		phase difference		(0.1~900)	$U=1.4$		
		Secondary circuit load		(0.01~10000) Ω	$U_{rel}=0.03\%$		
81	*High Current Generator	AC Current	Calibration Specification of High Current Generator JJF(JX) 1037	(20~2000)A 50Hz	$U_{rel}=0.03\%$		
82	*Instrument Voltage Transformers	Ratio difference	Verification Regulation of Instrument Voltage Transformers JJG 314	(0.1kV~35kV)/100V, (0~35kV)/(100/√3) V20%Rated voltage	$U_{rel}=0.06\%$		
				(0.1kV~35kV)/100V, (0~35kV)/(100/√3) V50%Rated voltage	$U_{rel}=0.05\%$		
				(0.1kV~35kV)/100V, (0~35kV)/(100/√3) V80%~120%Rated voltage	$U_{rel}=0.03\%$		
				(0.1kV~10kV)/100V, (0~35kV)/(100/√3) V20%Rated voltage	$U_{rel}=0.06\%$		
				(0.1kV~10kV)/100V, (0~35kV)/(100/√3) V50%Rated voltage	$U_{rel}=0.05\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.1kV~10kV) /100V, (0~35kV)/(100/ $\sqrt{3}$) V80%~ 120%Rated voltage	$U_{rel}=0.03\%$		
		Phase difference		(0.001~900)' 20% Rated voltage	$U=1.4'$		
			(0.001~900)' 50% Rated voltage	$U=1.2'$			
			(0.001~900)' 80%~ 120%Rated voltage	$U=0.9'$			
Radio measuring instrument							
1	*Passive Intermodulation Analyzers	Carrier Output Frequency	Calibration Specification for Passive Intermodulation Analyzers JJF 1463	800MHz~3GHz	$U_{rel}=1.2 \times 10^{-7}$		
		Carrier output level		20dBm~ 46dBm(800MHz~3GHz)	$U=0.5\text{dB}$		
		The Receiver Displays the Average Noise Level		-120dBm~- 60dBm(800MHz~3GHz)	$U=0.7\text{dB}$		
		Passive Intermodulation		-170dBc~- 90dBc(800MHz~3GHz)	$U=0.5\text{dB}$		
		System residual intermodulation		-170dBc~-90dBc	$U=0.7\text{dB}$		
2	*RF and Microwave Power Meters	power	Calibration Specification for RF and Microwave Power Meters JJF 1885	(0.01~25) mW, (0.01~2)GHz	$U_{rel}=1.9\%$	JJG 1024: except Instrument	



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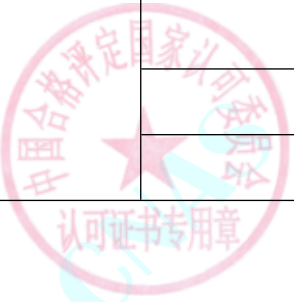
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-MSC	(0.01~25) mW, (2.1~12.4) GHz	$U_{rel}=2.6\%$	Accuracy;JJG (ELECTRONIC) 30202:Instrument Accuracy	
				(0.01~25) mW, (12.75~18)GHz	$U_{rel}=3.3\%$		
		VSWR		1.0~2.0, (10MHz~18GHz)	$U=0.07$		
		Instrument Accuracy		3.16 μW~100mW	$U_{rel}=0.5\%$		
		Power Reference		1mW(50MHz)	$U_{rel}=1.9\%$		
		Source Frequency Accuracy		50MHz	$U_{rel}=1 \times 10^{-4}$		
3	*Function Generator	Frequency	V.R. of Function Generator JJG 840	1Hz~225MHz	$U_{rel}=4.6 \times 10^{-7}$	CNAS 合格评定 国家认可委员会 认可证书专用章	
	Voltage		10mV~20V(p-p), (1Hz~225MHz)	$U_{rel}=1.2\%$			
	DC Offset		0.01V~5V	$U_{rel}=0.1\%$			
	Attenuation		(0~80)dB, 1kHz	$U=0.10\text{dB}$			
	Distortion		(0.03~10)%, (20Hz~20kHz)	$U_{rel}=12\%$			
	Sine wave amplitude flatness		100mV~10V (1kHz~225MHz)	$U=0.10\text{dB}$			
	Pulse duty cycle		1%~99%	$U_{rel}=0.14\%$			
	Overshoot		0.001%~20%	$U_{rel}=1.8\%$			
	rise time		1ns~10 μs	$U_{rel}=5.5\%$			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	*Low-frequency Volt-meters	Voltage	Calibration Specification for Low-frequency Volt-meters JJF 1925	10mV ~ 300V, (10Hz~500kHz)	$U_{rel}=0.6\% \sim 1.0\%$		
		Frequency Response		10Hz ~ 500kHz	$U_{rel}=0.9\%$		
5	*RF Power sensor	power	Calibration Specification for RF & Microwave Power Sensors JJF 1887	(0.01~25) mW, (0.01~2)GHz	$U_{rel}=1.9\%$		
				(0.01~25) mW, (2.1~12.4) GHz	$U_{rel}=2.6\%$		
				(0.01~25) mW, (12.75 ~18)GHz	$U_{rel}=3.3\%$		
		VSWR		1.0~2.0, (10MHz~18GHz)	$U=0.07$		
6	*Attenuators from Radio Frequency to Microwave Frequency	Attenuation	C.S. for Attenuators from Radio Frequency to Microwave Frequency JJF 2092	0dB~110dB, (10MHz~18GHz)	$U=0.3dB$		
		VSWR		1.0~2.0, (10MHz~18GHz)	$U=0.07$		
7	*Spectrum Analyzer	Frequency	C.S. for Spectrum Analyzers JJF 1396	9kHz~18GHz	$U_{rel}=1.2 \times 10^{-7} \sim 3.2 \times 10^{-5}$		
		Electrical Level		(-120~30)dBm	$U=0.3dB$		
		Frequency Response		(-120~30)dBm, 9kHz~18GHz	$U=0.38dB$		
		Sweep frequency		100Hz~18GHz	$U_{rel}=0.02\%$		
		Resolution bandwidth		1Hz~30MHz	$U_{rel}=0.9\%$		



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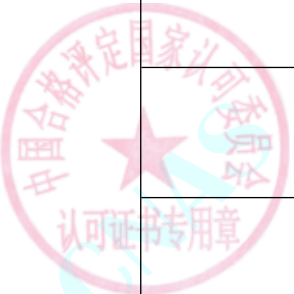
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		influence of resolution bandwidth conversion on amplitude measurement	ilac-M	0dB~2dB(1Hz~30MHz)	U=0.02dB		
		Reference level		(-90~10)dBm	U=0.22dB		
		Vertical display scale		1dB/div~10dB/div (9kHz~18GHz)	U=0.22dB		
		Display average noise		(-160~0)dBm	U=1.4dB		
		Calibration signal level		(-40~0)dBm	U=0.2dB		
		Calibration signal frequency		150kHz~1000MHz	U _{rel} =1.2×10 ⁻⁷		
		8		*Vector Network Analyzers	Frequency		
Electrical Level	(-55 ~ 10)dBm , (9kHz~18GHz)	U=0.20dB					
	(-25 ~ 10)dBm, (18GHz~26.5GHz)	U=0.22dB					
	(-25 ~ 10)dBm, (26.5GHz~40GHz)	U=0.26dB					
Transmission Amplitude	20dB, 50dB, (50MHz~18GHz)	U=0.54dB					
VSWR	1.0~2.0, (10MHz~2GHz)	U _{rel} =4%					
	1.0~2.0, (2GHz~12GHz)	U _{rel} =4.2%					



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1.0~2.0, (12GHz~18GHz)	$U_{rel}=5.2\%$		
		Modular dynamic accuracy		(0~-100)dB,1MHz~18GHz	$U=(0.06\sim0.40)$ dB		
		Sweep noise (modulus)		0~1(9KHz~18GHz)	$U=0.02$ dB		
		Sweep noise (phase)		(0~1) $^{\circ}$ (9kHz~18GHz)	$U=0.02^{\circ}$		
		Background noise		-140dBm~-60dBm(9kHz~18GHz)	$U=2.3$ dB		
		Crosstalk		-140dBm~-60dBm(9kHz~18GHz)	$U=2.0$ dB		
		Calibration piece reflection coefficient (modulus)		0~1,300kHz~18GHz	$U=0.004\sim0.014$		
		Calibration piece reflection coefficient (phase)		0~1,300kHz~18GHz	$U=0.020\sim0.044$		
		Calibration piece reflection coefficient (phase)		(-180~180) $^{\circ}$,300kHz~18GHz	$U=(1.1\sim2.5)^{\circ}$		
		Scattering parameters(S21/S12 modulus)		(-20~-50)dB,10MHz~18GHz	$U=0.26$ dB		
		Scattering parameters(S21/S12 phase)		(-180~180) $^{\circ}$,10MHz~18GHz	$U=1.5^{\circ}$		

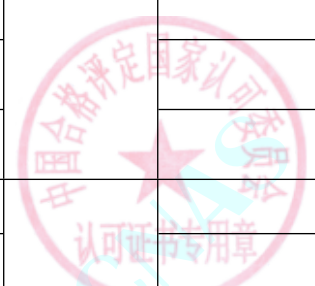


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Scattering parameters(modulus)		0~1,10MHz~18GHz	$U=0.03$		
		Scattering parameters(phase)		$(-180\sim 180)^\circ$, 10MHz~18GHz	$U=1.5^\circ$		
9	*543-1 noise signal generator	Sound pressure level	543-1 noise signal generator calibration with SBJZ-ZB-D001	(75~118)dB	$U=2.4\text{dB}$		
		AC Voltage		(0.05V~1.1V), 14kHz	$U=0.01\text{V}$		
10	*Pulse Generator	Output Level	Verification Regulation of Pulse Generator JJG 490	10mV~200V, (1kHz)	$U_{\text{rel}}=0.15\%$		
		Rise/Fall time		(1~100) ns	$U_{\text{rel}}=4.2\%$		
		Pulse Width		(0.5~100) ns	$U_{\text{rel}}=4.2\%$		
		Output Frequency		5Hz~300MHz	$U_{\text{rel}}=4.2\times 10^{-6}$		
		DC Offset		0.1V~20V	$U_{\text{rel}}=0.12\%$		
11	*Low frequency Signal Generator	Frequency	V.R. of Low Frequency Signal Generator JJG 602	1Hz~1MHz	$U_{\text{rel}}=6\times 10^{-6}$		
		Voltage		10mV~100V, (1Hz~1MHz)	$U_{\text{rel}}=0.1\%\sim 1.2\%$		
		Attenuation		(0~60)dB, (10Hz~300kHz)	$U=0.10\text{dB}\sim 0.12\text{dB}$		
		Distortion		(0.001~10)%, (20Hz~20kHz)	$U_{\text{rel}}=12\%$		
12	*High frequency Signal Generator	Frequency	C.S. for Signal Generators JJF 1931	150kHz~18GHz	$U_{\text{rel}}=6\times 10^{-9}\sim 1.8\times 10^{-6}$		
		Electrical Level		(30~-110)dBm(2.5MHz~18GHz)	$U=0.38\text{dB}$		



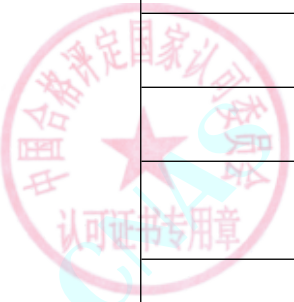
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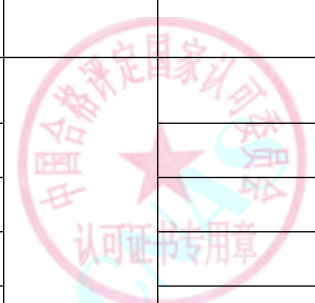
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AM		5%~99%, (150kHz~18GHz), (0.01~100) Hz	$U_{rel}=2.6\% \sim 1.5\%$		
		FM		(0.4 ~ 400)kHz, (150kHz~18GHz), (0.01~200) kHz	$U_{rel}=2.7\% \sim 1.2\%$		
		PM		(0.4 ~ 400)rad, (150kHz~18GHz)	$U_{rel}=3.5\% \sim 5.0\%$		
13	*Distortion Meter	Distortion	Calibration Specification for Distortion Meters JJF 1852	0.03%~100%(10Hz~10kHz)	$U_{rel}=2.5\% \sim 1.2\%$		
		Voltage		10mV ~ 300V(10Hz~500kHz)	$U_{rel}=0.6\% \sim 1.0\%$		
		Frequency Response		10Hz ~ 500kHz	$U_{rel}=0.9\%$		
14	*Audio Analyzer	Output Frequency	Calibration Specification for Audio Analyzer JJF 1395	10Hz~200kHz	$U_{rel}=2.0 \times 10^{-6}$		
		Output Level		10mV~20V (10Hz~20kHz)	$U_{rel}=0.10\%$		
				10mV~20V (20kHz~50kHz)	$U_{rel}=0.11\%$		
				10mV~20V (50kHz~100kHz)	$U_{rel}=0.14\%$		
				10mV~20V (100kHz~200kHz)	$U_{rel}=0.36\%$		
		Total Harmonic Distortion		(0.03%~0.3%) (20Hz~20kHz)	$U_{rel}=12\%$		
		Frequency Measurement		10Hz~200kHz	$U_{rel}=6 \times 10^{-4}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		level Measurement	ilac-M	10mV~300V (10Hz~45Hz)	$U_{rel}=0.22\%$		
				10mV~300V (45Hz~10kHz)	$U_{rel}=0.10\%$		
				10mV~300V (10kHz~20kHz)	$U_{rel}=0.14\%$		
				10mV~300V (20kHz~50kHz)	$U_{rel}=0.22\%$		
				10mV~300V (50kHz~100kHz)	$U_{rel}=0.5\%$		
				10mV~300V (100kHz~200kHz)	$U_{rel}=0.9\%$		
		Distortion Measurement		0.03%~0.05% (10Hz~200kHz)	$U_{rel}=2.3\%$		
				0.05%~0.1% (10Hz~200kHz)	$U_{rel}=1.6\%$		
				0.1%~0.3% (10Hz~200kHz)	$U_{rel}=0.8\%$		
				0.3%~100% (10Hz~200kHz)	$U_{rel}=0.6\%$		
15	*Oscilloscopes Recorder	Input Impedance Voltage	Calibration standards on Oscilloscopes Recorder JJF(Min)1061	50Ω, 1MΩ	$U_{rel}=0.12\%$		
				6mV~0.3V(1MΩ)	$U_{rel}=1.0\%$		
				0.6V~120V(1MΩ)	$U_{rel}=0.37\%$		
				6mV~6V(50Ω)	$U_{rel}=1.1\%$		
		Time		2ns ~ 200ms	$U_{rel}=0.16\%$		

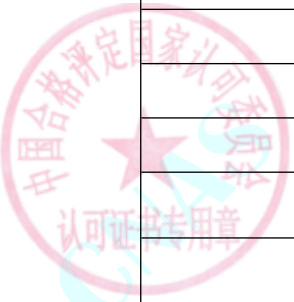


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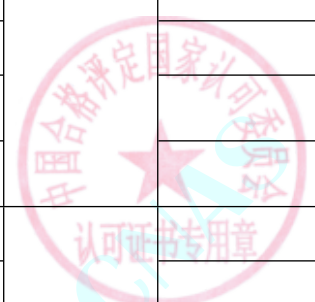
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
				400ms ~ 5s	$U_{rel}=0.5\%$			
				RiseTime	500ps ~ 50ns			$U_{rel}=4.2\%$
				Bandwidth	10MHz ~ 100MHz			$U_{rel}=3.2\%$
					100MHz ~ 300MHz			$U_{rel}=3.6\%$
					300MHz ~ 600M			$U_{rel}=5.4\%$
16	*Digital Oscilloscope	Voltage	Verification regulation for digital oscilloscope GJB 7691,C.S. of Digital Storage Oscilloscope JJF 1057	6mV~0.3V(1MΩ)	$U_{rel}=0.97\%~0.38\%$			
				0.6V~120V(1MΩ)	$U_{rel}=0.37\%$			
				6mV~6V(50Ω)	$U_{rel}=1.1\%~0.45\%$			
		Time		2ns ~ 200ms	$U_{rel}=0.16\%$			
				400ms ~ 5s	$U_{rel}=0.17\%~0.49\%$			
		RiseTime		30ps ~ 500ns	$U_{rel}=4.2\%$			
				Bandwidth	10MHz ~ 100MHz			$U_{rel}=3.2\%$
		100MHz ~ 300MHz			$U_{rel}=3.6\%$			
		300MHz ~ 600M			$U_{rel}=5.4\%$			
		600MHz ~ 2GHz			$U_{rel}=5.0\%$			
		2GHz ~ 6GHz			$U_{rel}=5.3\%$			
		Input Impedance		50Ω,1MΩ	$U_{rel}=0.12\%$			
		Calibration signal frequency		5Hz ~ 300kHz	$U_{rel}=1.2 \times 10^{-7}$			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Calibration signal amplitude		10mV~10V	$U_{rel}=0.5\%$		
17	*Analogue Oscilloscope	Voltage	V.R. of Analogue Oscilloscope JJG 262	12mV~0.3V(1MΩ)	$U_{rel}=0.56\%~0.28\%$		
				0.6V~30V(1MΩ)	$U_{rel}=0.27\%$		
		Time		20ns~500ms	$U_{rel}=0.25\%$		
		Rise Time		500ps ~ 50ns	$U_{rel}=4.2\%$		
		Bandwidth		10MHz ~ 100MHz	$U_{rel}=3.2\%$		
				100MHz ~ 300MHz	$U_{rel}=3.6\%$		
				300MHz ~ 600M	$U_{rel}=5.4\%$		
Input Impedance	50Ω, 1MΩ	$U_{rel}=0.12\%$					
18	*Television video Signal Generator	level	C.S. for Television video Signal Generator JJF 1235	Luminance :(1~1000)mV; Chroma:(1~1000)mV	$U=4.1mV$		
		Time		1ns~100ms	$U=0.06\mu s$		
		phase		(0~360)°	$U=0.6°$		
		Drive signal frequency		10Hz~10MHz	$U_{rel}=1.6\times 10^{-7}$		
		Drive signal amplitude		(0.1~10) V	$U_{rel}=2.1\%$		
19	*Impedance/Material Analyzers	DC voltage	Calibration Specification for RF Impedance/Material Analyzers JJF 1127	(0.01~40)V	$U_{rel}=0.10\%$		
		signal level		-40dBm~20dBm	$U=0.3dB$		

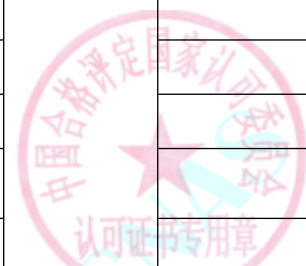


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Test signal frequency	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF APPROVED LABORATORIES	100kHz~3GHz	$U_{rel}=4 \times 10^{-7}$		
		Admittance		(1MHz~3GHz)1 μ S~13mS	$U_{rel}=2.2\%$		
		Impedance		(1MHz~3GHz)1m Ω ~22k Ω	$U_{rel}=2.2\%$		
		phase		(1MHz~3GHz)(-1.57~1.57)rad	$U=16\text{mrad}$		
20	*Standard Capacitors	Capacitors	Verification Regulation of Standard Capacitors JJG 183	1pF~10 μ F (100Hz~10kHz)	$U_{rel}=0.03\%$		
				10 μ F~10mF (1kHz)	$U_{rel}=0.05\%$		
21	*Standard Inductors	Inductors	Verification Regulation of Standard inductors JJG 726	1 μ H~10 μ H (1kHz)	$U_{rel}=0.6\%$		
				10 μ H~100 μ H (1kHz)	$U_{rel}=0.10\%$		
				100 μ H~100H (1kHz)	$U_{rel}=0.04\%$		
22	*Digital LCR meter	Resistance	Verification Regulation for wide digital RLC meter GJB/J5412, Alternating Current Bridge JJG 441	1 Ω ~10 Ω (1kHz)	$U_{rel}=0.06\%$		
				10 Ω ~100 Ω (1kHz)	$U_{rel}=0.04\%$		
				100 Ω ~100k Ω (1kHz)	$U_{rel}=0.03\%$		
				1m Ω (100Hz~1kHz)	$U_{rel}=0.8\%$		
				10m Ω (100Hz~10kHz)	$U_{rel}=0.6\%$		
				100m Ω (100Hz~1000kHz)	$U_{rel}=0.3\%$		
				1 Ω (100Hz~1kHz)	$U_{rel}=0.03\%$		
				1 Ω (1kHz~1MHz)	$U_{rel}=0.06\%$		



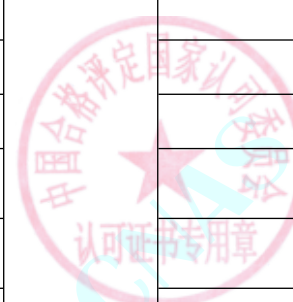
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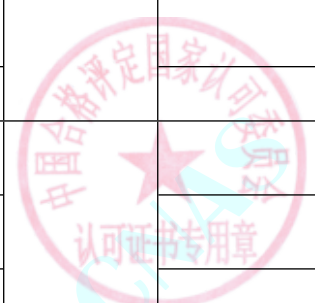
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Capacitance		10 Ω, 100 Ω, 1k Ω (100Hz~1kHz)	$U_{rel}=0.03\%$		
				10 Ω, 100 Ω, 1k Ω (1kHz~1MHz)	$U_{rel}=0.06\%$		
				10 Ω, 100 Ω, 1k Ω (1MHz~3MHz)	$U_{rel}=0.17\%$		
				10 Ω, 100 Ω, 1k Ω (3MHz~4MHz)	$U_{rel}=0.23\%$		
				10 Ω, 100 Ω, 1k Ω (4MHz~5MHz)	$U_{rel}=0.29\%$		
				10 Ω, 100 Ω, 1k Ω (5MHz~10MHz)	$U_{rel}=0.8\%$		
				10 Ω, 100 Ω, 1k Ω (10MHz~13MHz)	$U_{rel}=1.2\%$		
				10k Ω, 100k Ω (100Hz~1kHz)	$U_{rel}=0.03\%$		
				10k Ω, 100k Ω (1kHz~100kHz)	$U_{rel}=0.06\%$		
				10k Ω, 100k Ω (100kHz~1MHz)	$U_{rel}=0.12\%$		
				100pF~1 μ F (1kHz)	$U_{rel}=0.06\%$		
				1 μ F~100 μ F(1kHz)	$U_{rel}=0.07\%$		
				1pF, 10pF, 100pF, 1000pF (100Hz~1MHz)	$U_{rel}=0.12\%$		
				10nF, 100nF(100Hz~100kHz)	$U_{rel}=0.12\%$		
				1000nF(100Hz~10kHz)	$U_{rel}=0.12\%$		



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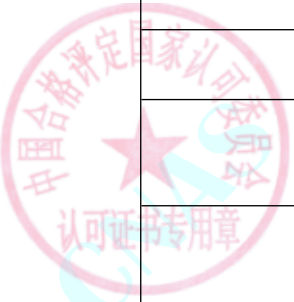
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Inductance	C. S.for AC Resistance Boxes JJF 1636	1 μ H ~ 10 μ H (1kHz)	$U_{rel}=0.6\% \sim 6\%$		
				10 μ H ~ 100 μ H (1kHz)	$U=0.09\% \sim 0.6\%$		
				100 μ H ~ 1H (1kHz)	$U_{rel}=0.07\% \sim 0.09\%$		
				1 μ H (100Hz ~ 1MHz)	$U_{rel}=1\%$		
				5 μ H, 10 μ H (100Hz ~ 5MHz)	$U_{rel}=1\%$		
				50 μ H, 100 μ H (100Hz ~ 5MHz)	$U_{rel}=0.5\%$		
				500 μ H, 1000 μ H (100Hz ~ 1MHz)	$U_{rel}=0.3\%$		
				5mH (100Hz ~ 500kHz)	$U_{rel}=0.3\%$		
		Frequency		10Hz ~ 1MHz	$U_{rel}=6 \times 10^{-6}$		
		Voltage		10mV ~ 100V (10Hz ~ 20kHz)	$U_{rel}=0.2\%$		
				10mV ~ 100V (20kHz ~ 100kHz)	$U_{rel}=0.8\%$		
				10mV ~ 100V (100kHz ~ 2MHz)	$U_{rel}=1.4\%$		
		loss		1 ~ 10 ⁻⁵	$U=0.4\%R+0.0002$		
23	*r A. C. Resistance Boxes	AC Resistance	C. S.for AC Resistance Boxes JJF 1636	(0.01 ~ 0.1) Ω (100Hz ~ 1kHz)	$U_{rel}=0.15\%$		
			(0.1 ~ 1000) Ω (60Hz ~ 10kHz)	$U_{rel}=0.08\%$			
			(1 ~ 100)k Ω (60Hz ~ 10kHz)	$U_{rel}=0.03\%$			



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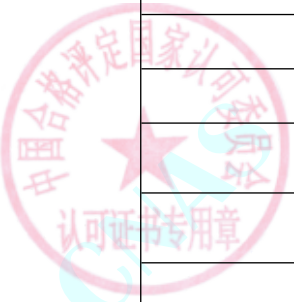
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(100~1000)kΩ (1kHz)	$U_{rel}=0.08\%$		
24	*RF Coaxial Impedance Standard	Impedance(short,load)	Verification Regulation of RF Coaxial Impedance Standard JJG(DZ) 306001	(0.01~34)Ω (1MHz~3GHz)	$U=0.5\Omega$		
		admittance(open)		50Ω (1MHz~3GHz)	$U=0.8\Omega$		
25	*Transistor Character Graphic Meter	Step Current	C.S.for Semiconductor Device Curve Tracers JJF 1236	100μA~10A	$U_{rel}=1.4\%$		
		Step Voltage		20mV~10V	$U_{rel}=1.4\%$		
		Collector Voltage		20mV~1000V	$U_{rel}=1.4\%$		
		Base Voltage		20mV~100V	$U_{rel}=1.6\%$		
		Collector Current		100μA~20A	$U_{rel}=1.5\%$		
		Calibration Voltage		20mV~100V	$U_{rel}=0.12\%$		
26	*Communication Testers	RF SignalSource Frequency	C.S. for TDMA-GSM Radio Communication Testers JJF 1131,C.S. for CDMA Digital Radio Communication Testers JJF 1177,C.S. for LTE Digital Radio Communication Testers JJF 1443,C.S. for TD-SCDMA Digital Radio Communication Testers JJF 1204,C.S. for WCDMA Digital Radio Communication Testers JJF	30MHz~3.8GHz	$U_{rel}=1.2\times 10^{-7}$		
		RF SignalSource Electrical Level		(-20~ 0)dBm(30MHz~3.8GHz)	$U=0.20\text{dB}$		
				(-20~ -110)dBm(30MHz~3.8GHz)	$U=0.38\text{dB}$		
		RF SignalSource SpectrumPurity		(-80~-25)dBc	$U=1.5\text{dB}\sim 2.1\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		RF SignalSource Phase Noise	1276,C.S. for RF Communication Test Set JJF 1065	(-110~-25) dBc/Hz Bias frequency(20~1990)kHz	$U=3\text{dB}$		
		RF AnalyzerFrequency		30MHz~3.8GHz	$U_{\text{rel}}=6 \times 10^{-8}$		
		RF AnalyzerElectrical Level		(-50dBm ~ 20dBm)(30MHz~3.8GHz)	$U=0.20\text{dB}$		
		AF SignalSource Frequency		10Hz~ 40Hz	$U_{\text{rel}}=0.035\%$		
		AF SignalSource Voltage		40Hz~20kHz	$U_{\text{rel}}=0.012\%$		
		AF SignalSource Voltage		10mV~ 100mV(40Hz~20kHz)	$U_{\text{rel}}=0.054\% \sim 0.12\%$		
		AF SignalSource Voltage		100mV~ 1V(40Hz~20kHz)	$U_{\text{rel}}=0.042\% \sim 0.11\%$		
		AF SignalSource Voltage		1V~ 5V(40Hz~20kHz)	$U_{\text{rel}}=0.042\% \sim 0.07\%$		
		AF SignalSource Distortion		(0.001~0.3)%(20Hz~20kHz)	$U_{\text{rel}}=12\%$		
		AF AnalyzerFrequency		20Hz~ 2kHz	$U_{\text{rel}}=0.015\% \sim 0.003\%$		
		AF AnalyzerFrequency		2kHz ~ 40kHz	$U_{\text{rel}}=0.003\%$		
		AF AnalyzerVoltage		20mV~33mV(10Hz~45Hz)	$U_{\text{rel}}=5\% \sim 3.2\%$		
		AF AnalyzerVoltage		20mV~33mV(45Hz~10kHz)	$U_{\text{rel}}=5\% \sim 3.2\%$		
		AF AnalyzerVoltage		20mV~33mV(10kHz~20kHz)	$U_{\text{rel}}=5\% \sim 3.2\%$		

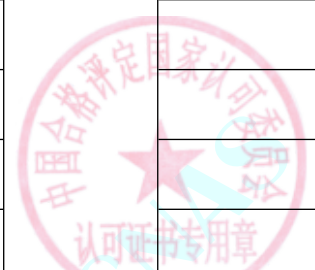


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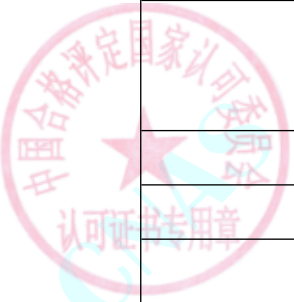
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				20mV~33mV(20kHz~40kHz)	$U_{rel}=5\% \sim 3.2\%$		
				33mV~330mV(10Hz~45Hz)	$U_{rel}=3.2\% \sim 0.44\%$		
				33mV~330mV(45Hz~10kHz)	$U_{rel}=3.2\% \sim 0.32\%$		
				33mV~330mV(10kHz~20kHz)	$U_{rel}=3.2\% \sim 0.34\%$		
				33mV~330mV(20kHz~40kHz)	$U_{rel}=3.2\% \sim 0.38\%$		
				0.33V~3.3V(10Hz~45Hz)	$U_{rel}=0.42\% \sim 0.18\%$		
				0.33V~3.3V(45Hz~10kHz)	$U_{rel}=0.32\% \sim 0.05\%$		
				0.33V~3.3V(10kHz~20kHz)	$U_{rel}=0.34\% \sim 0.10\%$		
				0.33V~3.3V(20kHz~40kHz)	$U_{rel}=0.42\% \sim 0.18\%$		
				3.3V~5V(10Hz~45Hz)	$U_{rel}=0.26\% \sim 0.23\%$		
				3.3V~5V(45Hz~10kHz)	$U_{rel}=0.08\% \sim 0.07\%$		
				3.3V~5V(10kHz~20kHz)	$U_{rel}=0.19\% \sim 0.16\%$		
				3.3V~5V(20kHz~40kHz)	$U_{rel}=0.40\% \sim 0.34\%$		
		Channel power		(-70~20)dBm	$U=0.6\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Adjacent channel power rate		(0.01~90)dBc	U=0.5dB		
		Frequency error		(-1~1)MHz	U=9Hz		
		EVM		(0.01~10)%	U=0.6%		
				(0.01~10)%(CDMA)	U=1.2%		
		Mag error		(0.01~10)%	U=0.6%		
		Phase error		(0.01~15)°	U=0.6°		
		FSK error		(0.01~10)%	U=2.0%		
		Waveform quality factor		(0.8~1.0)	U _{rel} =0.18%		
		Frequency Measurement error		(-1~1)MHz	U=9Hz		
		Channel power Measurement		(-70~10)dBm	U=0.6dB		
		Adjacent channel power rate Measurement		(0.01~90)dBc	U=0.5dB		
		EVM Measurement		(0.01~10)%	U=0.6%		
				(0.01~10)%(CDMA)	U=1.2%		
		Phase error Measurement		(0.01~15)°	U=0.6°		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Mag error Measurement		(0.01~10)%	$U=0.6\%$		
27	*Telephone analyzer	Feed voltage	C.S. for Telephone analyzer JJF(DZ) 30702	(10~100)V	$U_{rel}=0.08\%$		
		Feed current		(10~150)mA	$U_{rel}=0.2\%$		
		level		(-50~0)dBm	$U=0.2\text{dB}$		
		signal frequency		1Hz~20kHz	$U_{rel}=0.05\%$		
28	*Bluetooth Test Set	Output Frequency	Calibration Specification for Bluetooth Test Set JJF 1278	2.402GHz~2.480GHz	$U_{rel}=1.2 \times 10^{-7}$		
		Output Level		(0~ - 20)dBm(2.402GHz~2.480GHz)	$U=0.20\text{dB}$		
				(-20~ - 90)dBm(2.402GHz~2.480GHz)	$U=0.38\text{dB}$		
		Harmonic		(-80~- 30)dBc(2.402GHz~2.480GHz)	$U=1.8\text{dB}$		
		Phase Noise		(-110~- 30)dBc/Hz(2.402GHz~2.480GHz)	$U=1.1\text{dB}$		
		Frequency Measurement level		(2402~2480) MHz	$U_{rel}=6 \times 10^{-8}$		
		Measurement		(-70~13) dBm(2.402GHz~2.480GHz)	$U=0.20\text{dB}$		
		Mag error		(0.01~10)%	$U=1.2\%$		

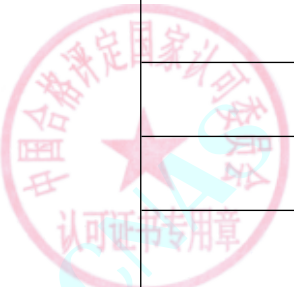


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Modulation level		(-50~-10) dBm	U=0.25dB		
		EVM		(0.01~10)%	U=1.2%		
		Frequency error Measurement		(-1~1)MHz	U=10Hz		
		Modulation level Measurement		(-50~-10) dBm	U=0.4dB		
		EVM Measurement		(0.01~10)%	U=1.2%		
		Frequency error Measurement		(-1~1)MHz	U=10Hz		
29	*WLAN Test Set	Output Frequency	Calibration Specification for WLAN Test Set JJF 1277	2.412GHz~5.945GHz	$U_{rel}=1.2 \times 10^{-7}$		
Output Level		(0~ -20)dBm(2.412GHz~5.945GHz)	U=0.20dB				
		(-20~ -90)dBm(2.412GHz~5.945GHz)	U=0.38dB				
Harmonic		(-80~-25)dBc (2412~2484) MHz	U=1.8dB				
		(-80~-25)dBc (4900~5945) MHz	U=2.4dB				
Phase Noise		(-110~-30)dBc/Hz(2.412GHz~5.945GHz)	U=1.1dB				

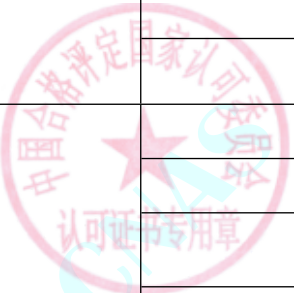


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date					
		level Measurement	ilac-MRA	(-50~13) dBm(2.412GHz~5.945GHz)	U=0.20dB							
		Modulation level		(-50~-10) dBm(2.412GHz~5.945GHz)	U=0.25dB							
		EVM		(0.01~10)%	U=1.2%							
		Mag error		(0.01~10)%	U=1.2%							
		Frequency error Measurement		(-1~1)MHz	U=10Hz							
		Phase error		(0.01~15)°	U=0.6°							
		Modulation level Measurement		(-50~-10) dBm	U=0.25dB							
		EVM Measurement		(0.01~10)%	U=1.2%							
		Frequency error Measurement		(-1~1)MHz	U=10Hz							
		Phase error Measurement		(0.01~15)°	U=0.6°							
		30		*Antenna Analyzers	Frequency			C. S. of Cable and Antenna Analyzers JJF 1740	25Hz~6GHz	$U_{rel}=4.3 \times 10^{-7}$		
					VSWR				1.01~2.0	$U_{rel}=6.2\%$		
Terminal load reflection loss	(0~50) dB(10MHz~6GHz)		U=0.22dB									
Power	(-50~20)dBm10MHz~6GHz		U=0.20dB									



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
31	*Range calibrator of power meter	DC Voltage	Verification regulation for range calibrator of power meter GJB 8819	0.01V~5V	$U_{rel}=4 \times 10^{-5}$		
				5V~20V	$U_{rel}=2 \times 10^{-5}$		
		Resistance		30 Ω ~ 100 Ω	$U_{rel}=4 \times 10^{-5}$		
				100 Ω ~ 10k Ω	$U_{rel}=2 \times 10^{-5}$		
32	*Road vehicles-Electrical Transient Conduction Disturbance Simulator	Peak pulse voltage	Calibration specification for Road vehicles-Electrical Transient Conduction Disturbance Simulator JJF(DZ) 0019	1V~4kV	$U_{rel}=3\%$		
		Pulse voltage rise and fall time		1ns~1s	$U_{rel}=5\%$		
		Pulse duration		10ns~10s	$U_{rel}=1.2\%$		
		Test voltage		1V~100V	$U_{rel}=0.1\%$		
33	*TS-109 Semi-automatic Sorting Instrument for Electrolytic Capacitors	Capacitance	Verification regulation of TS-109 semi-automatic sorting instrument for electrolytic capacitors JJG(DZ) 05009	(0.1~1000) μ F,(100Hz)	$U_{rel}=0.2\%$		
				(0.1~100) μ F,(1kHz)	$U_{rel}=0.2\%$		
				(0.1~1) μ F,(10kHz)	$U_{rel}=0.3\%$		
		Voltage		0.1V~100V	$U_{rel}=0.4\%$		
				100V~500V	$U_{rel}=0.3\%$		
				Current	1 μ A~10mA	$U_{rel}=0.3\%$	
Loss factor	0.0001~1,(100Hz~10kHz)	$U=0.002$					
34	*Oscilloscope Calibrator	DC calibration voltage	Verification regulation of oscilloscope calibrator JJG 278	1mV~1V	$U=8.6 \times 10^{-5} V_x + 0.0003mV$		
				1V~10V	$U=8.6 \times 10^{-5} V_x + 0.0005mV$		
				10V~100V	$U=8.6 \times 10^{-5} V_x + 0.003mV$		



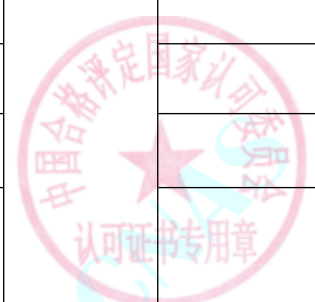
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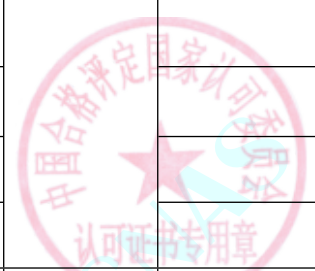
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
		Square wave calibration voltage		100V~200V	$U=8.6 \times 10^{-5} V_x + 0.01 \text{mV}$			
					1mV~100mV	$U=8 \times 10^{-5} V_x + 0.002 \text{mV}$		
					0.1V~10V	$U=8 \times 10^{-5} V_x + 0.02 \text{mV}$		
					10V~100V	$U=0.024\% V_x + 0.2 \text{mV}$		
				100V~200V	$U=0.046\% V_x + 2 \text{mV}$			
		Fast edge rise/fall time		150ps~1ms	$U_{\text{rel}}=2.5\%$			
		Waveform distortion overshoot		0.01%~20%	$U_{\text{rel}}=1.8\%$			
		Fast-edge pulse duty cycle		1%~99%	$U_{\text{rel}}=0.1\%$			
		Hour markers		500ps~10s	$U_{\text{rel}}=5.0 \times 10^{-8}$			
		Stabilize the amplitude of the signal		(-60~20)dBm, (9kHz~3.05GHz)	$U=0.17 \text{dB}$			
					(-60~20)dBm, (3.05~6.6)GHz	$U=0.15 \text{dB}$		
					(-60~20)dBm, (6.6~13.2)GHz	$U=0.19 \text{dB}$		
					(-60~20)dBm, dBm, (13.2~18)GHz	$U=0.23 \text{dB}$		
		Amplitude stabilization signal frequency		10Hz~18GHz	$U_{\text{rel}}=5.0 \times 10^{-8}$			



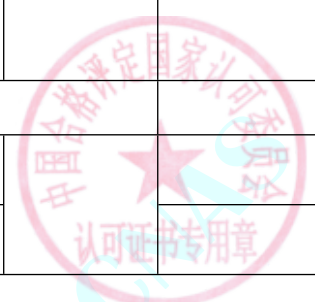
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Amplitude stabilization signal harmonics	ilac-M	1dB~140dB,(9kHz~3GHz)	$U=0.65\text{dB}$		
		Waveform generator amplitude		1dB~140dB,(3GHz~6GHz)	$U=1.2\text{dB}$		
		Pulse period		10mV~1000mV, (10Hz~20kHz)	$U_{\text{rel}}=0.035\%$		
				1V~50V, (10Hz~20kHz)	$U_{\text{rel}}=0.024\%$		
		Pulse width		4ns~100ms	$U_{\text{rel}}=5 \times 10^{-8}$		
		Resistance measurement		2ns~50ms	$U_{\text{rel}}=0.1\%$		
				10Ω~100Ω	$U_{\text{rel}}=0.12\%$		
				100Ω~1MΩ	$U_{\text{rel}}=0.024\%$		
		1MΩ~15MΩ	$U_{\text{rel}}=0.24\%$				
35	*Dynamical Signal Analyzer	Frequency	V.R.of Dynamical Signal Analyzer JJG 834	10Hz~200kHz	$U_{\text{rel}}=1.1 \times 10^{-6}$		
Amplitude	10mV~10V, (10Hz~20kHz)	$U_{\text{rel}}=0.10\%$					
Dynamic range	10mV~10V, (20~50)kHz	$U_{\text{rel}}=0.16\%$					
	10mV~10V, (50~200)kHz	$U_{\text{rel}}=0.3\%$					
	(0~120)dB	$U=0.20\text{dB}$					
Channel conformance	(-1~1)dB	$U=0.02\text{dB}$					
36	*Components of Lightning Testers	DC Voltage	C. S. for Components of Lightning Testers JJF(Gui) 18	(0.1~2)kV	$U_{\text{rel}}=0.12\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-MRA	(1~2)kV	$U_{rel}=0.5\%$		
		DC Current		(0.1~2000) μ A	$U_{rel}=0.3\%$		
		Rate Of Voltage Rise		100V/s~1000V/s	$U_{rel}=3\%$		
37	*VDR DC Parameter Testers	DC Voltage	C. S. for VDR DC Parameter Testers JJF(Zhe)1088	(0.1~2)kV	$U_{rel}=0.12\%$		
				(1~2)kV	$U_{rel}=0.5\%$		
		DC Current		(0.1~2000) μ A	$U_{rel}=0.3\%$		
		Rate Of Voltage Rise		100V/s~1000V/s	$U_{rel}=3\%$		
38	*Transformer Winding Deformation Testers	Attenuation of amplitude	Calibration Specification for Transformer Winding Deformation Testers JJF(Zhe) 1138	(-80~0) dB	$U=0.3dB$		
		Sweep frequency		10Hz~1MHz	$U_{rel}=0.002\%$		
39	*High Voltage Dielectric Loss Tester	Electric capacity	Verification Regulation of High Voltage Dielectric Loss Tester JJG 1126	100pF(50Hz)	$U_{rel}=0.3\%$		
		Dielectric Loss Factor		(0.0002~0.1)	$U=0.3\%Dx+0.0002$		
40	Electric spark leak detectors	Pulse voltage	Calibration Specification for electric spark leak detectors JJF(Lu) 101	(0.5~20) kV	$U_{rel}=3.0\%$		
Time and Frequency							
1	*Microwave Frequency Counters	Frequency Measurement and input sensitivity	Verification Regulation of Microwave Frequency Counters JJG 841	10mV~300mV(0.1Hz~1MHz)	$U=1.8mV$		
					(-33~-20)dBm(1MHz~18GHz)	$U=1dB$	



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency Measurement error		1Hz~18GHz	$U_{rel}=1.5 \times 10^{-8}$		
		Crystal oscillator		10MHz	$U_{rel}=3 \times 10^{-8}$		
2	*Universal Counters	Frequency Measurement and input sensitivity	Calibration Specification for Universal Counters JJF 2196	10mV~300mV(0.1Hz~1MHz)	$U=1.8mV$		
		Frequency Measurement error		(-33~-20)dBm(1MHz~18GHz)	$U=1dB$		
		Period Measurement and input sensitivity		1Hz~18GHz	$U_{rel}=1.5 \times 10^{-8}$		
		Frequency Measurement error		(-33~-20)dBm(1ps~1μs)	$U=1dB$		
		Crystal oscillator		10mV~300mV(1μs~1s)	$U=1.8mV$		
		Frequency Measurement error		1μs	$U_{rel}=1.5 \times 10^{-8}$		
		Crystal oscillator		10MHz	$U_{rel}=3 \times 10^{-8}$		
3	*Frequency Meters	Frequency	Verification Regulation of Frequency Meters JJG 603	10Hz~10kHz	$U_{rel}=0.03\%$		
4	*Stopwatches	time interval	C.S.for Stopwatches JJF 2195	electronic stopwatch: (1~3600)s	$U=15ms$		
				Electronic stopwatch daily deviation: (-10~10)s/d	$U=0.05s$		
				Mechanical stopwatch: (1~3600)s	$U=0.11s$		



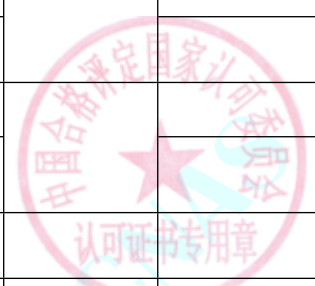
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Electric stopwatch: (1~3600)s	U=5ms		
5	*Time Delay Relays	time error	Calibration Specification for Time Delay Relays JJF 1282	0.01s~10.00s	U=7ms	Only Calibrate electronic time relays	
				10.00s~60.00s	U=8ms		
				0.1s~60.0s	U=0.06s		
				1s~2h	U=0.6s		
6	*Time interval meters	Time interval	Verification Regulation of Time Interval Meters JJG 238	50ns~1000s	$U=2 \times 10^{-7} T_X + 15\text{ns}$		
		frequency		5MHz,10MHz	$U_{\text{rel}}=1 \times 10^{-9}$		
Optics measuring instrument							
1	Optical Power Meter in Telecommunication	Optical Power	V.R.of Optical Power Meter in Telecommunication JJG965	(-50~0)dBm (850nm, 1310nm, 1550nm)	U=0.18dB		
2	Stabilized Laser Sources for Optical Transmit	Output Power	V.R.of Stabilized Laser Sources for Optical Transmit JJG958	(-50~0)dBm	U=0.18dB		
		Light Wavelength		(1270~1580)nm	U=0.06nm		
		Spectral bandwidth		(0.2~10) nm	U=0.06nm		
3	Optical Attenuator for Telecommunications	Insertion Loss	C.S. of Optical Attenuator for Telecommunications JJF1199	(0.01~3)dB	U=0.18dB		
		Attenuation Indication		(0.01~50)dB (850nm, 1310nm, 1550nm)	U=0.18dB		
4	Illuminance Meter	Illumination	V.R.of Illuminance Meter JJG 245	(50~3000) lx	$U_{\text{rel}}=1.5\%$		
5	Color Temperature Meter	Color temperature	C.S. for Colour Temperature Meters JJF 2100	(2300~3200)K	U=16K~26K		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(3200~9000)K	$U=52K \sim 1.7 \times 10^2 K$		
		chroma		Full color gamut	$U=0.005$		
		Rendering Index		0~100	$U=0.4$		
6	*Clarity Test Equipment	Illumination	C.S. for Clarity Test Equipment JJF 1287	(100~3000) lx	$U_{rel}=8\%$		
		Time		(0~30) s	$U=0.2s$		
7	Luminance Meter	luminance	V.R. of Luminance Meter JJG 211	(50~1000)cd/m ²	$U_{rel}=2.2\%$	Do not make shading cylinder type	
		chroma		Panchromatic Gamut	$U=0.005$		
8	*Whiteness Meter	Whiteness	V.R. of the Whiteness Meters JJG 512	50~100	$U(R_{457})=1.8$		
9	*Colorimeters and Color Difference Meters	Chroma	V.R. of Colorimeters and Color Difference Meters JJG 595	Y:0~100	$U(Y)=2.2$		
				Panchromatic Gamut	$U=0.0060$		
10	*Water Colorimeters	chroma	C. S. for Water Colorimeters JJF 1689	Digital Instrument: (1~70) PCU	$U=1$ PCU		
				Visual Instrument: (1~70) PCU	$U=6$ PCU		
11	Ultraviolet Radiometers	UV Irradiance	V.R. of Ultraviolet Radiometers JJG 879	(0.1~100) mW/cm ²	$U_{rel}=20\%$		
12	*Abbe Refractometer	Refraction Ratio	V.R. of Abbe Refractometer JJG 625	$n_D: 1.47000 \sim 1.67000$	$U(n_D)=6 \times 10^{-5}$		
		Average dispersion		$n_F-n_C: 0.0070 \sim 0.0210$	$U(n_F-n_C)=1.5 \times 10^{-4}$		
13	*Reflection Densitometers	optical density	C.S. for Reflection Densitometers JJF 1492	$0.00 < D \leq 1.00$	$U=0.03$		
				$1.00 < D \leq 2.00$	$U=0.04$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
14	*Diffuse Transmission Visual Densitometers	Transmission density	V.R. of Diffuse Transmission Visual Densitometers JJG 920	0.0 < D ≤ 2.0	U=0.020		
				2.0 < D ≤ 4.0	U=0.024		
				4.0 < D ≤ 5.0	U=0.032		
15	*Specular Gloss Meters	Specular Gloss	V.R. of Specular Gloss Meters and Gloss Plates JJG 696	(0.0 ~ 120.0)GU	U=1.4GU		
16	*Reflectometers	reflectivity	C.S. for Reflectometers JJF 1232	(50 ~ 100)%	U=2.3%		
17	*Hazemeter	Haze	C.S. for Hazemeters JJF 1303	0.1 ~ 35.0	U=0.30		
		Transmission		(10 ~ 100)%	U=0.8%		
18	*Standard Light Sources Boxes	Illumination	C.S.(FZ) for Standard Light Source Boxes JJF(FZ) 055	(200 ~ 3000)lx	U _{rel} =6%		
		Color temperature		(2300 ~ 7500)K	U=37K ~ 1.4 × 10 ² K		
19	*UV Analyzers	Irradiance	C.S. for UV Analyzers JJF 1936	(10 ~ 1000) μ W/cm ²	U _{rel} =22%		
		wavelength		(254 ~ 365)nm	U=0.7nm		
20	*Electrical Light Source Spectrum Test System	wavelength	C.S. for Electrical Light Source Spectrum Test System JJF(Su) 153	(250 ~ 580)nm	U=0.13nm		
		Luminous flux		(1 ~ 2000)lm	U _{rel} =2%		
		chromaticity coordinates		Panchromatic Gamut	U=0.005		
		Correlated color temperature		(2000 ~ 3400)K	U=26K		
21	Cathode Ray Tubes (CRT) Color Analyzers	Brightness	C.S. for Cathode Ray Tubes (CRT) Color Analyzers JJF 1079	(20 ~ 400)cd/m ²	U _{rel} =2.6%		



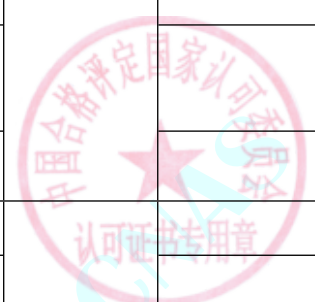
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Chroma		Panchromatic Gamut	$U=0.004$		
22	Retroreflectometers	Retroreflective luminance coefficient	Calibration Specification for Retroreflectometers JJF1809	$(0.1 \sim 1999) \text{mcd} \cdot \text{m}^{-2} \cdot \text{lx}^{-1}$	$U_{\text{rel}}=15\%$		
CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT							
Chemistry measuring instrument							
1	*Extrusion Plastometer	Temperature	V.R. of Extrusion Plastometer JIG 878	$(125 \sim 400)^\circ\text{C}$	$U=0.2^\circ\text{C}$		
		Rate		Melt Flow Rate: $(0.1 \sim 25)\text{g}/10\text{min}$	$U_{\text{rel}}=5.0\%$		
		Length		$(1 \sim 3) \text{mm}$	$U=0.001 \text{mm}$		
		Mass		$(0 \sim 200) \text{g}$	$U=0.002 \text{g}$		
				$(0.2 \sim 20)\text{kg}$	$U=3 \text{g}$		
		Time		$(0 \sim 10) \text{min}$	$U=0.2 \text{s}$		
2	*Differential Scanning Calorimeters	Heating rate	V.R. of the Differential Scanning Calorimeters JIG 936	$(1 \sim 20)^\circ\text{C}/\text{min}$	$U_{\text{rel}}=6\%$		
		Temperature		Melting temperature: $(100 \sim 500)^\circ\text{C}$	$U=(0.3 \sim 1.0)^\circ\text{C}$		
				Phase transition temperature: $(100 \sim 600)^\circ\text{C}$	$U=(0.8 \sim 1.5)^\circ\text{C}$		
		Heat		Melting heat: $(20 \sim 110)\text{J}/\text{g}$	$U=(0.4 \sim 1.5) \text{J}/\text{g}$		
3	*Open/Closed Cup Flash Point Testers	Temperature	Calibration Specification for Open/Closed Cup Flash Point Testers JJF1385	Open Cup: $(80 \sim 200)^\circ\text{C}$	$U=8^\circ\text{C}$		
				Open Cup: $(200 \sim 300)^\circ\text{C}$	$U=(8.2 \sim 11)^\circ\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Closed Cup: (40~110) °C	U=6.4 °C		
				Closed Cup: (110~300) °C	U=6.8 °C		
4	*Thermogravimetric Analyzers	Temperature	V.R. of Thermogravimetric Analyzers JJG 1135	Curie point:(20~800) °C	U=(1.0~2.0) °C		
		Mass		(1~20) mg	U=(7~12) μg		
5	*Melting-point Measurement Instruments	Temperature	V.R. of Melting-point Measurement Instruments JJG 701	Capillary method:(50~300)°C	0.2 °C/min: U=0.3 °C		
				Hot stage:(50~300) °C	1.0 °C/min:U=0.4 °C		
		Heating rate		(0.2~2.0) °C/min	U _{rel} =6 %		
6	*Thermogravimetric Moisture Meters	Content	Verification Regulation of Thermogravimetric Moisture Meters JJG 658	Water content:5 %~95 %	U _{rel} =0.06 %		
		Mass		1 mg~1100 g	U= (0.06~21) mg		
7	*pH Meters	Voltage	Verification Regulation of pH Meters JJG 919	(10~1000) mV	U _{rel} =3×10 ⁻³		
		Resistance		(1~3) G Ω	U _{rel} =1.3 %		
		pH		0~14	U=0.0002		
8	*Verficing Meter for Chromatograph	DC Voltage	Verification Regulation of Verficing Meter for Chromatograph JJG 937	(0.01~10) V	U _{rel} =0.02 %		
		Resistence		(1~1000) Ω	U _{rel} =0.03 %		
		DC Current		(0.1~10) mA	U _{rel} =0.3 %		
9	*Ultraviolet, visible and near-infrared	Wavelength	V.R. of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG 178	(240~900) nm	U=0.5 nm		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	spectrophotometer	Wavelength		(1000~2000) nm	U=0.8 nm		
		Transmission		(0~35) %	U=0.5 %		
10	*Dispersive Infrared Spectrophotometer	Wave numbe	V.R. of Dispersive Infrared Spectrophotometers JJG 681	(3100~800)cm ⁻¹	U=0.4cm ⁻¹		
11	*Carbon - Sulfur Analyzer	Wavelength	V.R. of Atomic Absorption Spectrophotometers JJG 694	(200~900) nm	U=0.1 nm		
		Concentration		Flame method (Cu) detection limit: ≤0.02 μ g/mL	U=0.006 μ g/mL		
				Graphite furnace method (Cd) detection limit: ≤4pg	U=0.3 pg		
12	*luorescence Spectrophotometer	Concentration	V.R. of Fluorescence Spectrophotometer JJG 537	Detection Limit: ≤1 × 10 ⁻⁸ g/mL	U _{rel} =2.7 %		
13	*Emission Spectrometer	Wavelength	V.R. of Emission Spectrometer JJG 768	ICP spectrometer:(190~1100) nm	U=0.01 nm		
		Concentration		Detection limit of ICP spectrometer(Zn): ≤0.01 mg/L	U _{rel} =7 %		
				Detection limit of ICP spectrometer(Ni): ≤0.03 mg/L	U _{rel} =7 %		
				Detection limit of ICP spectrometer(Mn、 Ba): ≤0.005 mg/L	U _{rel} =7 %		



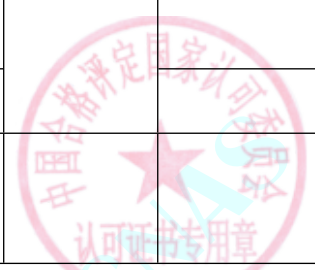
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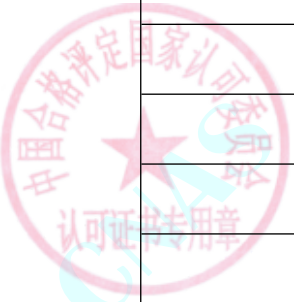
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Content		Detection limit of ICP spectrometer(Cr、Cu): ≤ 0.02 mg/L	$U_{rel}=7\%$		
				Detection limit of direct reading spectrometer(C、Mn): $\leq 0.02\%$	$U_{rel}=7\%$		
				Detection limit of direct reading spectrometer(Si、Ni): $\leq 0.02\%$	$U_{rel}=8\%$		
				Detection limit of direct reading spectrometer(Cr、V): $\leq 0.01\%$	$U_{rel}=8\%$		
14	*Flame photometer	Concentration	V.R. of Flame Photometer JIG 630	Detection limit(K): ≤ 0.004 mmol/L Detection limit(Na): ≤ 0.008 mmol/L	$U=0.0005$ mmol/L $U=0.0024$ mmol/L		
15	*Polarimeter	Polarimete	V.R.of Polarimeter and Saccharimeter JIG 536	$(-45\sim 45)^{\circ}$	$U=0.003^{\circ}$		
16	*Hand Saccharimeter(Content-meter) and Hand Refractometer	Saccharimeter(Content-meter)	V.R. of Hand Saccharimeter(Content-meter) and Hand Refractometer JIG 820	5%~60%	$U=0.07\%$		
		Refractivity		1.3330~1.5200	$U=0.0002$		
17	*energy dispersive X ray fluorescence spectrometer	Energy	Calibration Specification for Energy Dispersive X-Ray Fluorescence Spectrometers JJF 2024	Resolution ≤ 280 eV	$U=13$ eV		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Content		In Polymer: Pb (60~1200) mg/kg、Hg (8~1200) mg/kg、Cr (40~1200) mg/kg、Br (1400~1500) mg/kg、 Cd (5~150) mg/kg	$U_{rel}=10\%$		
				Cl in Polymer: (350~400) mg/kg	$U_{rel}=19\%$		
				Pb、 Cd in Metal: (0.002%~0.110%)	$U_{rel}=11\%$		
				Cr、 Ni in metal: (7%~27%)	$U_{rel}=0.6\%~1.0\%$		
18	*Gas Chromatograph	Flow rate	V.R. of Gas Chromatograph JJG 700	Carrier gas flow rate:(20~150) mL/min	$U_{rel}=5.2\%$		
		Detection limit		TCD Sensitivity: ≥ 800 mV•mL/mg	$U_{rel}=9\%$		
				FID Detection Limit: ≤ 0.5 ng/s	$U_{rel}=9\%$		
				FPD Detection Limit(S): ≤ 0.5 ng/s	$U_{rel}=9\%$		
				FPD Detection Limit(P): ≤ 0.1 ng/s	$U_{rel}=9\%$		
				ECD Detection Limit: ≤ 5 pg/mL	$U_{rel}=9\%$		
				NPD Detection Limit(N): ≤ 5 pg/s	$U_{rel}=9\%$		
				NPD Detection Limit(N):(P) ≤ 10 pg/s	$U_{rel}=9\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
19	*Liquid Chromatograph	Flow	V.R. of Liquid Chromatograph JJG 705	(0.2~10) mL/min	$U_{rel}=0.3\%$		
		Detection limit		UV-VisD and DAD	$U_{rel}=9\%$		
				Detection limit: $\leq 5 \times 10^{-8}$ g/ml			
				FLD Detection limit: $\leq 5 \times 10^{-8}$ g/ml	$U_{rel}=9\%$		
				RID Detection limit: $\leq 5 \times 10^{-6}$ g/m	$U_{rel}=10\%$		
ELSD Detection limit: $\leq 5 \times 10^{-6}$ g/ml	$U_{rel}=11\%$						
20	*Ion Chromatographs	Detection limit	V.R. of Ion Chromatographs JJG 823	Detection limit of conductivity detector: $\leq 0.02 \mu\text{g/mL}$	$U_{rel}=6\%$		
				Detection limit of UV-visible light detector: $\leq 0.02 \mu\text{g/mL}$	$U_{rel}=6\%$		
				Detection limit of electrochemical detector: $\leq 0.02 \mu\text{g/mL}$	$U_{rel}=6\%$		
21	*Capillary electrophoresis apparatus	Wavelength	V. R. of Capillary electrophoresis apparatus JJG 964	(190~360) nm	$U=1\text{ nm}$		
		Detection limit		$\leq 1 \mu\text{g/mL}$	$U_{rel}=15\%$		
22	*Liquid Chromatograph-Atomic Fluorescence	Flow	V. R. of Liquid Chromatograph-Atomic Fluorescence JJG 1151	(0.1~10) mL/min	$U_{rel}=0.3\%$		
		Detection limit		Detection limit (As(V)) : $<1.0\text{ ng}$	$U_{rel}=10\%$		
				Detection limit (MMA) : $<0.7\text{ ng}$	$U_{rel}=10\%$		



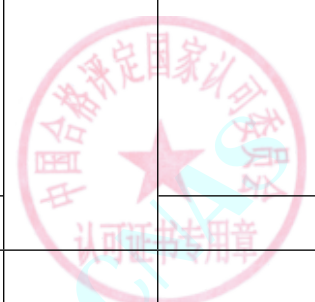
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Detection limit (DMA) : <0.7 ng	$U_{rel}=10\%$		
23	*Chromatography-Mass Spectrometer	Mass Concentration	C.S. for Gas Chromatography-Mass Spectrometers JJF 1164	(50~350) u	$U_{rel}=2\%$		
				Electron impact source (EI+) ion trap、 single quadrupole、 triple quadrupole S/N: $\geq 10:1$	$U_{rel}=15\%$		
				Electron bombardment source (EI+) flight time、 electrostatic field orbitrap (octafluoronaphthalene) S/N: $\geq 50:1$	$U_{rel}=15\%$		
				Positive chemical ionization source (CI+) ion trap、 single quadrupole、 triple quadrupole (benzophenone) S/N: $\geq 10:1$	$U_{rel}=15\%$		
		Negative chemical ionization source (CI-) ion trap、 single quadrupole (octafluoronaphthalene) S/N: $\geq 10:1$		$U_{rel}=15\%$			
		Temperature		(50~300)°C	$U_{rel}=0.2\%$		
24	*liquid chromatography-mass	Signal to Noise Ratio	C.S. for liquid chromatography-mass spectrometers JJF 1317	hree pole quadrupole (ESI+、 APCI+) S/N: $\geq 30:1$	$U_{rel}=11\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	spectrometers	Mass	V.R. of Instrument for measuring oil concentration in water JIG 950	Three pole quadrupole (ESI-) S/N: $\geq 10:1$	$U_{rel}=15\%$		
				Single quadrupole (ESI+, APCI+, ESI-) S/N: $\geq 10:1$	$U_{rel}=15\%$		
				(1~600) u	$U_{rel}=2\%$		
				(600~1000) u	$U_{rel}=3\%$		
				(1000~2500) u	$U_{rel}=5\%$		
	Time	Abundance Ratio	V.R. of Instrument for measuring oil concentration in water JIG 950	Retention time: (0.1~30) min	$U_{rel}=3\%$		
				Abundance ratio: (40~150) %	$U_{rel}=10\%$		
25	*Analyzers for oil content in water	Concentration	V.R. of Instrument for measuring oil concentration in water JIG 950	(0.1~1000) mg/L	$U_{rel}=4\%$		
26	*Turbidity Meter	Turbidity	V.R. of Turbidimeters JIG 880	(0.1~400) NTU	$U_{rel}=4\%$		
27	*On-line Dissolved Oxygen Meter with Covered-Membrane-Electrode	Concentration	V.R. of On-line Dissolved Oxygen Meter with Covered-Membrane-Electrode JIG(Zhe) 111	(6~15) mg/L	$U=0.12$ mg/L		
		Time		(0~90) s	$U=0.08$ s		
28	Dissolved Oxygen Meter	Concentration	V.R. of Dissolved Oxygen Meter JIG 291	(6~15) mg/L	$U=0.12$ mg/L		
		Time		(0~60) s	$U=0.08$ s		
		Temperature		(0~50) °C	$U=0.2$ °C		



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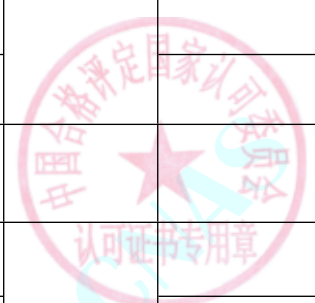
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	*On-line Automatic Determinator of Chemical Oxygen Demand(COD)	Concentration	V.R. of On-line Automatic Determinator of Chemical Oxygen Demand(COD) JJG 1012	(10~1000) mg/L	$U_{rel}=2.5\%$		
30	*Chemical Oxygen Demand(COD)Meters	Temperature	V.R. of Chemical Oxygen Demand(COD) Meters JJG 975	(0~200) °C	$U=0.6\text{ }^{\circ}\text{C}$		
		Time		(1~120) min	$U_{rel}=0.2\%$		
		Concentration		(10~2000) mg/L	$U_{rel}=2.1\%$		
31	*On-lineTotal Organic Carbon Analyzer	Concentration	V.R. of ON-LINE Automatic Analyzer of Total Organic Carbon JJG(Zhe) 132	(0.01~20000) mg/L	$U_{rel}=2.2\%$		
32	*Total Organic Carbon Analyzer	Concentration	V.R. of Total Organic Carbon Analyzer JJG 821	Inorganic carbon:(0.001~1000) mg/L	$U_{rel}=2.2\%$		
				Organic carbon:(0.001~1000)mg/L	$U_{rel}=2.2\%$		
33	*Ammonia-nitrogen automatic analyzers	Concentration	V. R. of Ammonia nitrogen automatic monitor JJG 631	(0.1~100) mg/L	$U_{rel}=3\%$		
		Time		(1~360) s	$U=2.0\text{ s}$		
		Voltage		(0.1~500) MΩ	$U_{rel}=16\%$		
34	*Water quality on-line analyzers of total phosphorus and total nitrogen	Concentration	V. R. of On-line water quality analyzer for total phosphorus and total nitrogen JJG 1094	Total phosphorus:(0.1~100) mg/L	$U=0.01\text{ mg/L}$		
				Total phosphorus:(0.5~100) mg/L	$U_{rel}=3\%$		
				Total nitrogen:(0.1~2) mg/L	$U=0.06\text{ mg/L}$		



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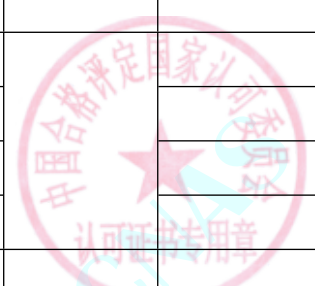
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Total nitrogen:(2~100) mg/L	$U_{rel}=3\%$		
35	*Water Quality On-line Analyzers of Heavy Metals	Concentration	C. S. for On line analyzer for heavy metal water quality JJF 1565	Pb:(0.001~1000) mg/L	$U_{rel}=2.8\%$		
				Cd:(0.0001~1000) mg/L	$U_{rel}=2.8\%$		
				Hg:(0.0001~1000) mg/L	$U_{rel}=2.8\%$		
				As:(0.001~1000) mg/L	$U_{rel}=2.8\%$		
				Cr:(0.01~1000) mg/L	$U_{rel}=2.8\%$		
				Cr ⁶⁺ :(0.001~1000) mg/L	$U_{rel}=2.8\%$		
				Cu:(0.01~1000) mg/L	$U_{rel}=2.8\%$		
				Zn:(0.01~1000) mg/L	$U_{rel}=2.8\%$		
				Ni:(0.001~1000) mg/L	$U_{rel}=2.8\%$		
				Fe:(0.01~1000) mg/L	$U_{rel}=2.8\%$		
				Mn:(0.01~1000) mg/L	$U_{rel}=2.8\%$		
36	*Residual Chlorine Meters	Concentration	C.S. for Residual Chlorine Meters JJF 1609	Free residual chlorine: (0.1~50) mg/L	$U_{rel}=1.6\%$		
				Total residual chlorine: (0.1~500) mg/L	$U_{rel}=0.9\%$		
37	Wood moisture content measuring instrument	Content	V.R. of moisture content measuring instrument JJG 986	Content of water: 6%~28%	$U=0.3\%$		
38	*Instrument for KF Coulometry Titration	Content	V.R. of Carle Fischer Coulomb method micro moisture meter JJG 1044	Moisture content: (10~5000) μg	$U_{rel}=(1.6\sim0.8)\%$		
		Time		Electrolytic rate:(1~180) s	$U=4\text{ s}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Zero balance:(1~120) s	$U=4$ s		
39	*Karl Fischer Volumetric Titrators for Water Content	Content	Karl V.R. of Fischer Volumetric Titrators for Water Content JJG 1154	Moisture content:0.1 %~5.0 %	$U_{rel}=1.6$ %		
40	*Liquid-borne Particle Counters	Count	V.R for Liquid-borne Particle Counters JJG 1061	(1~3000) Counter/mL	$U_{rel}=5$ %	Only test particles in water	
		Particle size		(1~50) μ m	$U_{rel}=5$ %		
41	*Static Light Scattering Particle Size Analyzers	Particle size	C.S. for Static Light Scattering Particle Size Analyzers JJF 1211	(1~5) μ m	$U_{rel}=5$ %		
				(5~20) μ m	$U_{rel}=5$ %		
				(20~100) μ m	$U_{rel}=4$ %		
				(100~200) μ m	$U_{rel}=3$ %		
42	Flow Cups Viscosimeter	Time	V.R.of Flow Cups Viscosimeter JJG 743	Time of outflow:(15~150) s	$U_{rel}= (0.5\% \sim 0.8\%)$		
				Correction coefficient:0.95~1.05	$U_{rel}=2.9$ %		
43	Rotandarl Viscometer	Viscosity	V.R.of Rotational Visometers JJG 1002	($2 \sim 1 \times 10^5$) mPa•s	$U_{rel}= (0.6 \sim 0.8)$ %		
44	*Laboratory pH Meters	pH	V.R. of Laboratory pH Meters JJG 119	Meter: 0~14	$U=0.001$		
				Instrument: 4~9.5	$U=0.013$		
		Potential		(-2000~2000) mV	$U=0.2$ mV		
		Temperature		(0~50) $^{\circ}$ C	$U=0.2$ $^{\circ}$ C		
45	*On-line pH Meters	pH	C.S. for On-line pH Meters JJF 1547	Meter: 0~14	$U=0.01$		
				Instrument:1.6~13.5	$U=0.02$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Potential		(-2000~2000) mV	U=0.2 mV		
		Temperature		(0~50) °C	U=0.2 °C		
46	*Laboratory Ion Meters	Potential	V.R. Laboratory Ion meters JIG 757	(-2000~2000) mV	U=0.2 mV		
		pX		Meter: (0~14) pX	U=0.001		
				Instrument: pX: 2~4	U=0.02		
		Temperature		(0~50) °C	U=0.2 °C		
47	*Automatic Potentionmetric Titrator	Potential	V.R. of Automatic Potentionmetric Titrator JIG 814	(-2000~2000) mV	U=0.2 mV		
		Capacity		(1~100) mL	U= (0.003~0.030) mL		
		Concentration		0.1 mol/L	U _{rel} =0.5 %		
48	*Electrolytic Conductivity Meters	Electrolytic Conductivity	V.R. of Electrolytic Conductivity Meters JIG 376	Meter:(0.05~1×10 ⁵) μ S/cm	U=0.1 %FS		
				Instrument: (127~1410) μ S/cm	U=0.5 %FS		
		Temperature		(0~50) °C	U=0.2 °C		
49	*Micro oxygen analyzer	Concentration	V. R. of Micro Oxygen analyzer JIG 945	(20~1000) μ mol/mol	U _{rel} =2 %		
50	*Zirconia oxygen analyzer	Concentration	V. R. of Zirconia Oxygen analyzer JIG 535	(0.1~25)×10 ⁻² mol/mol	U _{rel} =1.5 %		
51	*Electrochemical oxygen analyzer	Concentration	V. R. of Electrochemical Oxygen analyzer JIG 365	(5.0~25)×10 ⁻² mol/mol	U _{rel} =1.5 %		
52	*Photoionization detector for volatile organic compounds	Concentration	C. S. for Photoionization detector for volatile Organic compounds JJF 1172	(0.1~2000) μ mol/mol	U _{rel} =2.3%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
53	*Carbon monoxide detection alarm	Concentration	V. R. of Carbon monoxide detection alarm JJG 915	(1~2000) μ mol/mol	$U_{rel}=2.3\%$			
54	*Combustible gas detection alarm	Concentration	V. R. of Combustible gas detection alarm JJG 693	CH ₄ :(10~60)%LEL	$U_{rel}=2.1\%$	Only carry out the calibration of methane, isobutane, hydrogen, propane, and acetylene gas detectors.		
				H ₂ :(10~60)%LEL	$U_{rel}=2.1\%$			
				i-C ₄ H ₁₀ :(10~60)%LEL	$U_{rel}=2.1\%$			
				C ₃ H ₈ :(10~60)%LEL	$U_{rel}=2.1\%$			
				C ₂ H ₂ :(10~60)%LEL	$U_{rel}=2.1\%$			
55	*Ammonia detector	Concentration	V. R. of Ammonia detector JJG 1105	(1~80) μ mol/mol	$U_{rel}=2.0\%$			
56	*Hydrogen sulfide gas detector	Concentration	V. R. of Hydrogen sulfide gas detector JJG695	(1~80) μ mol/mol	$U_{rel}=2.2\%$			
57	*Dust sampler	Flow	V. R. of Dust sampler JJG 520	(0.01~80) L/min	$U_{rel}=1.2\%$			
		Time		(1~300) s	$U=0.3$ s			
58	*samplers for stack dust	Flow	V. R. of samplers for stack dust JJG 680	(5~100) L/min	$U_{rel}=1.5\%$			
		Temperature		Temperature before flowmeter:	(0~50) °C			$U=0.4$ °C
				Flue gas temperature:	(1~300) °C			$U=1.3$ °C
				Pressure	Dynamic pressure:			(0~2000) Pa
		Static pressure:			(-30~30) kPa			$U=0.2\%$ FS
Time	(1~600) s	$U=0.2$ s						
59	*air sampler	Flow	V. R. of air sampler JJG 956	(0.1~6) L/min	$U_{rel}=1.2\%$			



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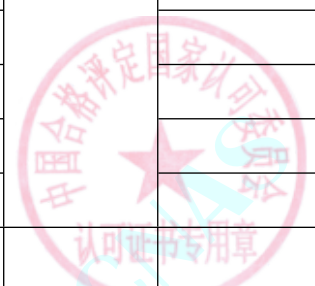
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		time		(1~3600) s	$U_{rel}=0.06\%$		
		Temperature		(0~50) °C	$U=0.2\text{ °C}$		
60	*Tsp sampler	Flow	V. R. of Tsp sampler JJG 943	(80~150) L/min	$U_{rel}=1.2\%$		
		time		(1~1200) s	$U=0.3s$		
		Temperature		(0~50) °C	$U=0.2\text{ °C}$		
		Pressure		(800~1060) hPa	$U=2.4\text{ hPa}$		
		Length		(1~200) mm	$U_{rel}=0.3\%$		
61	*Planktonic bacteria sampler	Flow	C. S. for Planktonic bacteria sampler JJF(Su)188	(20~200) L/min	$U_{rel}=1.2\%$		
		Time		(1~600) s	$U=0.3\text{ s}$		
62	Dust Particles Counter	Flow	C.S. of Dust Particles Counter JJF 1190	(0.3~150) L/min	$U_{rel}=1.3\%$		
		Time		(0~600) s	$U=0.30\text{ s}$		
		Concentration		Particle size distribution: (0.3~10) μm	$U_{rel}=11\%$		
				Particle concentration: (10~100000) 个/2.83 L	$U_{rel}=17\%$		
63	*Particulate Analyzer	Volume	C.S. for Particulate Analyzer JJF 1290	(0.01~10) mL	$U_{rel}=0.4\%$		
		Count		(10~100000) counter/mL	$U_{rel}=5\%$		
64	*flue gas samplers	flow	V. R. of flue gas samplers JJG 1169	(0.1~2) L/min	$U_{rel}=1.3\%$		
		Time		(1~1200) s	$U=0.3\text{ s}$		
		Temperature		(0~50) °C	$U=0.2\text{ °C}$		

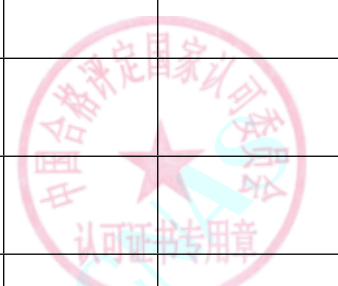


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
65	*Fourier Transform Infrared Spectrometers	Wave number	C.S. for Fourier Transform Infrared Spectrometers JJF 1319	(3100~800) cm ⁻¹	U=(0.09~0.13) cm ⁻¹		
66	*Atomic Fluorescence Spectrophotometers	Concentration	V.R. of Atomic Fluorescence Spectrometer JJG 939	Detection limit(As): ≤0.4 ng	U=0.015 ng		
				Detection limit(Sb): ≤0.4 ng	U=0.04 ng		
67	*Osmotic pressure molar concentration meter	Concentration	V.R. of Osmotic pressure molar concentration meter JJG1089	Osmotic pressure molar concentration:(100~700) mOsmol • kg ⁻¹	U=(1.7~3.4) mOsmol • kg ⁻¹		
68	*Fixed carbon sulfur analyzer	Content	V.R. of Carbon - Sulfur Analyzer JJG 395	C:(0.0050~0.0100) %	U=0.0005 %		
				C:(0.010~0.100) %	U=0.004 %		
				C:(0.100~0.500) %	U=0.007 %		
				C:(0.500~1.000) %	U=0.024 %		
				C:(1.00~4.00) %	U=0.04 %		
				S:(0.0030~0.0100) %	U=0.0003 %		
				S:(0.010~0.050) %	U=0.0013 %		
				S:(0.050~0.100) %	U=0.003 %		
				S:(0.100~0.200) %	U=0.005 %		
		Time		(1~1200) s	U=0.3 s		
69	*Elemental Analyzers	Content	C.S. for Element analyzer JJF1321	Kjeldahl nitrogen analyzer: 0.1%~50%	U _{rel} =1.4 %		
70	*Quadrupole Inductively	Detection limit	C.S. for Quadrupole Inductively Coupled Plasma	Detection Limit(Be): ≤30 ng/L	U=0.4 ng/L		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Coupled Plasma Mass Spectrometers		Mass Spectrometers JJF 1159	Detection Limit(In): ≤ 10 ng/L	$U=0.2$ ng/L		
				Detection Limit(Bi): ≤ 10 ng/L	$U=0.2$ ng/L		
				Sensitivity(Be): ≥ 5 Mcps/(mg/L)	$U_{rel}=10\%$		
				Sensitivity(In): ≥ 30 Mcps/(mg/L)	$U_{rel}=14\%$		
				Sensitivity(Bi): ≥ 20 Mcps/(mg/L)	$U_{rel}=12\%$		
71	*Dynamic Light Scattering Particle Size Analyzers	Particle size	V.R. of Dynamic Light Scattering Particle Size Analyzers JJG 1104	(10~1000) nm	$U_{rel}=2.6\%$		
		Temperature		(0~90) °C	$U=0.2$ °C		
72	*Micro-spectrophotometers	Concentration	C.S. for Micro-spectrophotometers JJF 1836	(10~2200) ng/μL	$U_{rel}=6\%$		
73	*Colony Counters	Total number of colonies	C.S. for Colony Counters JJF 1751	(30~300) CFU	$U_{rel}=2.6\%$		
		Length		(0.10~5.10) mm	$U=0.04$ mm		
		Color temperature		(2300~9000)K	$U=(22\sim 1.9 \times 10^2)$ K		
74	*McFarland Bacterial Turbidity Analyzers	Bacteria turbidity	C.S. for McFarland Bacterial Turbidity Analyzers JJF 1825	(0~4) MCF	$U=(0.06\sim 0.23)$ MCF		
75	*Bacterial Endotoxin Analyzers	Temperature	C.S. for Bacterial Endotoxin Analyzers JJF 1529	37°C	$U=0.14$ °C		
76	*Oxidation-reduct Potential Meters	Potential	C.S. for Oxidation-reduct Potential Meters JJF(Liao) 474	电计: (-2000~2000) mV	$U=0.2$ mV		



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		Resistance		仪器: (-2000~2000) mV	$U=0.4$ mV		
		Resistance		Impedance: (3~10) G Ω	$U_{rel}=12$ %		
77	*Flue Gas Analyzers	Concentration	V.R. of Flue Gas Analyzers JJG 968	O ₂ : (0.1~21)×10 ⁻² mol/mol	$U_{rel}=1.0$ %		
				CO: (1~2000)×10 ⁻⁶ mol/mol	$U_{rel}=1.3$ %		
				CO ₂ : (0.1~20)×10 ⁻² mol/mol	$U_{rel}=1.4$ %		
				SO ₂ : (1~100)×10 ⁻⁶ mol/mol	$U_{rel}=1.4$ %		
				NO: (10~5000)×10 ⁻⁶ mol/mol	$U_{rel}=1.4$ %		
78	*Sulfur Dioxide Gas Detectors	Concentration	V.R. of Sulfur Dioxide Gas Detectors JJG 551	(1~80)×10 ⁻⁶ mol/mol	$U=2.4$ %		
79	*Carbon Monoxide and Carbon Dioxide Infrared Gas Analyzer	Concentration	V.R. of Carbon Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG 635	CO: (1~2000)×10 ⁻⁶ mol/mol	$U_{rel}=1.4$ %		
				CO ₂ : (0.1~20)×10 ⁻² mol/mol	$U_{rel}=1.4$ %		
80	*Nitric Oxide And Nitrogen Dioxide Gas Detectors	Concentration	V.R. of Nitric Oxide And Nitrogen Dioxide Gas Detectors JJG(Xin) 01	NO: (1~2000) μ mol/mol	$U_{rel}=1.4$ %		
				NO ₂ : (1~500) μ mol/mol	$U_{rel}=2.3$ %		
81	*Alarmer Detectors of Benzene	Concentration	C.S. for Alarmer Detectors of Benzene JJF 1674	(1~80) μ mol/mol	$U_{rel}=2.3$ %		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
82	*Hydrogen Chloride Gas Detectors and Alarms	Concentration	C.S. for Hydrogen Chloride Gas Detectors and Alarms JJF 1888	(1~100) μ mol/mol	$U_{rel}=2.3\%$		
83	*Chlorine Alarm Detectors	Concentration	C.S. for Chlorine Alarm Detectors JJF 1433	(1~20) μ mol/mol	$U_{rel}=2.5\%$		
84	*The Alarmer Detector of Sulfur Hexafluoride	Concentration	C.S. for the Alarmer Detector of Sulfur Hexafluoride JJF 1263	(1~800) μ mol/mol	$U_{rel}=2.3\%$		
85	*Raman Spectrometers	Frequency shift	C.S. for Raman Spectrometers JJF 1544	(300~40000) cm^{-1}	$U=0.3\text{ cm}^{-1}$		
		Resolution of spectrum		(0~20) cm^{-1}	$U=0.1\text{ cm}^{-1}$		
		relative intensity		0~1	$U=0.01\sim 0.07$		
86	*EthyleneOxide Gas Detectors	Concentration	C.S. for Ethylene Oxide Gas Detectors JJF(Ji) 206	20~80) μ mol/mol	$U_{rel}=2.5\%$		
87	*Methanol Gas Detection Alarm	Concentration	C.S. for Methanol Gas Detection Alarm JJF(Hei)11	(1~300) μ mol/mol	$U_{rel}=2.3\%$		
88	*Ethanol Gas Detectors and Alarms	Concentration	C.S. for Ethanol Gas Detectors and Alarms JJF(SH)081	(1~400) μ mol/mol	$U_{rel}=1.5\%$		
89	*Acetone Gas Detectors and Alarms	Concentration	C.S. for Acetone Gas Detectors and Alarms JJF(SH)082	(1~500) μ mol/mol	$U_{rel}=2.7\%$		
90	*Gas Detectors and Alarms of Hydrogen Fluoride	Concentration	C.S. for Gas Detectors and Alarms of Hydrogen Fluoride JJF(SH)047	(3~8) μ mol/mol	$U_{rel}=3.8\%$		
91	*Formaldehyde gas detection alarm	Concentration	C.S. for formaldehyde gas detection alarm JJF(SH)100	(2~8) μ mol/mol	$U_{rel}=4.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
92	Sulfur Hexafluoride Decomposition Products Detectors	Concentration	C.S. for Sulfur Hexafluoride Decomposition Products Detectors JJF 1711	SO ₂ (1~50) μ mol/mol	U _{rel} =3.7%		
		Concentration		H ₂ S(1~50) μ mol/mol	U _{rel} =3.9%		
		Concentration		CO(1~500) μ mol/mol	U _{rel} =3.2%		
93	*Electrochemical Workstations	Potential	C.S. for Electrochemical Workstations JJF 1910	(0~2)V	U=0.0001V		
		Current		(0~2) μ A	U=2×10 ⁻¹⁰ A		
94	*Real-Time Fluorescent Quantitative Polymerase Chain Reaction Analyzer	Temperature	C.S. for Real-Time Fluorescent Quantitative Polymerase Chain Reaction Analyzer JJF(Su) 222	(0~100)°C	U=0.33°C	Optical system biochemistry method projects limited.	
		Fluorescence		10~40	U=1.2		
95	*Adenosine Triphosphate (ATP) Fluorescence Detectors	Fluorescence	C.S. for Adenosine Triphosphate (ATP) Fluorescence Detectors JJF 1828	(1×10 ⁻¹⁶ ~5×10 ⁻¹⁰)mol/mL	U _{rel} =3.6%		
		RLU		(1~1000000) RLU	U _{rel} =17%		
96	*Total Organic Carbon Analyzer based on Conductivity Measurement	Contamination	C.S of Total Organic Carbon Analyzer based on Conductivity Measurement JJF(Jing)112	(0.1~1.0) mg/L	U _{rel} =1.3%		
97	*Surfaceion contamination tester	Surfaceion contamination	C.S of Surfaceion contamination tester JJF (DZ) 0070	(0.1~20) μg/cm ²	U _{rel} =4.8%		
		Electric conductivity		(50~150) μS/cm	U _{rel} =1.3%		
		Temperature		(5~50) °C	U=0.1°C		
98	*Water Activity Meters	Water Activity	V.R of Water Activity Meters JJG(Yue) 052	0.0~1.0	U=0.008		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
99	*Bioreactor	Temperature	C.S. for Bioreactor JJF(Xiang) 97	(0~50) °C	U=0.2°C		
		pH		0~14	U=0.02		
		Rotational speed		(10~2000) rpm	U _{rel} =0.6%		
		Gas Flow		(0.3~30) L/min	U _{rel} =0.8%		
		Fluid Flow		(0.1~100) mL/min	U _{rel} =0.8%		
		Concentration		Dissolved oxygen: (6~15) mg/L	U=0.1 mg/L		
100	Routine Capillary Viscometers	Kinematic viscosity	V.R. of Routine Capillary Viscometers JJG 155	(1~100000)mm ² /s	U _{rel} = (0.34~0.86) %		
101	Zahn Viscosity Cups	Time	C.S. for Zahn Viscosity Cups JJF (BGMP) 0009	(15~150)s	U _{rel} = (0.5%~0.8%)		
102	DIN 53211-4 Coating Viscometers	Time	C.S. for DIN 53211-4 Coating Viscometers JJF (Ji) 114	(15~150)s	U _{rel} = (0.5%~0.8%)		
103	*Kinematic Viscosity Tester	Kinematic viscosity	C.S. for Kinematic Viscosity Tester JJF 1274	(1~20000)mm ² /s	U _{rel} =2%	Only test the viscosity at 20°C	
		Temperature		(20~100) °C	U=0.009°C		
104	*Gold Gauge Utilizing X-ray Fluorescence Spectrometry	Concentration	C.S. of Gold Gauge Utilizing X - ray Fluorescence Spectrometry JJF 1133	30%~100%	U=0.02%~0.04%		
105	*Rapid Detection Analyzers of Heavy Metal in Food	Concent	C.S. for Rapid Detection Analyzers of Heavy Metal in Food JJF(Jing)113	(0.001~0.2)mg/kg	U=0.014mg/kg		
				(0.2~0.4)mg/kg	U _{rel} =7%		
				(0.4~2.2)mg/kg	U _{rel} =3.5%		



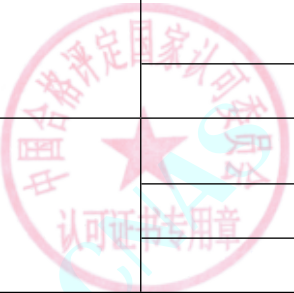
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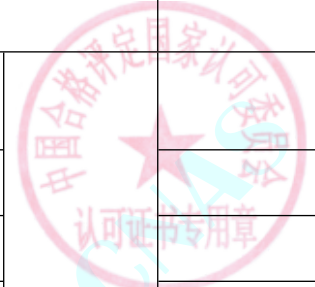
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
106	*Portable Stripping Voltammetry Heavy Metal Detectors	Concentration	C.S. for Portable Stripping Voltammetry Heavy Metal Detectors JJF2037	(0.01~1000)mg/L	$U_{rel}=2\%$		
107	*Gel Documentation Systems	Illuminance	C.S. for Gel Documentation Systems JJF1530	50 lx~50 klx	$U_{rel}=5\%$		
		Irradiance		(0.01~2) mW/cm ²	$U_{rel}=24\%$		
108	*Digital Refractometers	Content	C.S. for Digital Refractometers JJF(Jin)83	NaCl: 0%~28%	$U=0.06\%$		
				糖量: 0%~80%	$U=0.02\%$		
		Refractivity		1.30~1.66	$U=0.0002$		
109	*Total Dissolved Solids(TDS) Meters	Concentration	C.S. for Total Dissolved Solids(TDS) Meters JJF(Min) 1097	(1~20000)mg/L	$U_{rel}=0.2\%~0.6\%$		
		Temperature		(0~50)°C	$U=0.2^{\circ}C$		
110	*Online Conductivity Meters for Water Quality	Conductivity	C.S. of Online Conductivity Meters for Water Quality JJF(Jin)74	Electronic unit:(0.05~1 × 10 ⁵) μ S/cm	$U=0.2\%FS$		
				Instrument:(0.5~20) μ S/cm	$U=1.2\%FS$		
				Instrument:(20~2 × 10 ⁵) μ S/cm	$U=0.3\%FS$		
		Temperature		(0~50) °C	$U=0.3^{\circ}C$		
111	*Digital Saccharimeters and Digital Refractometers	Sugar Concent	V.R. of Digital Saccharimeters and Digital Refractometers JJF(Jin)68	0%~80%	$U=0.02\%$		
		Refractivity		1.30~1.66	$U=0.00006$		
		Temperature		(10~30) °C	$U=0.13^{\circ}C$		
112	*Scanning Electronic	Length	C.S.for Scanning Electronic Microscopes(SEM) JJF 1916	100nm	$U_{rel}=1.5\%$		

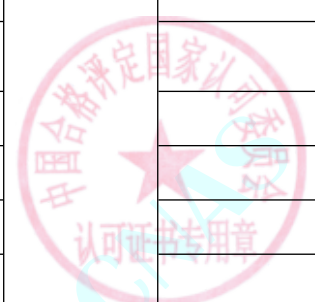


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Microscopes(SEM)			200nm (500~10000) nm	$U_{rel}=1.2\%$ $U_{rel}=0.6\%$		
113	*Polymerase Chain Reaction Analyzers	Temperature	C.S. for Polymerase Chain Reaction Analyzers JJF 1527	(20~100) °C	$U=0.20^{\circ}\text{C}$	Accredited only for PCR Analyzers	
114	*Disintegration Analyzers	Length	Calibration Specification for Disintegration Analyzers JJF 1449	(0~100) mm	$U=0.2\text{mm}$		
		Time		0.1s~30min	$U_{rel}=0.2\%$		
		Time limit for disintegration		1s~30min	$U_{rel}=(8.2\%\sim 11\%)$		
115	*Drug Dissolution Testers	Temperature	Calibration Specification For Drug Dissolution Testers JJF(Su) 220	(0~50) °C	$U=0.2^{\circ}\text{C}$		
		Speed		(0~250) r/min	$U=0.6\text{r/min}$		
		Time		(0~60) min	$U=0.4\text{s}$		
ionizing radiation measuring instrument							
1	*X-ray Flux Detectors	Air specific release energy rate	V.R.of X-ray Flux Detectors JJG 40	0.1cGy/min~10Gy/min	$U_{rel}=5\%$	Accredited only for field calibration	
Acoustic measuring instrument							
1	*Ultrasonic Flow Detectors	Amplifier frequency response	V. R. of Ultrasonic Flow Detectors JJG 746	10mV _{pp} ~10V _{pp} (0.5~25)MHz	$U_{rel}=3\%$		
		Dynamic range		(10~40)dB	$U=1\text{dB}$		
		Equivalent input noise		(0.1~1000)μV	$U_{rel}=1\%$		
		Attenuator error		(0.1~96)dB	$U=0.2\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(96~110)dB	$U=0.3\text{dB}$		
		Amplitude linear error		0.1%~100%	$U=1.6\%$		
		Time base linear error		(0.1~10000)mm	$U_{\text{rel}}=0.15\%$		
		Launch pulse		(0.01~10)V	$U_{\text{rel}}=3\%$		
2	*Electro-acoustical Measurement Instruments	Frequency	C. S. for Electro-acoustical Measurement Instruments JJF 1339	20Hz~20kHz	$U_{\text{rel}}=0.01\%$		
		AC Voltage		(0.1~30)V,(20Hz~20kHz)	$U_{\text{rel}}=0.2\%$		
		Total distortion		0.01%~10%,(20Hz~20kHz)	$U_{\text{rel}}=0.1\%$		
		Frequency response		(0.1~30)V,(20Hz~20kHz)	$U_{\text{rel}}=0.2\%$		
Textile and leather special measuring instruments (including footwear testing instruments)							
1	*Fabric Thickness Instruments	Length	Calibration Specification for Fabric Thickness Instruments JJF(FZ) 020	0 mm、1 mm、2 mm、3 mm、4 mm、5 mm、6 mm、7 mm、8 mm、9 mm、10 mm	$U=0.005\text{ mm}$		
				11.28 mm、50.48 mm、56.43 mm	$U=0.004\text{ mm}$		
				112.87 mm、159.62 mm	$U=0.04\text{ mm}$		
		Mass		(5~1000)g	$U=0.4\text{ g}$		
		Force		50 cN、100 cN、200 cN	$U_{\text{rel}}=0.3\%$		
		Time		10 s、30 s	$U=0.2\text{ s}$		

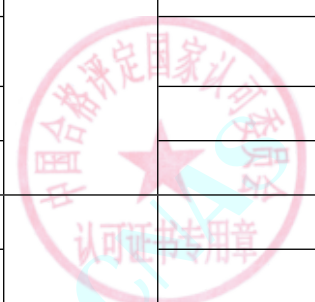


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Circle Sample Cutters	Length	Calibration Specification for Circle Sample Cutters JJF(FZ) 061	(0.1~10)mm、112.84 mm	U=0.3 mm		
3	*Vertical Combustion Tester	Mass	Calibration Specification for Vertical Combustion Tester JJF(FZ) 068	54.5 g、113.4 g、226.8 g、340.2 g、453.6 g	U=0.4 g		
		Time		(10~3600)s	U=0.2 s		
		Length		11.0 mm、12.5 mm、17.0 mm、40.0 mm	U=0.04 mm		
				30 mm、51 mm、329 mm、356 mm、767 mm	U=0.3 mm		
		Angle		25°	U=0.5°		
		Velocity		45 mm/s	U=1.2 mm/s		
4	*Sliver and Roving Length Sampler	Length	Calibration Specification for Sliver and Roving Length Sampler JJF(FZ) 001	500 mm、1000 mm	U=0.3 mm		
		Mass		(2000~4500)g	U=5 g		
5	*Fabrics Water Spray Testers	Length	Calibration Specification for Fabrics Water Spray Testers JJF(FZ) 083	0.86 mm	U=0.02 mm		
				10 mm、21 mm	U=0.05 mm		
				150 mm、155 mm、195 mm	U=1.0 mm		
		Angle		45°	U=0.3°		
		Time		(25~30)s	U=0.6 s		
6	*Light and Weather Fastness Tester	Temperature	Calibration Specification for Light and Weather Fastness Tester JJF(FZ) 051	Test chamber: (20~63)°C	U=0.8 °C		
				BPT, BST: (20~63)°C	U=1.6 °C		
		Humidity		20%RH~95%RH	U=1.7%RH		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Rotate speed		(10~100)r/min	$U=0.7$ r/min		
		Time		1 min、30 min	$U=0.6$ s		
		Irradiance		1.1 W/m ² 、42 W/m ²	$U_{rel}=23\%$		
7	*Ventilated Textile Oven	Temperature	Calibration Specification for Ventilated Textile Oven JJF(FZ) 059	(50~150)°C	$U=0.8$ °C		
		Velocity		(0.8~10)m/s	$U=0.05$ m/s		
		Time		(1~20)min	$U=0.5$ s		
8	*Eight-Basket Oven	Temperature	Calibration Specification for Eight-Basket Oven JJF(FZ) 011	(50~150)°C	$U=0.8$ °C		
		Time		(1~25)min	$U=0.5$ s		
9	*Colour Fastness to Washing Testers	Temperature	Calibration Specification for Colour Fastness to Washing Testers JJF(FZ) 026	(20~98)°C	$U=0.5$ °C		
		Time		(1~24)min、30 min、45 min	$U=0.5$ s		
		Rotating velocity		40 r/min	$U=0.4$ r/min		
		Length		45 mm、75 mm、90 mm、125 mm、200 mm	$U=0.04$ mm		
10	*Fabric Shrinkage Testers	Temperature	Calibration Specification for Fabric Shrinkage Testers JJF(FZ) 052	40 °C、60 °C、92 °C	$U=1.4$ °C		
		Time		3 s~22 min	$U=0.5$ s		
		Rotating velocity		52 r/min、500 r/min	$U_{rel}=1.5\%$		
		Length		100 mm、130 mm	$U=0.3$ mm		
11	*Color Fastness to Search and Sublimation	Temperature	Calibration Specification for Color Fastness to Search and Sublimation Testers JJF(FZ)	110 °C、150 °C、180 °C、200 °C、210 °C	$U=1.4$ °C		

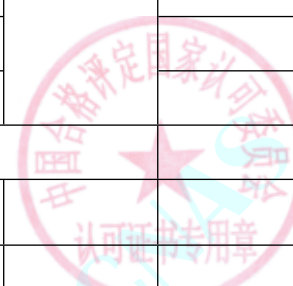


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Testers	Force	029	16 N	$U=0.5$ N		
		Time		15 s、30 s	$U=0.5$ s		
12	*Perspiration Fastness Instruments	Force	Calibration Specification for Perspiration Fastness Instruments JJF(FZ) 028	(49~51)N	$U=0.1$ N		
		Length		(2~120) mm	$U=0.5$ mm		
13	*Colour Fastness to Friction Testers	Force	Calibration Specification for Colour Fastness to Friction Testers JJF(FZ) 027	9 N	$U=0.08$ N		
		Length		16 mm、19 mm、25.4 mm、104 mm	$U=0.5$ mm		
		Rotating velocity		60 r/min	$U=0.7$ r/min		
14	*Geotextiles Abrasion Testers	Length	Calibration Specification for Geotextiles Abrasion Testers JJF(FZ) 095	25.4 mm、50.0 mm、200.0 mm	$U=0.05$ mm		
		Frequency		90 min ⁻¹	$U=0.5$ min ⁻¹		
		Mass		6000 g	$U=0.8$ g		
15	*Thickness of Geosynthetics Determinator	Length	Calibration Specification for the Thickness of Geosynthetics Determinator JJF(Min) 1125	0 mm、0.5 mm、1 mm、2 mm、3 mm、4 mm、5 mm	$U=0.01$ mm		
		Area		25 cm ²	$U=0.04$ cm ²		
		Pressure		2 kPa、20 kPa、200 kPa	$U_{rel}=0.4\%$		
Special measuring instruments for motor vehicles							
1	*Tire Tread Depth Gauges	Length	C.S. for Tire Tread Depth Gauges JJF 1477	(0~50)mm	$U=0.02$ mm		
2	*Transmittance Meter of Automobile	Transmittance	C.S. for Transmittance Meter of Automobile JJF 1225	(0~100) %	$U=0.7\%$		



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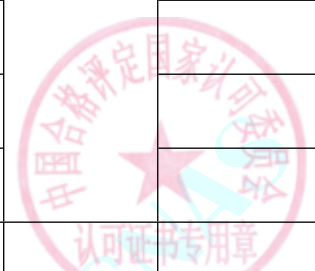
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
Special measuring instruments for Meteorology and ocean							
1	Thermo-anemoscopes	Wind speed	C. S. for Thermo-anemoscopes JJF1939	(5~25)m/s	$U= (0.09\sim0.20)$ m/s		
2	Fanning Mill Anemometers	Wind speed	C. S. for Fanning Mill Anemometers JJF1971	(5~25)m/s	$U= (0.09\sim0.27)$ m/s		
3	Wheel Type Digital Anemometers	Wind speed	V.R.of Wheel Type Digital Anemometers JJG 1194	(5~25)m/s	$U= (0.09\sim0.27)$ m/s		
4	Wind Speed Transducer	Wind speed	C. S. for Wind Speed Transducer JJF(Zhe)1126	(5~25)m/s	$U= (0.10\sim0.30)$ m/s		
5	Bucket Thermometers	Temperature	V. R. of Bucket Thermometers JJG289	(-5~40)°C	$U=0.10^{\circ}\text{C}$		
Special measuring instrument for paper and paper							
1	*Compression Strength Tester for Board	Force	V. R. of Compression Strength Tester for Board JJG(QG) 49	(1~3000)N	$U_{\text{rel}}=0.4\%$		
2	*Compression Strength Tester for Corrugated Box	Force	V. R. of Compression Strength Tester for Corrugated Box JJG(QG) 115	(0.1~50)kN	$U_{\text{rel}}=0.4\%$		
		Length		(0~500) mm	$U=0.4\text{mm}$		
3	*Bursting Strength Tester for Paper and Board	Pressure	C. S. for Bursting Strength Testers for Paper(Board) JJF 1811	(0.001~6)MPa	$U=0.2\%\text{FS}$		
Medical special measuring instrument							
1	*Baby Incubator	Temperature	C.S.for Baby Incubator JJF 1260	(20~50)°C	$U=0.3^{\circ}\text{C}$		
		Humidity		20%RH~90%RH	$U=2.0\%\text{RH}$		
		Noise		(30~100)dB	$U=2.0\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Concentration of Oxygen		30%~40%	$U=2.1\%$		
2	*Medical Centrifuges	Rotate speed	Calibration Specification for Medical Centrifuges JJF 2004	(20~30000)r/min	$U_{rel}=0.2\%$		
		Time		(0~3600)s	$U=0.12s$		
		Temperature		(-40~85)°C	$U=0.12^{\circ}C$		
		Rate		(0~5)°C/min	$U=0.12^{\circ}C/min$		
		Noise		(35~100)dB(A)	$U_{rel}=1.3\%$		
3	*ELISA analytical Instruments	Wavelength	V.R.of ELISA Analytical Instruments JJG 861	(400~630) nm	$U=0.5$ nm		
		Absorbance		0.200~1.600	$U=0.006$		
				Channel difference:1.000	$U=0.006$		
		Sensitivity		≥ 0.01 L/mg	$U_{rel}=5\%$		
Petroleum and chemical specialized measuring instruments							
1	Wet Film Thickness Gauges	Length	Calibration Specification for Wet Film Thickness Gauges JJF 1484	The comb gauge: (5~100) μ m	$U=1$ μ m		
				The comb gauge : (100~3000) μ m	$U=3$ μ m		
				Wheel gauge : (0~125) μ m	$U=1$ μ m		
				Wheel gauge: (125~1500) μ m	$U=4$ μ m		
2	Paint Film Stribers	Length	Calibration Specification for Paint Film Stribers JJF 2163	1 mm、2 mm、3 mm	$U=3$ μ m		
		Angle		30°	$U=0.3^{\circ}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3	*Heat Distortion and Vicat Softening Temperature Apparatus	Temperature	Calibration Specification for Heat Distortion and Vicat Softening Temperature Apparatus JJF(Zhe) 1051	(20~300)°C	U=0.3 °C		
		Hesting Rate		50 °C/h、120 °C/h	U=0.2 °C/h		
		Length		(0~10)mm	U=0.03 mm		
		Mass		(1~5000)g	U=0.3 g		
4	*Pencil Hardness Tester	Angle	Calibration Specification for Pencil Hardness Testers JJF(SH) 007	45°	U=0.06°		
		Mass		500 g、750 g、765 g、1000 g	U=0.7 g		
5	*Film Impact Testers	Mass	Calibration Specification for Film Impact Testers JJF(SH) 002	1000 g	U=0.6 g		
		Length		100 mm、200 mm、300 mm、400 mm、500 mm	U=0.1 mm		
6	*Rebound Resilience Machine for Vulcanized Rubber	Length	Calibration Specification for Rebound Resilience Machine for Vulcanized Rubber JJF(SH) 038	(2~300)mm	U=0.05 mm		
		Mass		(1~1200)g	U=0.06 g		
		Force		(50~500)N	U _{rel} =0.4%		
7	*Film Pendulum Hardness Testers	Length	Calibration Specification for Film Pendulum Hardness Testers JJG(SH) 008	400 mm、408 mm、500 mm	U=0.06 mm		
		Mass		120 g、200 g、500 g	U=0.02 g		
		Time		(1~180)s	U=0.4 s		
8	*Coating Bend Testers (Cylindrical Mandrel)	Length	Calibration Specification for Coating Bend Testers(Cylindrical Mandrel) JJG(SH) 035	2 mm、3 mm、4 mm、5 mm、6 mm、8 mm、10 mm、12 mm、16 mm、20 mm、25 mm、32 mm	U=0.004 mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
9	*Coating Flexibility Testers	Length	Calibration Specification for Coating Flexibility Testers JJF(SH) 006	4 mm、5 mm、10 mm、15 mm	$U=3 \mu\text{m}$		
				1 mm、2 mm、3 mm	$U=0.04 \text{ mm}$		
10	*Film Adhesion Testers (Circle-drawing Method)	Length	Calibration Specification for Film Adhesion Testers(Circle-drawing Method) JJF(SH) 036	10.50 mm	$U=0.04 \text{ mm}$		
11	*Putty Film Flexibility Testers	Length	Calibration Specification for Putty Film Flexibility Testers JJF(SH) 003	25 mm、50 mm	$U=0.1 \text{ mm}$		
				78 mm	$U=0.2 \text{ mm}$		
12	Wedge Cut Method Film Thickness Instruments	Length	Calibration Specification for Wedge Cut Method Film Thickness Instruments JJF(Ji) 150	(0~10)mm	$U=2 \mu\text{m}$		
		Angle		(1~90)°	$U=0.03^\circ$		
13	*Horizontal and Vertical Combustion Tester	Angle	Calibration Specification for Horizontal and Vertical Combustion Tester JJF(Gui) 76	(20~90)°	$U=12'$		
		Length		(5~120)mm	$U=0.04 \text{ mm}$		
		Time		(5~600)s	$U=0.5 \text{ s}$		
		Temperature		(100~650)°C	$U=1.0 \text{ }^\circ\text{C}$		
Special measuring instrument for building and traffic							
1	*Boiling testing box for soundness of the portland cement	Power	V.R.of Boiling testing box for soundness of the portland cement JJG(JC) 109	(0~4400)W	$U=20\text{W}$		
		Temperature		(20~100)°C	$U=0.2^\circ\text{C}$		
2	*Standard Curing Chamber for Cement and Concrete	Temperature	C. S. for the Equipment of the Environmental Testing for Temperature and Humidity Parameters JJF 1101	(18~22)°C	$U=0.2^\circ\text{C}$		
		Humidity		80%RH~95%RH	$U=1.5\% \text{ RH}$		



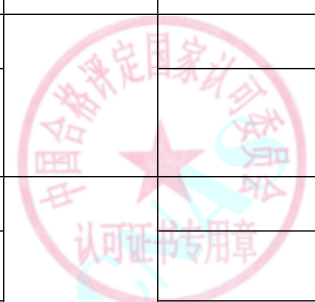
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3	Rebound Test Hammer	Force	Verification Regulation of Rebound Test Hammer JJG 817	(0.4~0.8)N	$U_{rel}=2.5\%$		
		Rigidity		(65~820)N/m	$U_{rel}=2.6\%$		
		Rate		72~82	$U=1$		
		Length		Pointer length(19.8~20.2)mm	$U=0.2mm$		
				Working length(61~76)mm	$U=0.2mm$		
4	Metrology Verification Device for Rebound Tester	Force	Verification Regulation of Metrology Verification Device for Rebound Tester JJG(Su) 59	(0.1~1)N	$U=0.012N$		
		Hardness		(58~62)HRC	$U=1.8HRC$		
		Mass		(1999~2001)g	$U=0.18g$		
		Length		Marking value of tension spring instrument(0~80)mm	$U=0.1mm$		
5	*Apparatus to Measure Water Permeability of Concrete	Pressure	Calibration Specifications for Apparatus to Measure Water Permeability of Concrete JJF 1812	(0.1~6)MPa	$U=0.7\%FS$		
6	*Air Entrainment Meter of Freshly Mixed Concrete by The Volumetric Method	Pressure	Verification Regulation of Air Entrainment Meter of Freshly Mixed Concrete by The Volumetric Method JJG(JT) 094	(0~0.16)MPa	$U=0.7\%FS$		
		Volume		(6~8)L	$U=0.01L$		
7	*Flow Table for Determine Cement Mortar Fluidity	Time	Verification Regulation of Flow Table for Determine Cement Mortar Fluidity JJG(JT) 096	(24~26)s	$U=0.24s$		
		Length		Diameter and die size(59~301)mm	$U=0.06mm$		
				Fall distance(9.8~10.2)mm	$U=0.01mm$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Mass		(4200~4500)g	U=3g		
8	*Apparatus for Normal Consistency and Setting Time of Cement Paste	Mass	Verification Regulation of Apparatus for Normal Consistency and Setting Time of Cement Paste JJG(JT) 050	(290~310)g	U=12mg		
		Length		Ruler(0~80)mm	U=0.02mm		
9	*Mortar Consistency Tester	Mass	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF 1090	(40~310)g	U=12mg		
		Length		(0~300)mm	U=0.05mm		
		Angle		(5~50)°	U=0.1°		
		Roughness		Ra (1~2) μm	U=0.3 μm		
10	*Consistency Testing Instrument for Concrete Mixing	Length	Verification Regulation of Consistency Testing Instrument for Concrete Mixing JJG(Su) 50	(1~301)mm	U=0.3mm		
		Mass		(2700~2800)g	U=0.6g		
				(8650~8750)g	U=0.6g		
		Frequency		(40~60)Hz	U=0.4Hz		
11	*Apparatus for Time of Setting of Concrete Mixture by Penetration Resistance	Length	Verification Regulation of Apparatus for Time of Setting of Concrete Mixture by Penetration Resistance JJG(JT) 095	Tube size(0~300)mm	U=0.1mm		
				Needle size(0~15)mm	U=0.005mm		
		Force		(0.1~2)kN	U _{rel} =0.5%		
12	*Mixer for Cement Paste	Rotate speed	C.S. for Mixer for Cement Paste JJF(JC) 104	(57~305)r/min	U=0.6r/min		
		Time		(10~180)s	U=0.33s		
		Length		Gap(1.0~3.0)mm	U=0.1mm		
				Mixer size(0~161)mm	U=0.1mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
13	*Cementmortar mixer complying with ISO 679	Rotate speed	Calibration Specification for Mixer for Mixing Mortars JJF(JC) 123	(50~300)r/min	$U=0.6r/min$		
		Time		(29~91)s	$U=0.3s$		
		Length		Gap(2~4)mm	$U=0.1mm$		
				Pan and Ye Chicun(0~203)mm	$U=0.1mm$		
14	*Cement mortars mixer	Rotate speed	Verification Regulation of cement mortars mixer JJG(JC) 102	(60~150)r/min	$U=0.6r/min$		
		Time		(0~5)min	$U=0.6s$		
		Length		Gap(1.0~2.0)mm	$U=0.05mm$		
				Mixer size(0.5~200)mm	$U=0.05mm$		
15	*Apparatus of Abrasion Resistance for Cement Mortar and Concrete	Force	Verification Regulation of Apparatus of Abrasion Resistance for Cement Mortar and Concrete JJG(JT) 097	(200~400)N	$U_{rel}=0.5\%$		
		Rotate speed		(15~650)r/min	$U=(0.14~0.5)r/min$		
		Length		Spindle stroke and flower wheel size(0~100)mm	$U=0.04mm$		
16	*Los Angeles Testing Machine	Mass	Verification Regulation of Los Angeles Testing Machine JJG(JT) 108	(300~5200)g	$U=0.3g$		
		Length		Roller size(95~715)mm	$U=0.48mm$		
				Diameter of steel ball(40~50)mm	$U=0.05mm$		
		Rotate speed		(30~33)r/min	$U=0.42r/min$		
17	*Jolting Table for Compacting Mortars Specimen	Mass	C.S. for cement Jolting Table for complying Mortar Specimen JJF(JC) 124	(13.5~20.5)kg	$U=0.09kg$		
		Time		(58~62)s	$U=1.0s$		
		Length		(14~801)mm	$U=0.12mm$		



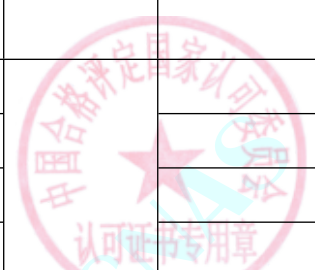
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Amplitude(14.5~15.5)mm	$U=0.01\text{mm}$		
18	*Building Material Testing Machine of Constant Loading Speed	Force	Verification Regulation of Building Material Testing Machine of Constant Loading Speed JJG 1025	(1~5000)kN	$U_{\text{rel}}=0.4\%$		
		Speed		(0.01~25)kN/s	$U_{\text{rel}}=3.0\%$		
19	*Sand Equivalent Tester	Length	Verification Regulation of Sand Equivalent Tester JJG(JT) 137	Oscillating distance(202~204)mm	$U=0.3\text{mm}$		
				Other dimensions(0.1~421)mm	$U=0.1\text{mm}$		
		Oscillation frequency		(178~182)time/min	$U=1.0\text{time/min}$		
		Time		(29~1215)s	$U=0.6\text{s}$		
		Mass		(995~1005)g	$U=1.2\text{g}$		
20	*Cement Fineness Negative Pressure Screen Analyzers	Pressure	Calibration Specification for Cement Fineness Negative Pressure Screen Analyzers JJF 1827	(-100~0)hPa	$U=0.7\%FS$		
		Rotate speed		(28~32)r/min	$U_{\text{rel}}=0.4\%$		
		Noise		(30~130)dB(A)	$U=1\text{dB(A)}$		
		Insulation resistance		(10~30)MΩ	$U=1\text{M}\Omega$		
21	*Marshall Test Machine for Bituminous Mixtures	Speed	Verification Regulation of Marshall Test Machine for Bituminous Mixtures JJG(JT) 066	No load(45~55)mm/min	$U_{\text{rel}}=0.5\%$		
				load(45~55)mm/min	$U_{\text{rel}}=0.7\%$		
		Force		(0.1~50)kN	$U_{\text{rel}}=0.4\%$		
		Length		(0~80)mm	$U=0.03\text{mm}$		
				Flow value(0~20)mm	$U=0.02\text{mm}$		

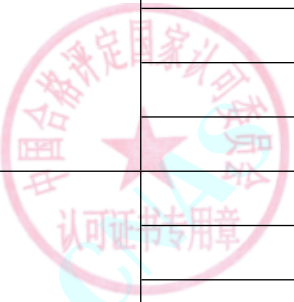


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Compaction Instrument of Soil	Mass	Verification Regulation of Compaction Instrument of Soil JJG(JT) 058	(2000~5000)g	U=0.04g		
		Length		(1~60)mm	U=0.06mm		
				(290~460)mm	U=0.4mm		
23	*Asphalt Mixture's Marshall Compaction Test Apparatus	Mass	Verification Regulation of Asphalt Mixture's Marshall Compaction Test Apparatus JJG(JT) 065	(4000~15000)g	U=2g		
		Length		(50~500)mm	U=1mm		
		Speed		(50~70)times/min	U=1times/min		
24	*Instrument for Determining Location of Concrete Reinforced Bar	Length	Verification Regulation of Instrument for Determining Location of Concrete Reinforced Bar JJG(JT) 131	(0~500)mm	U=0.7mm		
		Diameter		(0~50)mm	U=0.2mm		
25	*Reinforced Concrete Covermeter and Floorslab Thickness Tester	Length	Calibration Specification for Reinforced Concrete Covermeter and Floorslab Thickness Tester JJF 1224	(0~500)mm	U=0.7mm		
		Diameter		(0~50)mm	U=0.2mm		
26	*Liquid & Plastic Limit Gauge	Mass	Verification Regulation of Liquid & Plastic Limit Gauge JJG(JT) 069	(70~110)g	U=12mg		
		Length		(0~60)mm	U=0.02mm		
		Angle		(25~35)°	U=0.1°		
		Time		(3~6)s	U=0.04s		
27	*Determination Specific Surface Area of Air Permeability Apparatus	Length	Verification Regulation of Determination Specific Surface Area of Air Permeability Apparatus JJG(JC) 107	(2.7~65)mm	U=(0.1~1.0)mm		
		Time		(0~900)s	U=0.3s		
		Volume		(1.5~2.5)cm ³	U _{rel} =1.0%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
28	*Accelerated Polishing Machine	Length	Verification Regulation of Accelerated Polishing Machine JJG(JT) 054	(43~46)mm	U=0.02mm		
				(204~407)mm	U=0.1mm		
		Rotate speed		(315~325)r/min	U=1.2r/min		
		Hardness		(60~72)HA	U=1.0HA		
		Rate		Sand injection(2.5~35)g/min	U=(0.1~1.5)g/min		
				Water injection (50~75)mL/min	U=2.2mL/min		
Force	(705~735)N	U=1.2N					
29	Le Chatelier Flask for Determining Density of Hydraulic Cement	Volume	Verification Regulation of Le Chatelier Flask for Determining Density of Hydraulic Cement JJG(JT) 092	(0.01~24)mL	U _{rel} =2.0%		
30	*Flow Time Tester for Fine Aggregate	Angle	Verification Regulation of Flow Time Tester for Fine Aggregate JJG(JT) 109	(55~65)°	U=0.2°		
		Length		(10~130)mm	U=0.05mm		
31	*Le Chatelier	Length	Verification Regulation of Le Chatelier, Tester for Determining Expansion of Le Chatelier Needles JJG(JT) 093	(0~25)mm	U=0.60mm		
				(0.1~160)mm	U=0.04mm		
32	*Needle and Flake Gages	Length	Calibration Specification for Needle and Flake Gages JJF1593	(2~90)mm	U=0.04mm		
33	*Testing Instrument for Crushing Value	Length	Verification Regulation of Testing Instrument for Crushing Value JJG(Su) 54	(8~160)mm	U=0.06mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
34	*The Penetration Test Apparatus of Bituminous	Length	Verification Regulation of the Penetration Test Apparatus of Bituminous JJG(JT) 067	Indication(0~50)mm	U=0.02mm		
				Standard needle size(0~55)mm	U=0.02mm		
		Mass		(40~210)g	U=0.02g		
		Temperature		(0.5~55) °C	U=0.04°C		
		Angle		(5~15)°	U=0.2°		
Time	(3~65)s	U=0.3s					
35	*Bituminous materials' determining ductility	Stretching rate	Verification Regulation of Bituminous Materials Determining Ductility JJG(JT) 023	(9~11)mm/min	U=0.1mm/min		
				(40~60)mm/min	U=0.3mm/min		
		Temperature		(0~30)°C	U=0.04°C		
		Length		(0~1500)mm	U= (0.03~0.3) mm		
36	*Bitumen softening meter	Temperature	Calibration Code for bitumen softening meter SL414	(0~200)°C	U=0.2°C		
		Length		(0~30)mm	U=0.04mm		
		Mass		(2~5)g	U=0.02g		
		Speed		(1~10)°C/min	U=0.2°C/min		
37	*Eight-wheel Continuous Vialog	Length	Verification Regulation of Eight-wheel Continuous Vialog JJG(JT) 024	Indication(-20~20)mm	U=0.05mm		
				Diameter(159~161)mm	U=0.05mm		
				Datum length(2970~3030)mm	U=10mm		
		Hardness		(55~70)HA	U=0.6HA		



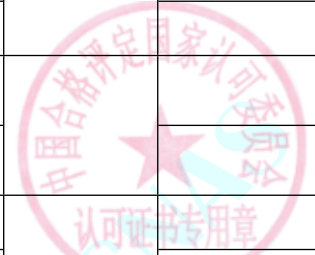

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
38	*Benkelman Beam Pavement Deflectometer	Length	Verification Regulation of Benkelman Beam Pavement Deflectometer JJG(JT) 025	(0~300)mm	$U=(0.005\sim 0.05)\text{mm}$		
39	*Pavement Texture Depth Manual Sanding Device	Length	Verification Regulation of Pavement Texture Depth Manual Sanding Device JJG(JT) 117	(1~100)mm	$U=0.02\text{mm}$		
		Roughness		Ra(0.01~100) μm	$U=1\mu\text{m}$		
40	Measuring Instrument for Cement Bright Degumming Equipment	Acceleration sensitivity	Verification Regulation of Measuring Instrument for Cement Bright Degumming Equipment JJG 974	(1~100)m/s ² (40~100)Hz	$U_{\text{rel}}=1.2\%$		
		Frequency		(20~2000)Hz	$U_{\text{rel}}=0.3\%$		
		Amplitude		(0.01~10)mm	$U_{\text{rel}}=1.0\%$		
		Rotate speed		(15~20000)r/min	$U_{\text{rel}}=0.3\%$		
		Time		(0~5)min	$U=0.2\text{s}$		
41	*Test Apparatus for Theoretical Maximum Specific Gravity of Asphalt Mixtures	Pressure	V.R. of Test Apparatus for Theoretical Maximum Specific Gravity of Asphalt Mixtures JJG(JT) 105	(1~120)kPa	$U=0.7\%\text{FS}$		
		Vacuum		(-100~-0.1)kPa	$U=0.7\%\text{FS}$		
		Volume		(2000~5000)mL	$U=(4\sim 8)\text{mL}$		
		Time		(0~2)min	$U=0.2\text{s}$		
42	*Dynamic penetration tester	Mass	V.R. of Dynamic Penetration Tester JJG(JT)169	(0~15)kg	$U=0.04\text{kg}$		
				(60~65)kg	$U=0.2\text{kg}$		
		Length		(0~800)mm	$U=0.2\text{mm}$		
		Angle		(9~16) $^{\circ}$	$U=0.2^{\circ}$		
43	*California Bearing Ratio Instrument	Mass	Verification Regulation of California Bearing Ratio Instrument JJG(JT) 106	(1200~1300)g	$U=0.5\text{g}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length		(0~200)mm	$U=0.05\text{mm}$		
		Force		(0.1~50)kN	$U_{\text{rel}}=0.3\%$		
		Speed		(0.5~1.5)mm/min	$U_{\text{rel}}=3.0\%$		
44	*Waterproof Roll Material Impervious Instrument	Pressure	Calibration Specification for Waterproof Roll Material Impervious Instrument JJF(Jin)03	(0~1)MPa	$U=0.6\%FS$		
45	*Rebar Gauge Punching Machine	Length	Verification Regulation of Rebar Gauge Punching Machine JJG (JT) 158	(0~400)mm	$U=0.05\text{mm}$		
46	*Steel bar cold bending core	Length	Calibration method of Steel bar cold bending core TGX 054	(0~300)mm	$U=0.05\text{mm}$		
47	*Sand-cone Density Apparatus	Length	Verification Regulation of Sand-cone Density Apparatus JJG(JT) 120	(0~400)mm	$U=0.05\text{mm}$		
48	*Annular sword	Length	Code for calibration of annular sword SL 110	(0~100)mm	$U=0.05\text{mm}$		
		Angle		(9~16)°	$U=0.1^\circ$		
		Roughness		Ra(0~4) μm	$U=0.3\mu\text{m}$		
49	*Carbonization Depth Measuring Instruments and Calipers	Length	Calibration Specification for Carbonization Depth Measuring Instruments and Calipers JJF 1721	Measuring Rule(0~8)mm	$U=0.08\text{mm}$		
				Measuring instrument(0~26)mm	$U=0.01\text{mm}$		
50	*Relative density meter	Length	V.R. of Relative density meter JJD1021	(40~160)mm	$U=0.05\text{mm}$		
		Mass		(1200~1300)g	$U=1\text{g}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
51	*Mechanical Sieve Shaker	Length	Calibration code for mechanical sieve shaker SL411	(8~14)mm	$U=0.1\text{mm}$		
		Frequency		(100~300)BPM	$U=5\text{BPM}$		
52	Pile Static Load Measuring Instrument	Force	C.S. for Pile Static Load Measuring Instrument JJF(Hei)01	(0.1~5000)kN	$U_{\text{rel}}=0.4\%$		
		Pressure		(0~70)MPa	$U=0.6\%\text{FS}$		
		Length		(0~50)mm	$U=0.02\text{mm}$		
53	*Steel Bar Tarnish Measuring Instruments	DC Voltage	Verification Regulation of Steel Bar Tarnish Measuring Instruments JJF 1341	(0.01~10)V	$U_{\text{rel}}=0.1\%$		
		DC Current		(0.001~2)A	$U_{\text{rel}}=0.2\%$		
54	*Cement Le Chatelier Needles	Length	Calibration Specification for the Expansion Tester of Cement Le Chatelier Needles JJF(JC)110	(0~25)mm	$U=0.04\text{mm}$		
		Mass		(295~305)g	$U=0.02\text{g}$		
55	*Vibrating Talle for Concrete Testing	Length	V.R. of Vibrating Talle for Concrete Testing JJG(Su)60	(0.33~0.52)mm	$U=0.012\text{mm}$		
		Force		(0.1~1000)N	$U=2\text{N}$		
		Frequency		(47~53)Hz	$U=0.2\text{Hz}$		
		Time		(0~5)s	$U=0.01\text{s}$		
56	*Methylene Blue Mixer	Rotational speed	Calibration Specification for Methylene Blue Mixer JJF(Gui)82	(100~900)r/min	$U_{\text{rel}}=0.3\%$		
		Length		(65~85)mm	$U=0.04\text{mm}$		
		Time		(1~600)s	$U_{\text{rel}}=0.5\%$		
57	*Permeameter	Stress	Calibration Specification for Permeameter JJF(Zhe)1165	(0~6)MPa	$U=0.10\%\text{FS}$		



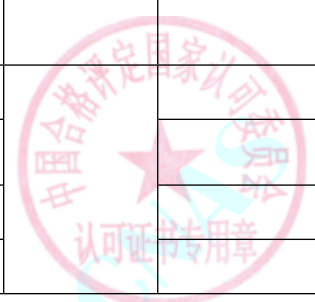
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
58	*Mortar Setting Time Meter	Force	Calibration Specification for Mortar Setting Time Meter JJF(JC) 208	(1~100) N	$U_{rel}=0.2\%$		
59	*Geosynthetic Hydrostatic Testers	Stress	Calibration Specification for Geosynthetic Hydrostatic Testers JJF(Ji) 178	(0~2.5) MPa	$U=0.003\text{MPa}$		
		Length		(2~4) mm	$U=0.03\text{mm}$		
				(190~210) mm	$U=0.04\text{mm}$		
60	*impermeability testing instrument of geomembranes	Length	Calibrating code for impermeability testing instrument of geomembranes SL408	(2~4) mm	$U=0.03\text{mm}$		
		Length		(160~350) mm	$U=0.03\text{mm}$		
		Stress		(0~4) MPa	$U=0.3\%FS$		
61	*Tester for Separating Emulsified Bitumen Particle Ions	Length	V. R. of Tester for Separating Emulsified Bitumen Particle Ions JJG(JT) 115	(0.5~150) mm	$U=0.04\text{mm}$		
		Voltage		(5~7) V	$U=0.006\text{V}$		
62	*Measurer for Liner Removal Performance of Retroreflective Sheeting	Length	Verification Regulation of Measurer for Liner Removal Performance of Retroreflective Sheeting JJG(JT) 085	20 mm、25 mm、63 mm、80 mm、150 mm	$U=0.04\text{ mm}$		
		Mass		6600 g	$U=1.6\text{ g}$		
63	*Asphalt Mixture's Mixing Machine	Volume	Verification Regulation of Asphalt Mixture's Mixing Machine JJG(JT) 064	(10~15)L	$U=0.006\text{ L}$		
		Rotating velocity		45 r/min、75 r/min	$U_{rel}=0.2\%$		
		Time		(10~1800) s	$U=0.6\text{ s}$		
		Temperature		(20~250)°C	$U=0.3\text{ }^{\circ}\text{C}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
64	*Concrete Resistivity Meter	Resistivity	Verification Regulation of Concrete Resistivity Meter JJG(JT) 159	10.4k $\Omega \cdot \text{cm}$ 、16.0k $\Omega \cdot \text{cm}$ 、31.4k $\Omega \cdot \text{cm}$ 、62.8k $\Omega \cdot \text{cm}$ 、314.0k $\Omega \cdot \text{cm}$	$U_{\text{rel}}=0.6\%$		
		DC resistance		100 $\Omega \sim 15 \text{ k}\Omega$	$U_{\text{rel}}=0.06\%$		
65	*Sliding Line Resistance Displacement Meter	Length	Verification Regulation of Sliding Line Resistance Displacement Meter JJG(JT) 040	(0~300)mm	$U=0.03 \text{ mm}$		
66	*Vibration Wire Multipoint Displacement Meter	Length	Verification Regulation of Vibration Wire Multipoint Displacement Meter JJG(JT) 039	(0~300)mm	$U=0.03 \text{ mm}$		
67	*Shape Selector of Glass Beads	Vibration displacement	Verification Regulation for Shape Selector of Glass Beads JJG(JT) 073	(0.1~0.5)mm, 50Hz	$U=0.03 \text{ mm}$		
		Length		150 mm、380 mm	$U=0.2 \text{ mm}$		
		Angle		(0~5) $^{\circ}$	$U=0.05^{\circ}$		
68	Container	Length	Verification Regulation of Container JJG(JT) 191	108 mm、109 mm、155 mm、160 mm、186 mm、204 mm、208 mm、255 mm、294 mm、295 mm、360 mm、467 mm	$U=0.07 \text{ mm}$		
		Capacity		1 L、3 L、5 L、10 L、20 L、30 L、80 L	$U_{\text{rel}}=0.3\%$		
69	*Rebar Bending Testing Machines	Angle	Calibration Specification for Rebar Bending Testing Machines JJF(E) 77	Horizontal:(0~360) $^{\circ}$	$U=0.010^{\circ}$		
				Vertical:(-90~90) $^{\circ}$	$U=0.047^{\circ}$		

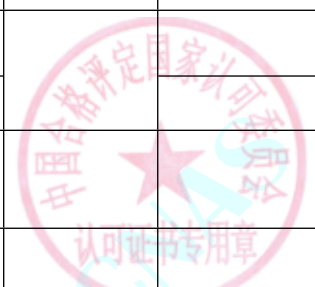


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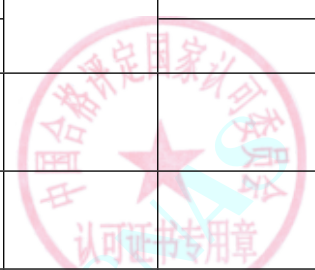
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
70	*Flexibility Test Device of Plastic Bellows	Length	Verification Regulation of Flexibility Test Device of Plastic Bellows JJG(JT) 164	(8~150)mm	U=0.05 mm		
				1500 mm、1800 mm	U=0.5 mm		
		Angle		90°	U=0.08°		
71	*Measurer for Flexibility of Retroreflective Sheeting	Length	Verification Regulation of Measurer for Flexibility of Retroreflective Sheeting JJG(JT) 098	3.20 mm	U=0.003 mm		
72	Standard Testing Sieve for Cement Fineness(80 μ m)	Length	Verification Regulation of Standard Testing Sieve for Cement Fineness(80 μ m) JJG(JT) 049	56 μ m、(75~85) μ m	U=4 μ m		
				10 mm、25 mm、38 mm、50 mm、80 mm、90 mm、125 mm、135 mm、140 mm、142 mm、150 mm、160 mm	U=0.2 mm		
73	Standard Block of Reinforced Covermeter and Floorslab Thickness Tester	Length	Calibration Specification for Standard Block of Reinforced Covermeter and Floorslab Thickness Tester JJF(Jin) 76	(1~600)mm	U=0.05 mm		
74	*Cement Concrete Mixers	Rotating velocity	Verification Regulation of Cement Concrete Mixers JJG(JT) 187	48 r/min、55 r/min	U _{rel} =0.2%		
		Time		120 s	U _{rel} =0.2%		
75	*Ultrasonic Hole Forming Quality Detector	Length	Verification Regulation of the Ultrasonic Hole Forming Quality Detector JJG(JT) 171	0.5 m、0.6 m、0.8 m、1.0 m、1.4 m、2.0 m	U _{rel} =0.6%		
76	Servo Inclinometer	Angle	Verification Regulation of Servo Inclinometer JJG(JT) 038	(-20~20)°	U=6"		



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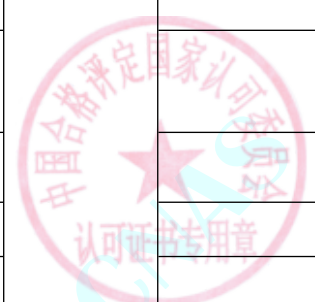
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
77	Borehole Clinometers	Angle	Calibration Specification for Borehole Clinometers JJF 1550	(-30~30)°	U=6"		
78	*Automated Rut-Depth Measuring System	Length	Verification Regulation of Automated Rut-Depth Measuring System JJG(JT) 051	1 mm、5 mm、10 mm、20 mm、50 mm、100 mm、200 mm	U=0.5 mm		
79	*Load Wheel Tester for Asphalt Emulsion Slurry Mixture	Frequency	Verification Regulation of Load Wheel Tester for Asphalt Emulsion Slurry Mixture JJG(JT) 091	44 min ⁻¹	U=1 min ⁻¹		
		Mass		56.7 kg	U=0.10 kg		
		Hardness		65 HA	U=1.2 HA		
		Length		3.2 mm、6.4 mm、12.7 mm、26.0 mm、38.0 mm、50.0 mm、76.5 mm、152 mm、355 mm、380 mm	U=0.06 mm		
80	*Emulsified Bitumen Stability Test-tube	Length	Verification Regulation of the Emulsified Bitumen Stability Test-tube JJG(JT) 116	12 mm、32 mm	U=0.018 mm		
				30 mm、50 mm、62 mm、174 mm	U=0.05 mm		
				310 mm	U=0.5 mm		
81	Vibrating Wire Rebar Stress Meter	Force	Verification Regulation of Vibrating Wire Rebar Stress Meter JJG(JT) 035	(10~600)kN	U _{rel} =0.8%		
82	*Testing Instrument for Crushing Value	Length	Verification Regulation of Testing Instrument for Crushing Value JJG(JT) 190	(10~150)mm	U=0.04 mm		
83	*Mortar layering Tester	Length	Calibration Specification of Mortar layering Tester JJF(Xiang) 36	100 mm、150 mm、200 mm	U=0.04 mm		

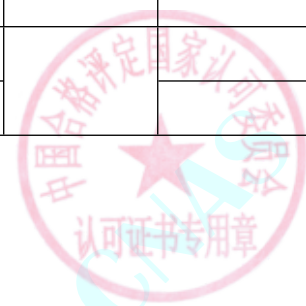


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
84	*Measurer for Resistance to Impact of Raised Pavement Markers	Length	Verification Regulation of Measurer for Resistance to Impact of Raised Pavement Markers JJG(JT) 080	1000 mm	U=0.3 mm		
		Mass		1040 g	U=0.2 g		
85	*Consistency Tester for Asphalt Emulsion Slurry Mixture	Length	Verification Regulation of Consistency Tester for Asphalt Emulsion Slurry Mixture JJG(JT) 114	38 mm、76 mm、89 mm、109 mm、129 mm、149 mm、169 mm、189 mm、209 mm	U=0.04 mm		
86	*Rapid Freezing and Thawing Test Machine for Concrete	Temperature	Calibration Specification of Rapid Freezing and Thawing Test Machine for Concrete JJF(Jin) 45	(-18~5)°C	U=0.15 °C		
87	*Standard Viscometer of Bituminous Materials	Temperature	Verification Regulation of Standard Viscometer of Bituminous Materials JJG(JT) 055	40 °C、60 °C	U=0.08 °C		
		Length		6.35 mm、12.70 mm	U=4 μm		
				5.0 mm、90.3 mm、92.0 mm	U=0.05 mm		
		Capacity		25 mL、50 mL、75 mL、100 mL	U=0.8 mL		
88	*Asphalt Mixture Rut-depth Testing Instrument	Temperature	Calibration Specification for Asphalt Mixture Rut-depth Testing Instrument JJF(Zhe) 1094	60 °C	U=0.15 °C		
		Length		Deformation measurement device: (0~30)mm	U=3 μm		
				Size: 15 mm、50 mm、200 mm	U=0.05 mm		
				230 mm	U=0.8 mm		
		Hardness		78 IRHD	U=0.4 IRHD		
		Frequency		42 min ⁻¹	U=0.3 min ⁻¹		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Pressure		0.70 MPa	$U=0.005$ MPa		
89	*Measurer for Impact Resistance of Retroreflective Sheeting	Length	V.R. of Measurer for Impact Resistance of Retroreflective Sheeting JJG(JT) 084	54 mm、60 mm、250 mm	$U=0.05$ mm		
		Mass		450 g	$U=0.009$ g		
90	*Digital Sticking Strength Testers	Force	Calibration Specification for Digital Sticking Strength Testers JJF(Ji) 224	(1~10)kN	$U_{rel}=0.3\%$		
		Length		8 mm、40 mm、45 mm、50mm、95 mm	$U=0.05$ mm		
91	*Unconfined Thickness Measurement Instrument	Length	Verification Regulation of Unconfined Thickness Measurement Instrument JJG(JT) 177	1 mm、2 mm、3 mm、4 mm、5 mm、6 mm、7 mm、8 mm、9 mm、10 mm	$U=4$ μ m		
		Area		(50~2600)mm ²	$U=7$ mm ²		
		Force		100 cN、200 cN	$U=0.004$ cN		
		Time		10 s、30 s	$U=0.2$ s		
92	Wedge-Shape Filler Gauges	Length	Calibration Specification for Wedge-Shape Filler Gauges JJF 1548	(0~60)mm	$U=0.01$ mm		
93	Test Sieves	Length	Calibration Specification for Test Sieves JJF 1175	(0.04~4)mm	$U=2$ μ m		
				(4~125)mm	$U=0.04$ mm		

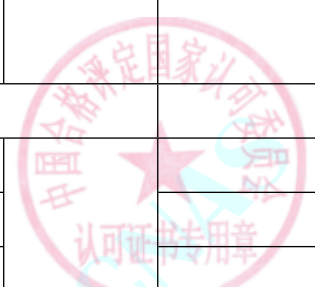


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
94	*Molds	Length	Calibration Specification for Molds JJF 1307	40.0 mm、40.1 mm、100 mm、150 mm、160 mm、175 mm、185 mm、200 mm、300 mm、400 mm、450 mm、515 mm、550 mm、600 mm	U=0.04 mm		
95	Multifunction Slope Scale	Angle	Calibration Specification for Multifunction Slope Scale JJF(Ji) 140	(-90~90)°	U=0.3°		
Special measuring instruments for civil aviation and aviation							
1	PRO360/PRO3600 /DP-45 Protactor	Angle	C.S.for PRO360/ PRO3600 / DP-45 Protractor JJF(MH)0103	(0~90)°	U=0.01°		
2	Dynamometer of The Engine Bootstrap Equipment	Force	C.S for Dynamometer of The Engine Bootstrap Equipment JJF(MH)0122	(0.1~200)kN	U=0.2%FS		
3	Cable Tensiometer of Direct Reading Type	Force	C.S.for Cable Tensiometer of Direct Reading Type JJF(MH)0087	(0.01~5)kN	U _{rel} =1.0%		
Special measuring instruments for electrical and electronic appliances							
1	*Single Insulated Wire and Cable Vertical burning Test Device	Temperature	Verification Procedure for Test Equipment of Rubber Plastic Wire and Cable -Part 5:Single Insulated Wire and Cable Vertical Burning Test Device JB/T4278.5	(0~1300) °C	U=0.8°C		
		Time		(0~60) s	U=0.5s		
		Length		(0~150) mm	U=0.5mm		



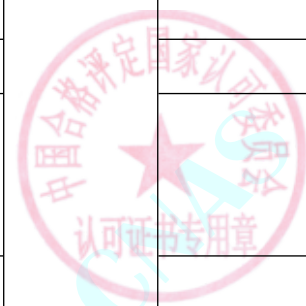
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Glow-wire Apparatus	Temperature	C. S. for Glow-wire Apparatus JJF(Zhe)1050	(30~1000)°C	$U=1.6^{\circ}\text{C}$		
		Time		(0~60)s	$U=0.5\text{s}$		
		Length		(0~150)mm	$U=0.05\text{mm}$		
		Force value		(0~10)N	$U=0.1\text{N}$		
3	*charge & Discharge of battery tester	Charge Voltage	Calibration Specification for Battery Charge & Discharge Testers JJF 2039	(0.01~1000) V	$U_{\text{rel}}=0.03\%$		
		Charge Current		10 μA ~200A	$U_{\text{rel}}=0.06\%$		
				200A~2000A	$U_{\text{rel}}=0.07\%$		
		Discharge Voltage		(0.01~1000) V	$U_{\text{rel}}=0.03\%$		
		Discharge Current		10 μA ~200A	$U_{\text{rel}}=0.06\%$		
				200A~2000A	$U_{\text{rel}}=0.07\%$		
		DC power		0.1W~100W	$U_{\text{rel}}=0.10\%$		
				100W~10kW	$U_{\text{rel}}=0.15\%$		
		Discharge capacity		0.1Ah~10Ah	$U_{\text{rel}}=0.09\%$		
				10Ah~1kAh	$U_{\text{rel}}=0.05\%$		
		Constant current charging current rise time		10 μs ~10ms	$U_{\text{rel}}=0.3\%$		
		Temperature		- 20°C~100°C	$U=0.2^{\circ}\text{C}$		
4	*Electrical safety	Insulation	Calibration specification for	(1k Ω ~10M Ω)	$U_{\text{rel}}=0.3\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	analyzer	Resistance	comprehensive safety tester JJF(DZ)0004	(10~100) MΩ	$U_{rel}=0.6\%$		
				(100~1000) MΩ	$U_{rel}=1.3\%$		
				(1000~5000) MΩ	$U_{rel}=3\%$		
		Earth Continuity		(1~600) mΩ	$U_{rel}=0.6\%$		
		Earth Current		(1~40) A	$U_{rel}=0.3\%$		
		DC Voltage		(0.1~10) kV	$U_{rel}=0.7\%$		
		AC voltage		(0.01~6) kV (50Hz, 60Hz)	$U_{rel}=0.7\%$		
		DC current		(0.01~200) mA	$U_{rel}=0.8\%$		
		AC current		(0.01~200) mA (50Hz,60Hz)	$U_{rel}=0.8\%$		
	Time	(0.01~999.99)s	$U=0.8\%T+0.03s$				
5	*Voltage Dips ,Short Interruptions and Voltage Variations Generator	Output voltage	C.S. for Voltage Dips ,Short Interruptions and Voltage Variations Generator JJF(DZ) 30802	(0.01~1)kV	$U_{rel}=1\%$		
		Time		0.01 s~50s	$U_{rel}=0.6\%$		
6	*Cable Tester	Cable DC resistance	Calibration for Cable Tester JJF1457	0.1 Ω ~ 1 Ω	$U_{rel}=2\%$		
				1 Ω ~ 10 Ω	$U_{rel}=1.2\%$		
				10 Ω ~ 100k Ω	$U_{rel}=1.0\%$		
				1M Ω ~ 100M Ω	$U_{rel}=1.2\%$		
		100M Ω ~ 1000M Ω		$U_{rel}=1.5\%$			
	Insulation alarm resistance						



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC output voltage	ilac-M	(50~2000)V,(45Hz~65Hz)	$U_{rel}=1.3\%$		
		AC output voltage Total harmonic distortion		0.1%~10%	$U_{rel}=3\%$		
		Capacitance between wires		100pF~100 μ F	$U_{rel}=0.3\%$		
		Leakage current		(0.01~20)mA,(45Hz~65Hz)	$U_{rel}=1.3\%$		
		Charging Voltage		50V~2000V	$U_{rel}=1.2\%$		
7	*Transformer On-load Tap-changer Testers	Transition time resistance	Calibration Specification of Transformer On-load Tap-changer Testers JJF(Zhe) 1084	(10~300)ms (0.1~80) Ω	$U=0.15\%T_x+0.2ms$ $U=0.8\%R_x+0.003\Omega$		
8	Electrostatic Discharge Simulators	Output voltage Contact discharge current Rise Time	C.S. for Electrostatic Discharge Simulators JJF 1397	(1~40) kV (1~100)A 0.1 ns~100 ns	$U_{rel}=0.8\%$ $U_{rel}=6.6\%$ $U_{rel}=13\%$		
9	*Impulse Voltage Testers for Winding Interturn Insulation	Impulse Peak Voltage Front time	C. S. for Impulse Voltage Testers for Winding Interturn Insulation JJF 1691	(0.01~15)kV (0.1~10) μ s	$U_{rel}=1.2\%$ $U_{rel}=5\%$		
10	*Electrical Surge Generator	Output voltage Half peak time	C.S. for Electrical Surge Generator JJF(DZ) 30803	(0.1~20) kV 1 ns~1s	$U_{rel}=0.8\%$ $U_{rel}=2.5\%$		

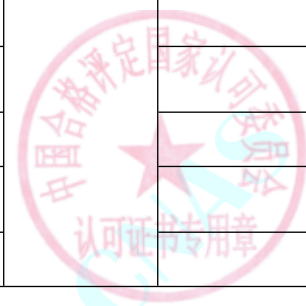


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Front Time		1 ns~1s	$U_{rel}=2.5\%$		
		Surge current peak		500A~8kA	$U_{rel}=2.5\%$		
11	*Current probes of Oscilloscope	DC Current	Calibration specification for Current probes of Oscilloscope JJF(DZ) 0036	0.01A~1000A	$U_{rel}=0.7\%$		
		AC Current		0.01A~1000A(40Hz~1kHz)	$U_{rel}=0.8\%$		
		Attenuation coefficient		1~1000	$U_{rel}=0.7\%$		
		Band bandwidth		50kHz~120MHz	$U_{rel}=4.2\%$		
		Rise Time		(3.6~100) ns	$U_{rel}=6\%$		
12	*Oscilloscope Voltage Probe	Attenuation	Calibration Specification for Oscilloscope Voltage Probe JJF 1437	1:1~1000:1	$U_{rel}=0.7\%$		
		Frequency Response		10kHz~300MHz	$U=0.8\text{dB}$		
		Rise time		(1~100)ns	$U_{rel}=6\%$		
		Input impedance		50 Ω ~100M Ω	$U_{rel}=0.04\%$		
13	*Higt Voltage probes of Oscilloscope	Attenuation ratio	Calibration specification for Differential probes of Oscilloscope JJF((DZ) 30306	1~1000	$U_{rel}=0.7\%$		
		frequency response		10Hz~300MHz	$U_{rel}=0.8\%$		
		Rise Time		(1.0~100) ns	$U_{rel}=6\%$		
		Input Resistance		50 Ω ~100M Ω	$U_{rel}=0.7\%$		
		CMRR		18dB~90dB	$U=1.9\text{dB}$		

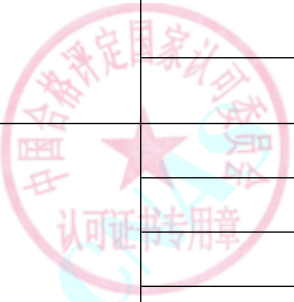


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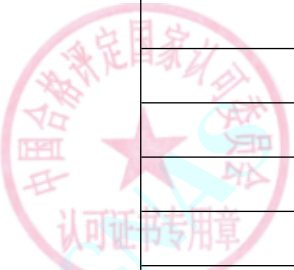
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
14	*Higt Voltage probes of Oscilloscope	DC voltage attenuation ratio	Calibration specification for Higt Voltage probes of Oscilloscope JJF(DZ) 30304	DC:1~1000 (100V~20kV)	$U_{rel}=0.7\%$		
		AC voltage attenuation ratio		AC:1~1000 (50V~20kV, 45Hz~65Hz)	$U_{rel}=0.8\%$		
15	*Impulse Voltage Tester with Respect to Eareh	Open circuit voltage peak	Calibration Specification for Impulse Voltage Tester with Respect to Eareh JJF(Zhe)1069	0.05kV~20kV	$U_{rel}=3\%$		
		pulse wavefront time		0.5 μ s~20 μ s	$U_{rel}=5\%$		
		Half wave time		20 μ s~1ms	$U_{rel}=4\%$		
16	*Electrical Fast Transient Generator	Impulse Peak Voltage	C.S.for Electrical Fast Transient Generator JJF(DZ) 30804	(0.01~5)kV	$U_{rel}=3\%$		
		Burst Duration		(0.1~200)ms	$U_{rel}=1.5\%$		
		Rise time of pulse voltage		(2~10)ns	$U_{rel}=4.3\%$		
		Pulse voltage duration		(10~200)ns	$U_{rel}=4\%$		
		Pulse repetition rate		0.1kHz~1MHz	$U_{rel}=0.7\%$		
		Pulse group period		10ms~1000ms	$U_{rel}=0.6\%$		
17	*Data acquisition device	DC Voltage	Calibration Specification for Multi-Parameter Data Acquisition Instrument JJF (TX) 041	(10~100)mV	$U_{rel}=9.0 \times 10^{-5}$		
				(100mV~1V)	$U_{rel}=2.0 \times 10^{-5}$		
				(1~10)V	$U_{rel}=1.8 \times 10^{-5}$		
				(10~1000)V	$U_{rel}=3.0 \times 10^{-5}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Voltage	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(10~100)mV	$U_{rel}=8.6 \times 10^{-4}$		
				100mV~1V(45Hz~10kHz)	$U_{rel}=2.6 \times 10^{-4}$		
				1V~10V(45Hz~10kHz)	$U_{rel}=2.2 \times 10^{-4}$		
				10V~100V(45Hz~10kHz)	$U_{rel}=2.4 \times 10^{-4}$		
				100~1000V(45Hz~10kHz)	$U_{rel}=2.4 \times 10^{-4}$		
		DC Current		(100μA~1mA)	$U_{rel}=6.5 \times 10^{-4}$		
				(1~100)mA	$U_{rel}=2.0 \times 10^{-4}$		
				(100mA~3A)	$U_{rel}=4.0 \times 10^{-4}$		
				(3~20)A	$U_{rel}=1.0 \times 10^{-3}$		
		AC Current		100μA~1mA(45Hz~5kHz)	$U_{rel}=2.6 \times 10^{-3}$		
				1mA~100mA(45Hz~5kHz)	$U_{rel}=7.0 \times 10^{-4}$		
				100mA~3A(45Hz~5kHz)	$U_{rel}=6.0 \times 10^{-4}$		
				3A~20A(45Hz~5kHz)	$U_{rel}=1.2 \times 10^{-3}$		
		DC Resistance		(10~100) Ω	$U_{rel}=7.8 \times 10^{-5}$		
				100 Ω ~ 10k Ω	$U_{rel}=3.2 \times 10^{-5}$		
				10k Ω ~ 1M Ω	$U_{rel}=4.2 \times 10^{-5}$		
(1~100)M Ω	$U_{rel}=5.0 \times 10^{-4}$						



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature (TC)		(-100~1300) °C	$U=0.3^{\circ}\text{C}$		
		Temperature (RTD)		(0~800) °C	$U=0.2^{\circ}\text{C}$		
		Average relative frequency		10Hz~10MHz	$U_{\text{rel}}=1.4 \times 10^{-5}$		
18	*Spark Testers	AC Voltage	C.S. for Spark Testers JJF 2239	AC: (0.1kV~20kV) 50Hz/60Hz	$U_{\text{rel}}=0.7\%$		
		DC Voltage		DC: (0.1kV~30kV)	$U_{\text{rel}}=0.6\%$		
19	*Online Winding Temperature Rise Tester	Resistance	Calibration Specification For Online Winding Temperature Rise Tester JJF 1540	(0.1~1) Ω	$U_{\text{rel}}=0.6\%$		
				(1~10) Ω	$U_{\text{rel}}=0.07\%$		
				(10 Ω ~10k Ω)	$U_{\text{rel}}=0.06\%$		
20	*Battery Resistance Test Instrument	Resistance	Calibration Specification for Battery Internal Resistance Testers JJF 1620	1m Ω ~10m Ω	$U_{\text{rel}}=0.15\%$		
				10m Ω ~10k Ω	$U_{\text{rel}}=0.07\%$		
		Voltage		(0.1~10)V	$U_{\text{rel}}=0.03\%$		
				(10~800)V	$U_{\text{rel}}=0.02\%$		
21	*Proof Tracking Index Testers	Test voltage	Calibration Specification for Proof Tracking Index Testers JJF(Zhe) 1087	(0.1~750)V(45Hz~60Hz)	$U_{\text{rel}}=0.3\%$		
		Test current		(0.01~1)A(45Hz~60Hz)	$U_{\text{rel}}=0.2\%$		
		Time		(0.01~999.9)s	$U_{\text{rel}}=0.3\%$		
22	*DC Electronic Load	DC Voltage	C.S. for DC Electronic Load JJF 1462	0.1V~100V	$U_{\text{rel}}=0.02\%$		
				100V~1000V	$U_{\text{rel}}=0.04\%$		

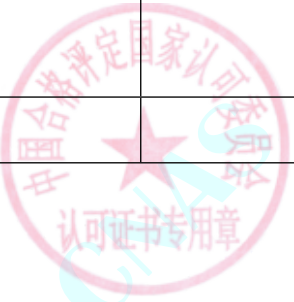


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC Current	C.S. for Coil Number Testing Instructing JJF(Zhe)1065	0.01A~20A	$U_{rel}=0.05\%$		
				20A~120A	$U_{rel}=0.07\%$		
				120A ~200A	$U_{rel}=0.12\%$		
		DC Resistance		1Ω~1kΩ	$U_{rel}=0.10\%$		
				DC Power	1W ~100W		
					100W ~2kW		
		Current rise and fall rate		0.1mA/μs~10A/μs	$U_{rel}=1.6\%$		
		Current loading time and unloading time		10μs~10s	$U_{rel}=0.7\%$		
		Constant voltage mode load regulation rate		0.01%~10%	$U_{rel}=0.04\%$		
		Constant current mode load regulation rate		0.01%~10%	$U_{rel}=0.12\%$		
23	*Loop tester	loops		(1~11110) loops	$U_{rel}=0.3\%$		



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The scope of the accreditation in Chinese remains the definitive version.

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