

Name: Hebei Institute of Metrology

Address: Zhijian Testing Center, Shangzhuang Street, Luquan District, Shijiazhuang, Hebei, China

Registration No. CNAS L1075

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

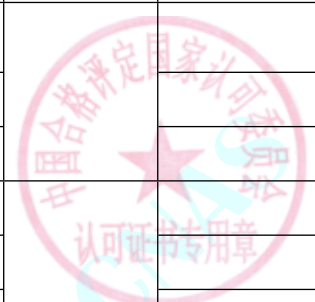
Effective Date: 2022-08-15 Expiry Date: 2028-08-08

CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT
SCHEDULE OF ACCREDITATION CERTIFICATE

SCHEDULE 5 ACCREDITED CALIBRATION AND MEASUREMENT CAPABILITY SCOPE

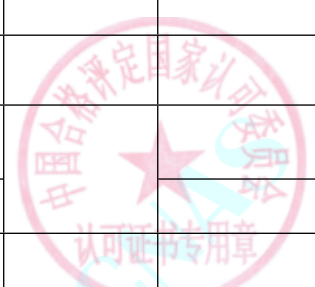
Note: The instruments with * represents onsite calibration can be performed.

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
Measurement equipment							
I Length measurement equipment							
1	Internal Micrometers	Length	V. R. of Internal Micrometers JJG22	(50~1000)mm	$U=0.6 \mu m + 4.0 \times 10^{-6}L$		
				(>1000~3000)mm	$U=0.1 \mu m + 4.5 \times 10^{-6}L$		
2	Concrete Shrinkage Dilatometer	Length	C. S. for Concrete Shrinkage Dilatometer JJF (Ji) 139	MeasuringRod:(100~540)mm	$U=7 \mu m$		
				DialGauges:(0~10)mm	$U=6 \mu m$		
				(100~600)mm	$U_{rel}=0.002\%$		
3	Calibrator of Extensometers	Length	C. S. for Calibrator of Extensometers JJF1096	(0~1/3)mm	$U=0.14 \mu m$		
				(>1/3~1)mm	$U_{rel}=0.05\%$		
				(>1~25)mm	$U_{rel}=0.01\%$		



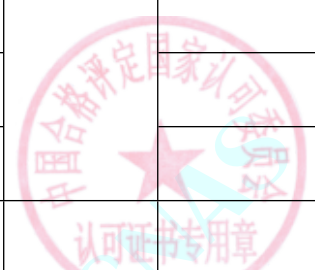
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	*Extensometer	Length	V. R. of Extensometer JYG762	(0~0.3)mm	$U=0.5 \mu m$		
				(>0.3~25)mm	$U_{rel}=0.14\%$		
5	Electromagnetic Layered Settlement Gauge, Steel Ruler Water Level Gauge	Length	V. R. of Electromagnetic Layered Settlement Gauge JJG(Traffic)149	(0~300)m	$U=0.2mm+5.1 \times 10^{-6}L$		
6	Standard Thickness	Length	C. S. for Standard Thickness JJF(Shan)010	(0.4~201)mm	$U=3 \mu m$		
7	Standard Round Tube	Length	C. S. for Standard Round Tube JJF(Shan)022	(1~4)mm	$U=3 \mu m$		
8	Optical Flat	Flatness	V. R. of Optical Flats JJG28	ϕ (0~100)mm	$U=0.01 \mu m$		
				ϕ 150mm	$U=0.012 \mu m$		
		Depth of parallelism		(15~91)mm	$U=0.2 \mu m$		
9	Gauge Blocks	Length	V. R. of Gauge Blocks JJG146	(0.5~100)mm	$U=0.07 \mu m+0.7 \times 10^{-6}l_n$		
				(>100~1000)mm	$U=0.2 \mu m+1.1 \times 10^{-6}l_n$		
10	Frame Levels and Shaft Levels	Angle	C.S. for Frame Levels and Shaft Levels JJF1084	Division Value (0.02~0.10)mm/m	$U_{rel}=5\%$		
11	Level Rules	Angle	C. S. for Level Rules JJF1085	Division Value, (0.5~10)mm/m	$U=0.02mm/m+7.9 \times 10^{-2} \tau$ (τ : Division Value)		
		Length		(0~2000)mm	$U=0.6mm$		
12	Multifunction Slope Scale	Angles	C. S. for Multifunction Slope Scale JJF (Ji) 140	(-90~+90)°	$U=0.3^\circ$		
13	Paint Film Scriber	Length	C. S. for Paint Film Scriber JJF (Ji) 137	(0~3)mm	$U=3 \mu m$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Angle		(0~90)°	U=0.2°		
		Straightness		(0~0.2)mm	U=1.2 μ m		
14	Wet Film Thickness Gauges	length	C. S. for Wet Film Thickness Gauges JJF1484	wheel gauge: (0~125) μ m	U=1.0 μ m		
				comb gauge: (0~100) μ m	U=1.0 μ m		
				comb gauge: (>100~3000) μ m	U=2.4 μ m		
15	Tester for Determing Expansion of Le Chatelier Needles	length	C. S. for Tester for Determing Expansion of Le Chatelier Needles JJF (Ji) 132	(-25~+25)mm	U _{rel} =0.6%		
16	Digital Inclometer	angle	C. S. for Clinometers JJF1915	(0~360)°	U=0.006°		
17	Coincidence Levels	angle	V. R. of Electronic Levels and Coincidence Levels JJG103	(0~40)'	U=0.002mm/m		
18	Microcator	Length	V. R. of Microcator JJG118	Division Value 0.1 μ m, (-10~+10) μ m	U=0.06 μ m		
				Division Value 0.2 μ m, (-10~+10) μ m	U=0.08 μ m		
				Division Value 0.5 μ m, (-30~+30) μ m	U=0.1 μ m		
				Division Value 1 μ m, (-100~+100) μ m	U=0.2 μ m		
19	Comparators of Machine Type	Length	V. R. of Comparator of Machine Type JJG39	Division Value 0.5 μ m, (-30~+30) μ m	U=0.08 μ m		
				Division Value 1 μ m, (-100~+100) μ m	U=0.17 μ m		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Division Value 10 μm, (-1 ~ +1)mm	U=2 μm		
20	Test Sieves	Length	C. S. for Test Sieves JJF1175	(0.04~4)mm	U=2 μm		
				(>4~125)mm	U=0.03mm		
21	Construction Quality Tester Sets	Angle	C. S. for Construction Quality Tester Sets JJF1110	Verticality Tester, Right Angle Tester, Slop Scale, (-5~+5)mm/m	U=0.12mm/m		
		Length		Diagonal Tester, Hundred Grid, (115~240)mm	U _{rel} =0.11%		
22	*Calibration Devices of Verticality Measuring Testers	Length	C. S. for Calibration Devices of Verticality Measuring Testers JJF(Yu)184	(0~2000)mm	U=0.09mm		
23	*Calibration Devices of Internal and External Angle Testers、Wedge Feelers	Length	C. S. for Calibration Devices of Internal and External Angle Testers、Wedge Feelers JJG(Yu) 186	(135~156)mm	U=0.011mm		
24	Tire Tread Depth Gauges	Length	C. S. for Tire Tread Depth Gauges JJF1477	(0~30)mm	U=0.02mm		
25	Needle and Flake Gages	Length	C. S. for Needle and Flake Gages JJF1593	(2~83)mm	U=0.04mm		
26	Appartus for Concrete Slump Test	Length	V. R. of Appartus for Concrete Slump Test JJG(Ji)087	(90~210)mm	U=0.1mm		
27	Level Rod	Length	Level Rod JJG8	(0~5)m	U=0.3mm		
28	Oil Special T-squares	Length	C. S. for Oil Special T-squares JJG(Ji)151	(0~2)m	U=0.2mm		
		Angle		(90±1)°	U=3'		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
29	Cylindrical Measuring Pin	Length	C. S. for Cylindrical Measuring Pin JJF1207	(0.1~25)mm	$U=0.23 \mu\text{m}$		
30	Moulds	Length	C.S. for Moulds JJF1307	(90~610)mm	$U_{\text{rel}}=0.05\%$		
31	Carbonization Depth Measuring Instruments and Calipers	Length	C. S. for Carbonization Depth Measuring Instruments and Calipers JJF1721	Carbonization Depth Measuring Instruments,(0~8)mm	$U=0.08\text{mm}$		
				Carbonization Depth Measuring Calipers,(0~70)mm	$U=0.01\text{mm}$		
32	Cylindrical Thread Gauges	pitch diameter	C.S. for Cylindrical Thread Gauges JJF1345	(M1~M200)mm	$U=3.3 \mu\text{m}$		
		pitch		Plug gauge,(0.2~8.0)mm	$U=1.2 \mu\text{m}$		
				Ring Gauge,(0.2~8.0)mm: $2.5\text{mm} \leq L \leq 200\text{mm}$ "	$U=1.2 \mu\text{m} + 1.9 \times 10^{-6}L$		
33	Plain Limit Gauges	Length	Plain Limit Gauges JJG343	Ring Gauge: (5~260)mm	$U=0.7 \mu\text{m} + 4.0 \times 10^{-6}L$		
				Plug Gauge: Φ (0~500)mm	$U=0.30 \mu\text{m}$		
34	Borehole Clinometers	Angle	C. S. for Borehole Clinometers JJF1550	(-30° ~30°)	$U=0.008\%$		
35	Wedge-Shape Filler Gauges	Length	Calibration Specification for Wedge-Shape Filler Gauges JJF1548	(0~60)mm	$U=0.010\text{mm}$		
36	Apparatus for Determining Penetration of	Needlebody diameter	C. S. for Apparatus for Determining Penetration of Bituminous Materials	(0~2)mm	$U=0.003\text{mm}$		
		Angle		(0~20)°	$U=6'$		



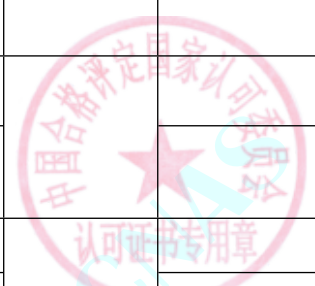
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Bituminous Materials	Length measuring device indication error	JJF1208	(0~100)mm	$U=0.03\text{mm}$		
37	Blocks used in Ultrasonic Testing	Length	C. S. for Blocks used in Ultrasonic Testing JJF1487	(0~500)mm	$U=0.014\text{mm}$		
38	Micrometer	Length	V. R. of Micrometer JJG21	(0~500)mm	$U=1.0\ \mu\text{m}+3.5\times 10^{-6}L$		
				Calibration Stick, (25~500)mm	$U=0.3\ \mu\text{m}+2.5\times 10^{-6}L$		
39	Large Dimension Outside Micrometers	Length	C. S. For Large Dimension Outside Micrometers JJF1088	Micrometer Head, (0~50)mm	$U=1.2\ \mu\text{m}$		
				Calibration Stick, (500~1000)mm	$U=0.3\ \mu\text{m}+2.5\times 10^{-6}L$		
				Calibration Stick, (>1000~3000)mm	$U=0.4\ \mu\text{m}+3.4\times 10^{-6}L$		
40	Micrometers of Measuring Inside Dimension	Length	C. S. for Micrometers of Measuring Inside Dimension JJF1411	Inside Micrometers, (5~75)mm	$U=2\ \mu\text{m}$		
				Three-Point Internal Micrometers, (5~50)mm	$U=1.1\ \mu\text{m}$		
				Three-Point Internal Micrometers, (>50~75)mm	$U=1.3\ \mu\text{m}$		
41	Micrometers with Dial Comparator and Indicating Snap Gauge	Length	V. R. of Micrometers with Dial Comparator and Indicating Snap Gauge JJG26	Micrometers with Dial Comparator, (0~200)mm	$U=0.6\ \mu\text{m}+2.6\times 10^{-6}L$		
				Calibration Stick, (25~200)mm	$U=0.3\ \mu\text{m}+2.5\times 10^{-6}L$		
42	Common Normal Micrometer	Length	V. R. of Common Normal Micrometer JJG82	(0~200)mm	$U=0.8\ \mu\text{m}+6.8\times 10^{-6}L$		
				Calibration Stick, (25~200)mm	$U=0.3\ \mu\text{m}+2.5\times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
43	Current Calipers	Length	V. R. of Current Calipers JJG30	(0~500)mm	U=0.01mm		
				(>500~1000)mm	U=0.02mm		
				(>1000~2000)mm	U=0.03mm		
44	Gear Tooth Calipers	Length	C. S. for Gear Tooth Calipers JJF1072	Modulus:(1~26)mm	U=0.014mm		
45	Height Caliper	Length	V. R. of Height Caliper JJG31	(0~500)mm	U=0.01mm		
				(>500~1000)mm	U=0.02mm		
46	Bore Dial Indicators	Length	C. S. for Bore Dial Indicators JJF1102	Division Value0.01mm,(2~200)mm	U=2 μ m		
				Division Value0.001mm,(2~200)mm	U=1.2 μ m		
47	Dial Test Indicator	Length	V. R. of Dial Test Indicator JJG35	(0~0.4)mm	U=1.2 μ m		
				(>0.4~1.0)mm	U=2.0 μ m		
48	General Bevel Protractors	Length	C. S. for General Bevel Protractors JJF1591	(0~360)°	U=1.2'		
49	Feeler Gauges	Length	V. R. of Feeler Gauges JJG62	(0.02~3)mm	U=1.4 μ m		
50	Straight Edge	Length	V. R. of Straight Edge JJG63	(0~175)mm	U=0.33 μ m		
51	Steel Rule	Length	V, R, of Steel Rule JJG1	(0~1000)mm	U=0.05mm		
				(>1000~2000)mm	U=0.09mm		
52	Squares	Length	V. R. of Squares JJG7	Wide Base Squares(50~500)mm	U=1.3 μ m		
				Column Squares,(50~500)mm	U=1.0 μ m		



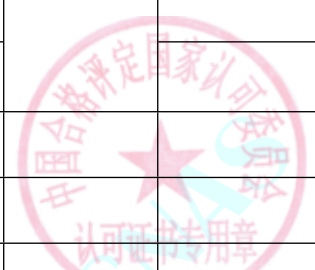
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Straight Edge Squares,(50~400)mm	$U=0.7 \mu m$		
				Steel Squares with Linear Scale,(150~500)mm	$U=0.04mm$		
53	Depth Dial Gauge	Length	V. R. of Depth Dial Gauge JJG830	(0~50)mm	$U=1 \mu m$		
				(>50~100)mm	$U=6 \mu m$		
54	Thickness Gauges	Length	C. S. for Thickness Gauges JJF1255	(0~1)mm	$U=1.9 \mu m$		
				(>1~10)mm	$U=2.6 \mu m$		
				(>10~30)mm	$U=5.1 \mu m$		
55	Dial Snap Gauges	Length	C. S. for Dial Snap Gauges JJF1253	(5~100)mm	$U=0.003mm$		
56	Rubber and Plastic Film Gage	Length	C. S. for Rubber and Plastic Film Gage JJF1488	(0~1)mm	$U=1.7 \mu m$		
				(>1~30)mm	$U=2 \mu m$		
57	Steel Measuring Tapes	Length	V. R. of Steel Measuring Tapes JJG4	I grade Steel Tape,(0~200]m	$U=0.035mm+1.7 \times 10^{-6}L$		
				II grade Steel Tape,(0~200]m	$U=0.2mm+5.1 \times 10^{-6}L$		
				Depth Steel Tape,(0~50)m	$U=0.11mm+2.4 \times 10^{-6}L$		
58	Standard Steel Tapes	Length	V. R. of Standard Steel Tapes JJG741	(0~50)m	$U=5 \mu m+4 \times 10^{-6}L$		
59	Fiber Tapes	Length	V. R. of Fiber Tapes and Measuring Ropes JJG5	(0~200]m	$U=0.3mm+5.3 \times 10^{-6}L$		
60	Brick Calipers	Length	V. R. of Brick Calipers JJG (Ji) 121	vice ruler:(-10~+30)mm	$U=0.06mm$		
				main ruler:(0~250)mm	$U=0.2mm$		

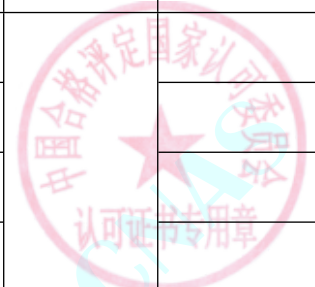


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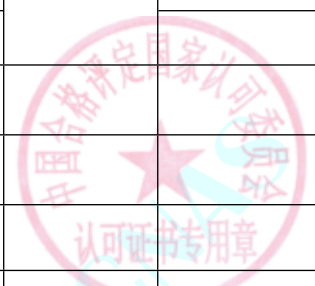
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
61	Standard Metallic Scale (Grade I II)	Length	V. R. of Standard Metallic Scale (Grade I II) JJG71	(0~1000)mm	$U=4.8 \mu\text{m} + 6.5 \times 10^{-7}L$		
62	*Toolmaker's Microscope	Length	V. R. of Toolmaker's Microscope JJG56	(0~200)mm	$U=0.3 \mu\text{m} + 3 \times 10^{-6}L$		
		Angles		(0~360)°	$U=4''$		
63	*Projectors	Length	C. S. for Projectors JJF1093	(0~200)mm	$U=1.0 \mu\text{m} + 6.0 \times 10^{-6}L$		
64	*Contact (Stylus) Instruments of Surface Roughness Measurement by Profile Method	Roughness	C. S. for Contact (Stylus) Instruments of Surface Roughness Measurement by Profile Method JJF1105	Ra:(0.02~0.1) μm	$U_{\text{rel}}=5.4\%$		
				Ra:(>0.1~12.5) μm	$U_{\text{rel}}=2.1\%$		
65	*Inductive Micrometers	Length	C. S. for Inductive Micrometers JJF1331	Resolution,0.01 μm ,(-10~+10) μm	$U=0.02\mu\text{m}$		
				Resolution0.1 μm ,(-100~+100) μm	$U=0.2\mu\text{m}$		
				Resolution1 μm ,(-1000~+1000) μm ,	$U=1.3\mu\text{m}$		
66	*Contact-type Interferometers	Length	V. R. of Contact-type Interferometers JJG101	(-5~+5) μm ,	$U=0.007 \mu\text{m}$		
67	*Length Measuring Machine	Length	C. S. for Length Measuring Machine JJF1066	decimetrescale,(100~1000)mm	$U=0.2\mu\text{m} + 3.4 \times 10^{-6}L$		
				decimetrescale,(1000~3000)mm	$U=0.3\mu\text{m} + 0.8 \times 10^{-6}L$		
				Millimeterscale,(0~100)mm	$U=0.3 \mu\text{m}$		
				Microns scale,(-100~+100) μm	$U=0.05 \mu\text{m}$		
68	*Optimeter	Length	V. R. of Optimeter JJG45	(-100~+100) μm	$U=0.06 \mu\text{m}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
69	*Optical Digital Dividing Head	Angles	V. R. of Optical Digital Dividing Head JJG57	(0~360)°	U=1"		
70	*Gear Involute Measuring Instrument	Length	C. S. for Gear Involute Measuring Instrument JJF1124	rb,60mm	U=1.1 μ m		
				rb,150mm	U=1.6 μ m		
71	Optical Theodolites	Angles	V. R. of Optical Theodolites JJG414	Horizontal direction:(0~360)°	U=0.2"		
72	Levels	Angles	V.R. of Levels JJG425	(-25~+25)"	U=1.4"		
73	Autocollimators	Angles	V.R. of Autocollimators JJG202	(0~10)'	U=0.2"		
74	Roughness Comparison Specimens	Roughness	C.S. for Roughness Comparison Specimens JJF1099	Ra:(0.012~0.4) μ m	U _{rel} =7.6%		
				Ra:>(0.4~25) μ m	U _{rel} =5.8%		
				Ra:(>25~100) μ m	U _{rel} =9.2%		
75	*Coordinate Measuring Machine	Length	C.S. for Coordinate Measuring Machine JJF1064	(30~1000)mm	U=0.2μm+1.8×10 ⁻⁶ L		
				(1~10)m	U=0.5μm+1.7×10 ⁻⁶ L		
76	Ultrasonic Thickness Instruments	Length	C.S. for Ultrasonic Thickness Instruments JJF1126	(0.5~75)mm	U=0.02mm		
				(>75~200)mm	U=0.04mm		
77	*Surface Plates	Flatness	V.R. of Surface Plates JJG117	(160×100~12000×5000)mm	U=2.0×10 ⁻³ ×n ^{1/2} ×L (n, Number of segments)		
78	*Straight Edges	Straightness	C.S. for Straight Edges JJF1097	(300~5000)mm	U=1.3×10 ⁻³ ×n ^{1/2} ×L (n, Number of segments)		
79	Plumb Instruments	Angles	C.S. for Plumb Instruments JJF1081	outside(0~50)"	U=0.7"		
80	*Square Testers	Perpendicularity	C.S. for Square Testers JJF1140	H(0~500)mm	U=0.7 μ m		



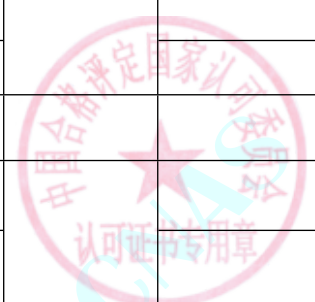
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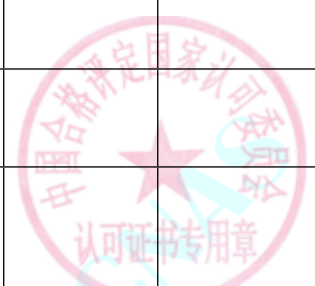
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81	*Height Measuring Instrument with Digital Display	Length	C.S. for Height Measuring Instrument with Digital Display JJF1254	(0~1000) mm	$U=0.1 \mu m+1.7 \times 10^{-6}L$		
82	*Grating Tester for Indicator Gauges	Length	V.R. of Grating Tester for Indicator Gauges JJG201	(0~100)mm	$U=0.33 \mu m$		
83	*Gauge Block Comparators	Length	C.S. for Gauge Block Comparators JJF1304	(0~300) μm	$U=15nm$		
84	*Gear Helix Measuring Instruments	Length	C.S. for Gear Helix Measuring Instruments JJF1122	$\alpha(40 \sim 47)mm, \beta(0 \sim 35)^\circ$	$U=1.7 \mu m$		
85	*Imaging Probe Measuring machines	Length	C.S. for Imaging Probe Measuring machines JJF1318	x,yAxles(0~500)mm	$U=0.7 \mu m+2 \times 10^{-6}L$		
86	*Biological Microscopes	Length	C.S. for Biological Microscopes JJF1402	Objective Lens(4X~100X)	$U_{rel}=1.2\%$		
				(0~16)mm	$U=4 \mu m$		
87	Surface Profile Gauges	Length	C.S. for Surface Profile Gauges JJF1476	(0~6.5)mm	$U=2 \mu m$		
88	*Laser Diameter Measuring Gauges	Length	C.S. for Laser Diameter Measuring Gauges JJF1250	(1~20)mm	$U=0.6 \mu m$		
				(>20~30)mm	$U=0.7 \mu m$		
				(>30~50)mm	$U=0.9 \mu m$		
89	*Linear Displacement Sensors	Length	C.S. for Linear Displacement Sensors JJF1305	(0~20000)mm	$U=0.01mm$		
90	Reinforced Concrete Covermeter and Floor slab Thickness Tester	Length	C.S. for Reinforced Concrete Covermeter and Floor slab Thickness Tester JJF1224	Reinforced protective layer thickness(12~88)mm	$U=1mm$		
				Thickness of the floor(50~300)mm	$U=1mm$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
91	Concrete Crack Width and Depth Measuring Instrument	Length	C.S. for Concrete Crack Width and Depth Measuring Instrument JJF1334	Surface width(0.01~10)mm	$U=7 \mu m$		
				Depth(20~100)mm	$U=1.6mm$		
92	*Metallurgical Microscope	Length	Calibration Specification for Metallurgical Microscopes JJF1914	Objective Lens(4X~100X)	$U_{rel}=0.8\%$		
				(0~16)mm	$U=2 \mu m$		
93	*Measurement Standard Instrument of Roundness and Cylindricity	Roundness and Cylindricity	V.R. of Measurement Standard Instrument of Roundness and Cylindricity JJG429	(0.01~50) μm	$U_{rel}=3.8\%$		
		Cylindricity		(0.01~6) μm	$U=0.66 \mu m$		
94	*Gear Measuring Centers	Length	C.S. for Gear Measuring Centers JJF1561	$r_b(40\sim 150)mm, \beta(0\sim 35)^\circ, m(1\sim 10)$	$U=1.7 \mu m$		
95	*Articulated Arm Coordinate Measuring Machines	Length	C.S. for Articulated Arm Coordinate Measuring Machines JJF1408	D(30~3000)mm	$U=11 \mu m$		
96	*Calibration Devices of Four-wheel Aligner	Angle	C.S. for Calibration Devices of Four-wheel Aligner JJF1489	$(-15\sim +15)^\circ$	$U=16''$		
97	Photoelectric Shaft Encoders	Angle	C.S. for Photoelectric Shaft Encoders JJF1115	$(0\sim 360)^\circ$	$U=3.6''$		
98	Electronic Theodolites	Angle	V.R. of Electronic Tachometer Total Meter JJG100	$(0\sim 360)^\circ$	$U=0.2''$		
99	Magnetic and Eddy Current Measuring Instrument for Coating Thickness	Length	V.R. of Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG818	Measuring Instrument for Coating Thickness H(0~50) μm	$U=0.4 \mu m$		



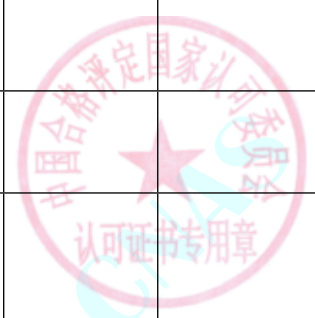
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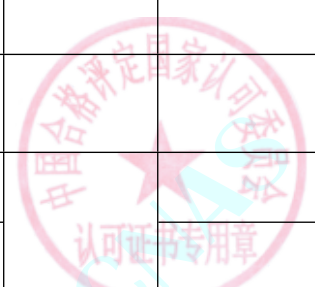
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Measuring Instrument for Coating Thickness H (> 50~10000) μm	$U_{rel}=0.5\%$		
				Thickness Plate (10~50) μm	$U=0.3 \mu m$		
				Thickness Plate, (>50~10000) μm	$U_{rel}=0.4\%$		
100	Hand-held Laser Distance Meters	Length	V.R. of Hand-held Laser Distance Meters JJG966	(0~200)m	$U=0.5mm$		
101	Wedge Cut Method Film Thickness Instruments	Length	Calibration Specification for Wedge Cut Method Film Thickness Instruments JJF(Ji)150	(0~50)mm	$U=0.005mm$		
102	*Standards For Level Rules	Flatness	C.S. for Level Rules JJF1085	(0~2000)mm	$U=1.3 \times 10^{-3} \times n^{1/2} \times L(n, \text{Number of segments})$		
		Angle		45°	$U=40''$		
103	*Standards For Levels' Zero	Flatness	C.S. for Frame Levels and Shaft Levels JJF1084	(0~500)mm	$U=0.3 \mu m$		
104	Micropattern Standards	Length	Calibration Specification for Micropattern Standards JJF1917	(0~20) mm	$U=0.5 \mu m$		
105	*Slit lamp Microscopes	Length	Calibration Specification for Slit lamp Microscopes JJF(浙)1169	4X~160X	$U_{rel}=1.2\%$		
106	*Vertical Axis Deviation Measuring Instrument	Length	C.S for Vertical Axis Deviation Measuring Instrument JJF(JI)153	H(0~250)mm	$U=0.008mm$		



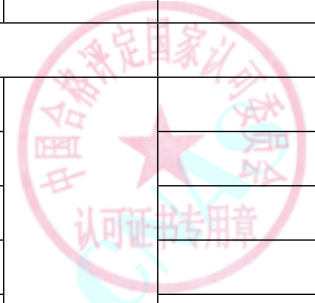
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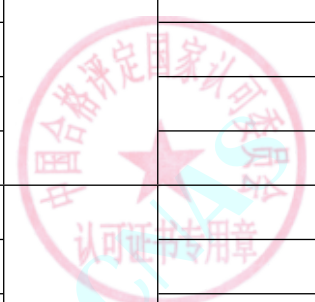
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
107	*Contact(Stylus)Electric Contour Measuring Instrument	Length	C.S for Contact(Stylus) Electric Contour Measuring Instrument JJF(JI)3012	(0~100) mm	$U=4.4 \mu m$		
108	*Grating Micrometers	Length	C.S for Grating Micrometers JJF1682	(0~100) mm	$U=0.06 \mu m$		
109	*Optical Shaft Measuring Instrument	Length	C.S for Optical Shaft Measuring Instrument JJF1933	L (30~1000) mm	$U=0.6 \mu m + 1.7 \times 10^{-6} L$		
				D (3.5~50) mm	$U=0.8 \mu m$		
110	*Stereomicroscope	Length	Calibration Specification for Stereomicroscope JJF (min) 1063	Objective Lens(0.5X~5X)	$U_{rel}=1.2\%$		
111	Optical Clinometers	Angles	Calibration Specification for Clinometers JJF1915	(-120~+120)°	$U=10''$		
112	Telescope Rangefinders	Length	Calibration Specification for Telescope Rangefinders JJF1704	(0~1000)m	$U=0.1m$		
113	*Bottom Wall Thickness Measuring Instrument	Length	Calibration Specification for Bottom Wall Thickness Measuring Instrument JJF (Ji) 152	(0~50)mm	$U=0.004mm$		
114	*Flat Equal Thickness Interferometers	Flatness	Calibration Specification for Flat Equal Thickness Interferometers JJF1100	(30~150) mm	$U=0.009 \mu m$		
115	Dial Gauges(dial and digital)	Length	V.R. of Dial Gauges(dial and digital) JJG34	Division Value 0.01mm(0~10)mm	$U=3 \mu m$		
				Resolution 0.01mm(0~10)mm	$U=10 \mu m$		
				Division Value 0.001mm(0~1)mm	$U=1.2 \mu m$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Resolution 0.001mm (0~10)mm	$U=2 \mu m$		
116	Wide Range Dauges Reading in 0.01mm	Length	V.R. of Wide Range Dauges Reading in 0.01mm JJG379	(0~30)mm	$U=4 \mu m$		
				(>30~50)mm	$U=8 \mu m$		
				(9~1100)mm	$U=0.02mm$		
				(>1100~2100)mm	$U=0.03mm$		
117	Pi Tapes	Length	C.S. for Pi Tapes JJF1423	(>2100~3750)mm	$U=0.04mm$		
				(>3750~5000)mm	$U=0.05mm$		
				(>5000~16000)mm	$U_{rel}=0.002\%$		
118	*Length Measuring Instrument	Length	C.S. for Length Measuring Instrument JJF1189	(0~60)mm	$U=0.08 \mu m$		
				(>60~100)mm	$U=0.10 \mu m$		
				(>100~1000)mm	$U=0.3 \mu m + 0.8 \times 10^{-6}L$		
119	Standard Ring Gauge	Length	V.R. of Standard Ring Gauge JJG894	(5~200)mm	$U=0.7 \mu m + 4.0 \times 10^{-3}L$		
		Roundness		(5~200)mm	$U=0.10 \mu m$		
II Mechanics measurement equipment							
1	*Weights	Mass	V.R. of Weights JJG99	Class E2 (1~500)mg	$U= (0.0010 \sim 0.0028) mg$		
				Class E2 (1~500)g	$U= (0.0035 \sim 0.092) mg$		
				Class E2 (1~20)kg	$U= (0.25 \sim 4.7) mg$		
				Class F1 (1~500)mg	$U= (0.0029 \sim 0.0089) mg$		
				Class F1 (1~500)g	$U= (0.01 \sim 0.33) mg$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				ClassF1(1~20)kg	U= (0.7~21) mg		
				ClassF2(1~500)mg	U= (0.003~0.009) mg		
				ClassF2(1~500)g	U= (0.013~0.33) mg		
				ClassF2(1~20)kg	U= (1.1~21) mg		
				ClassF2(50~2000)kg	U= (0.09~3.7) g		
				ClassM1(1~500)mg	U= (0.010~0.026) mg		
				ClassM1(1~500)g	U= (0.009~0.87) mg		
				ClassM1(1~20)kg	U= (1.8~44) mg		
				ClassM1(50~2000)kg	U= (0.09~3.7) g		
				ClassM2(100~500)mg	U= (0.3~0.4) mg		
				ClassM2(1~500)g	U= (0.5~12) mg		
				ClassM2(1~20)kg	U= (0.03~0.5) g		
				ClassM2(50~2000)kg	U= (1.2~50) g		
				ClassM3(1~500)g	U= (2~40) mg		
				ClassM3(1~20)kg	U= (0.08~1.5) g		
				ClassM3(50~2000)kg	U=4g~0.15kg		
2	*Mechanical Balance	Mass	V.R. of Mechanical Balance JIG98	0.01mg~20g(d=0.01mg)	U= (0.0023~0.01) mg		
				0.1mg~200g(d=0.1mg)	U= (0.023~0.11) mg		
				0.1mg~20kg/d,(>0.1~200) mg	U= (0.093~14) mg		

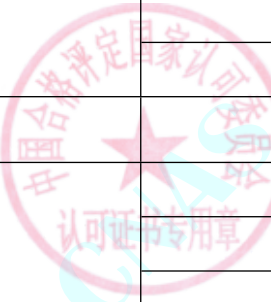


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
3	Electronic Balance	Mass	V.R. of Electronic Balance JJG1036, C.S. for Electronic Balances JJF1847	1mg~6g	$U = (0.0010 \sim 0.0083) \text{ mg}$		
				(>6~50) g	$U = (0.0083 \sim 0.012) \text{ mg}$		
				(>50~500) g	$U = (0.012 \sim 0.086) \text{ mg}$		
				>500g~5kg	$U = (0.26 \sim 3.6) \text{ mg}$		
				(>5~80) kg	$U = (3.6 \sim 41) \text{ mg}$		
				(>80~2000) kg	$U = (0.15 \sim 4.1) \text{ g}$		
				(>2000~5000) kg	$U = (12 \sim 28) \text{ g}$		
4	*Sphygmomanometer	Pressure	V.R. of Sphygmomanometer JJG270	(0.1~40)kPa	$U = 0.16 \text{ kPa}$		
5	*Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	C.S. for Pressure Regulators with Bourdon Tube Pressure Gauge JJF1328	(0.001~60)MPa	$U_{\text{rel}} = 1.4\%$		
6	*Digital Pressure Gauge	Pressure	Verification Regulation of Digital Pressure Gauges JJG875	-0.1MPa~-0.1Pa	$U_{\text{rel}} = 0.006\%$		
				0.1Pa~250MPa	$U_{\text{rel}} = 0.006\%$		
7	*Pressure Transmitter	Pressure	V.R. of Pressure Transmitters JJG882	-0.1MPa~-0.1Pa	$U_{\text{rel}} = 0.03\%$		
				0.1Pa~250MPa	$U_{\text{rel}} = 0.03\%$		
8	*Metallic Brinell Hardness Testers	Hardness	V.R. of Metallic Brinell Hardness Testers JJG150	(8~650) HBW	$U_{\text{rel}} = 1.6\%$		
9	*Metal Rockwell Hardness Testing Machines	Hardness	V.R. of Metallic Rockwell Hardness Testing Machines (Scales A, B, C, D, E, F, G, H, K, N, T) JJG112	(80~88) HRA	$U = 0.5 \text{ HRA}$		
				(85~100) HRB	$U = 0.6 \text{ HRB}$		
				(20~70) HRC	$U = 0.78 \text{ HRC}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length Angle	V.R. of Hardness Testers JJG105	(20~94) HRN	$U=0.8HRN$		
				(10~93) HRT	$U=0.8HRTW$		
				(0~200) mm	$U=0.005mm$		
				0°~360°	$U=0.1^\circ$		
10	Tachometers	RotateSpeed	V.R. of Tachometers JJG105	(30~30000)r/min	$U_{rel}=0.1\%$		
11	*MetallicVickersHardnessTesters	Hardness	V.R. of Metallic Vickers Hardness Testers JJG151	(50~1000)HV	$U_{rel}=3.5\%$		
12	*EquotipHardnessTester	Hardness Mass Length	V.R. of Equotip Hardness tester JJG747	(490~830) HLD	$U=5HLD$		
				(460~630) HLG	$U=5HLG$		
				(0~210) g	$U=0.02mg$		
				(0~200) mm	$U=0.004mm$		
13	*WorkingDynamometers	Forcevalue	V.R. of Working Dynamometers JJG455	1cN~5000kN	$U_{rel}=0.5\%$		
14	ReboundTestHammer	Stiffness reboundrate Length friction Length	V.R. of Rebound Test Hammer JJG817	(60~1000) N/m	$U=5N/m$		
				70~90	$U=0.3$		
				(0~150) mm	$U=0.02mm$		
				(0.2~1) N	$U=0.06N$		
				(5~70) mm	$U=0.1mm$		
15	TorqueWrenches	Torque	V.R. of Torque Wrenches JJG707	(1~3000) Nm	$U_{rel}=0.3\%$		
16	HydraulicJacks	Forcevalue	V.R. of Hydraulic Jacks JJG621	20N~5MN	$U_{rel}=0.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
17	Relative Density Balance for Liquid	Density	V.R. of Relative Density Balance for Liquid JJG171	0.0001~2.0000	$U=0.0003$		
18	Torsion Balance	Mass	V.R. of Torsion Balance JJG46	(0.01~2500) mg/d: (0.01~5) mg	$U=(0.003\sim0.3)$ mg		
19	Table Balances	Mass	V.R. of Table Balances JJG156	0.1g~20kg	$U=(0.03\sim1.5)$ g		
20	Standard Metal Tank	Capacity	V.R. of Standard Metal Tank JJG259	second level, (1~2000)L	$U_{rel}=0.02\%$		
				third level, (1~5000)L	$U_{rel}=0.04\%$		
21	Vertical Metal Tank	Capacity	V.R. of Vertical Metal Tank Volume JJG168	(20~300000) m ³	$U_{rel}=0.08\%$		
22	Metallic Horizontal Tank	Capacity	V.R. of Metallic Horizontal Tank JJG266	(10~50000) m ³	$U_{rel}=0.18\%$		
23	Spherical Metal Tank	Capacity	V.R. of Spherical Metal Tank Capacity JJG642	(50~50000) m ³	$U_{rel}=0.22\%$		
24	Volume Pipe	Flow	V.R. of Volume Pipe JJG209	(100~5000)L	$U_{rel}=0.03\%$		
25	Bell Type Standard Device for Gas Flow	Flow	V.R. of Bell Type Standard Device for Gas Flow JJG165	(5~2000)L	$U_{rel}=0.07\%$		
26	Standard Facilities for Water Flowrate	Flow	V.R. of Standard Facilities for Liquid Flowrate JJG164	(0.01~2500) m ³ /h	$U_{rel}=0.04\%$		
27	Verification Facility for Water Meters	Flow	V.R. of Verification Facility for Water Meters JJG1113	(0.01~2500) m ³ /h	$U_{rel}=0.04\%$		



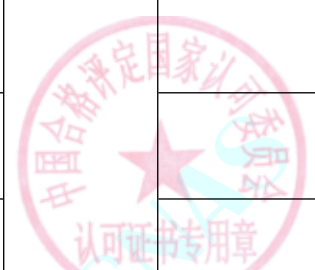
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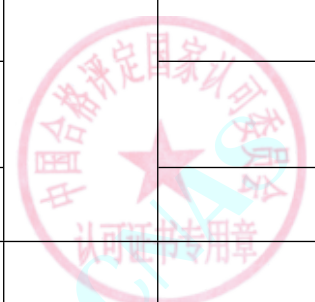
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
28	HeatMetersCalibrationFacility	Flow	V.R. of Heat Meters Calibration Facility JJG (Ji) 122	(0.01 ~ 10000) m ³ /h	$U_{rel}=0.1\%$		
29	FlowStandardFacilitiesMasterMeterMethod	Flow	V.R. of Flow Standard Facilities Master Meter Method JJG643	(0.01 ~ 10000) m ³ /h	$U_{rel}=0.1\%$		
30	GasFlowCalibrationFacilitybyMeansofCriticalFlowVenturiNozzles	Flow	Calibration Specification for Gas Flow Calibration Facility by Means of Critical Flow Venturi Nozzles JJF1240	(1 ~ 2000) m ³ /h	$U_{rel}=0.5\%$		
31	GasDisplacementMeters	Flow	V.R. of Gas Displacement Meters JJG633	(1~650)m ³ /h, DN2~DN100	$U_{rel}=0.54\%$ (mobiledevice)		
				(0.01 ~ 10)L/min, DN2 ~ DN15	$U_{rel}=0.15\%$ (PistonDevice)		
				(0.1 ~ 12) L/min, DN2~DN15	$U_{rel}=0.64\%$ (SoapFilmmethod)		
				(0.01 ~ 120)m ³ /h, DN10~DN100	$U_{rel}=0.12\%$ (0.1levelBellType)		
				Air: (1 ~ 1723)m ³ /h, DN15 ~ DN400	$U_{rel}=0.33\%$ (MeansofCriticalFlowVezzlesNozzlez)		
				Air: (80 ~ 11200)m ³ /h, DN125 ~ DN400	$U_{rel}=0.35\%$ (Mastermetermethod)		
				Air: (16 ~ 40)m ³ /h, DN50 ~ DN300	$U_{rel}=0.35\%$ (Highpressureloop)		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Air: (40~7500)m ³ /h, DN50~DN300	$U_{rel}=0.30\%$ (High pressure loop)		
32	*Floatmeter	Flow	V.R. of Rota Meter JJG257	(0.001~0.1) L/min, DN2~DN15(gas)	$U=1.1\%$ FS(Soap Film method)		
				(0.1~12) L/min, DN2~DN15 (gas)	$U=0.64\%$ FS(Soap Film method)		
				(0.01~10) L/min, DN2~DN15 (gas)	$U=0.12\%$ FS(Piston Device)		
				(0.01~120) m ³ /h, DN10~DN100 (gas)	$U=0.16\%$ FS(0.1 level Bell Type)		
				(1~1723) m ³ /h, DN15~DN100 (gas))	$U=1.1\%$ FS		
				(0.012~5090) m ³ /h, DN6~DN150 (Water)	$U=0.37\%$ F.S.(Static quality method)		
				(0.00001~0.08) m ³ /h, DN2~DN15 (Water)	$U=0.37\%$ F.S.(Microflow mass method)		
				(0.012~5090) m ³ /h, DN6~DN150 (Water)	$U=0.60\%$ F.S.(Standard meter method)		
33	Gas Velocity Flow Meter	Flow	Verification Regulation of Vortex Precession Flowmeters JJG1121	(0.1~11200) m ³ /h, DN2~DN400(gas)	$U_{rel}=0.59\%$ (Master meter method)		
				(0.1~5) m/s, DN50~DN200 (Water)	$U=1.0\%$ F.S.(Calibration on site)		

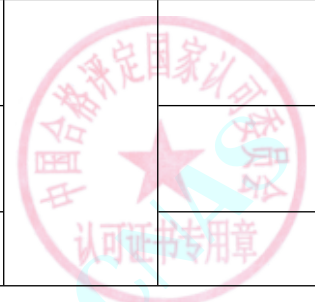


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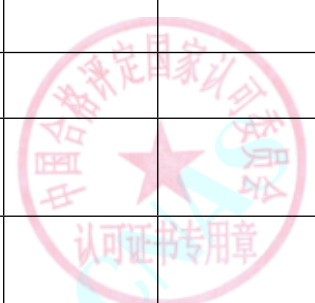
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	Air: (1~1723)m ³ /h, DN15~DN400	$U_{rel}=0.31\%$ (MeansofCriticalFlowVezzlesNozzlez)		
				Air: (16~40)m ³ /h, DN50~DN300	$U_{rel}=0.35\%$ (Highpressureloop)		
				Air: (40~7500)m ³ /h, DN50~DN300	$U_{rel}=0.30\%$ (Highpressureloop)		
				(1~650)m ³ /h, DN2~DN100(gas)	$U_{rel}=0.57\%$ (mobiledevice)		
				(0.01~120)m ³ /h, DN10~DN100(gas)	$U_{rel}=0.12\%$ (0.1levelBellType)		
34	DiaphragmGasMeters	Flow	V.R. of Diaphragm Gas Meters JJG577	(1~650)m ³ /h	$U_{rel}=0.60\%$ (mobiledevice)		
				(0.016~6.5)m ³ /h	$U_{rel}=0.50\%$ (Nozzlesdevice)		
				(0.016~6)m ³ /h	$U_{rel}=0.37\%$ (standardmeterdevice)		
				(0.01~120)m ³ /h	$U_{rel}=0.13\%$ (0.1levelBellType)		
35	HotMassFlowMeters	Flow	Verification Rules for Thermal Gas Mass Flow Meter JJG1132	Air: (1~1723)m ³ /h, DN15~DN400	$U_{rel}=0.32\%$ (MeansofCriticalFlowVezzlesNozzlez)		
				Air: (80~11200)m ³ /h, DN125~DN400	$U_{rel}=0.34\%$ (Mastermetermethod)		
				Air: (16~40)m ³ /h, DN50~DN300	$U_{rel}=0.35\%$ (Highpressureloop)		



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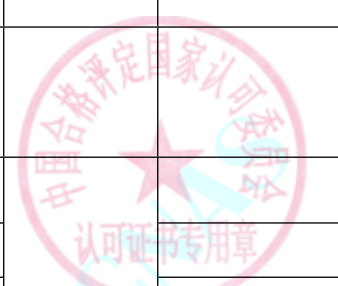
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Air: (40~7500)m ³ /h, DN50~DN300	$U_{rel}=0.30\%$ (Highpressureloop)		
				(1~650)m ³ /h, DN2~DN100(gas)	$U_{rel}=0.61\%$ (mobiledevice)		
				(0.01~10)L/min, DN2~DN15(gas)	$U_{rel}=0.16\%$ (standardmeterdevice)		
				(0.01~120)m ³ /h, DN10~DN100(gas)	$U_{rel}=0.12\%$ (Piston Device)		
36	CriticalFlowVenturiNozzle	dischargecoefficient	V.R. of Critical Flow Venturi Nozzle JJG620	(0.01~120)m ³ /h(gas)	$U_{rel}=0.12\%$ (Class 0.1 Piston)		
				(0.01~10)L/min(gas)	$U_{rel}=0.11\%$ (Class 0.1 Piston)		
				(0.016~20)m ³ /h(gas)	$U_{rel}=0.11\%$ (p.V.T.tmethod)		
37	Hot Ball shaped Anemometer	wind speed	Metrological Verification Regulation of Hot Ballshaped Anemometer JJG(Js)0001	(0.3~50) m/s	$U=0.2m/s\sim 0.4m/s$		
38	Portable 3-cup Anemometers	wind speed	Verification Regulation of Portable3-cupAnemometers JJG431	(0.3~50) m/s	$U=0.2m/s\sim 0.4m/s$		
39	PitotTube	factor	Verification Regulation of Pitot Tube JJG518	0.8~1.1	$U_{rel}=0.92\%$		
40	Contact Anemorumbometer	wind speed	Verification Regulation of Contact Anemorumbometer JJG613	(0.3~50) m/s	$U=0.2m/s\sim 0.4m/s$		
41	Portable Induction Anemometer	wind speed	Verification Regulation of PortableInduction Anemometer JJG515	(0.3~50) m/s	$U=0.2m/s\sim 0.4m/s$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
42	Thermo-anemoscopes	wind speed	Calibration Specification for Thermo-anemoscopes JJF 1939	(0.3~30) m/s	$U=0.2\text{m/s}\sim 0.4\text{m/s}$		
43	Ultrasonic Anemometers	wind speed	Calibration Specification for Ultrasonic Anemometers JJF 1934	(0.3~50) m/s	$U=0.2\text{m/s}\sim 0.4\text{m/s}$		
44	Cup Wind Speed Transducers of Automatic Weather Stations	wind speed	Calibration Specification for Cup Wind Speed Transducers of Automatic Weather Stations JJF 1935	(0.3~50) m/s	$U=0.2\text{m/s}\sim 0.4\text{m/s}$		
45	*HotWaterMeter	Flow	V.R. of Hot Water Meter JJG686	(0.005~600)m ³ /h, DN15~DN300 (Hotwater)	$U_{\text{rel}}=0.62\%$ (Staticqualitymethod)		
				(0.1~6)m/s, DN25~DN2000 (water)	$U_{\text{rel}}=1.0\%$ (Calibrationonsite)		
46	Recorderforflowvelocityanddischarge	velocityofflow	CalibrationSpecificationforOnlineCurrentMeter JJF (JI) 120	(0.018~3)m/s	$U_{\text{rel}}=0.8\%$ (Standardmetermethod)		
47	FlowIntegratingMeters	Flow	V.R. of Flow Intergration Meters JJG1003	(0.1~99999) m ³ /h	$U=0.08\%FS$		
48	*Aqueousureasolutionfillingmachine	Flow	Aqueousureasolution filling machine for motorvehicle calibration method Z/JF-RNR-001	(2~40)L/min	$U_{\text{rel}}=0.08\%$		
49	SoapFilmFlowmeter	Capacity	V.R. of Soap Film Flowmeter JJG586	(10~6000) mL	$U_{\text{rel}}=0.05\%$ (ElectronicBalance)		
		Flow		(0.01~120) m ³ /h	$U_{\text{rel}}=0.12\%$ (Class0.1BellJar)		
		Flow		(0.01~10) L/min	$U_{\text{rel}}=0.12\%$ (Class0.1piston)		

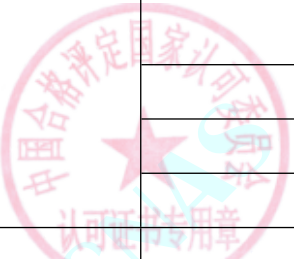


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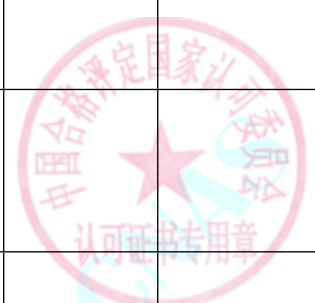
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
50	WetGasMeters	Flow	Calibration Specification for Wet Gas Meters JJF1357	(0.01~120) m ³ /h	U _{rel} =0.15%(Class0.1BellJar)		
51	*WeirsandFlumesforFlowMeasurement	flowrate	Verification Regulation of Weirs and Flumes for Flow Measurement JJG711	(2.1~3900) m ³ /h	U _{rel} =1.3%		
		liquidlevel		(0~1000) mm	U=0.5mm		
52	*HeatMeters	Heat	Verification Regulation of Heat Meters JJG225	(0.1~6)m/s, DN25~DN2000	U _{rel} =0.6%		
				(0.035~6000)kW	U _{rel} =0.44%		
		flowrate		(0.1~12) m/s	U _{rel} =0.5%		
				(0.005~600)m ³ /h, DN15~DN300 (Hotwatermedium)	U _{rel} =0.22% (StandardmeterMethod)		
				(0.005~600)m ³ /h, DN15~DN300 (Hotwatermedium)	U _{rel} =0.05% (Weightmethod)		
				(0.012~5090)m ³ /h, DN15~DN800 (Coldwatermedium)	U _{rel} =0.19% (StandardmeterMethod)		
				(0.012~5090)m ³ /h, DN15~DN800 (Coldwatermedium)	U _{rel} =0.05% (WeightMethod)		
				(2~300) K	U=0.07°C		
				(2~300) K	U _{rel} =0.3%		
				(3~131)K	U=0.013K		
53	*CalibrationInstrumentforTorqueWrenches	torque	V.R. of Calibration Instrument for Torque Wrenches JJG797	(1~3000) Nm	U _{rel} =0.23%		



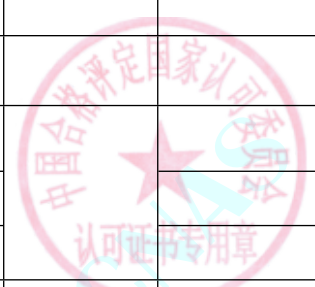
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
54	Working Glass Hydrometers	Density	V.R.of Working Glass Hydrometers JJG42	(650~2000)kg/m ³	U=(0.2~4)kg/m ³		
55	Standard Glass Hydrometers	Density	V.R. of Standard Glass Hydrometers JJG86	(650~1500)kg/m ³	U=(0.12~0.4)kg/m ³		
56	LocomotivePipette	Capacity	V.R. of locomotivepipette JJG646	(0.1~10) μ L	U=0.007 μ L		
				(10~100) μ L	U=0.04 μ L		
				(100~1000) μ L	U=0.12 μ L		
				(1~10)mL	U=0.004mL		
57	MicroSampling Syringe	Capacity	V.R. of Tracesampler JJG(ji) 166	(0.1~10) μ L	U=0.06 μ L		
				(10~100) μ L	U=0.14 μ L		
				(100~1000) μ L	U=1.0 μ L		
58	*VibrationTubeLiquidDensityMeteronLine	Density	Vibration Tube Liquid Density Meteron Line JJG370	(650~1400) kg/m ³	U=0.4kg/m ³		
59	LaboratoryOscillation-typeLiquidDensitymeters	Density	V.R. of Laboratory Oscillation-type Liquid Densitymeters JJG1058	(650~3000) kg/m ³	U=0.08kg/m ³		
60	C.S.for LeChatelierFlaskforDeterminingDensityofHydraulicCement	Volume	JJF(ji) 190	(0~300) mL	U=0.016mL		
61	C.S.for Butyrometers	Volume	C.S. for Butyrometers JJF (Ji) 111	Nominalvalue: 0.125mL	U=0.001mL		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
62	Checker of Speed and Mileage Meter for Cars	Rotation Rate	V.R. of Checker of Speed and Mileage Meter for Cars JYG779	(100~600) r/min	$U_{rel}=0.4\%$		
				(>600~4000) r/min	$U_{rel}=0.1\%$		
		Frequency		10Hz~1MHz	$U_{rel}=0.008\%$		
63	*Tension, Compression and Universal Testing Machines	Force Value	V.R. of Tension, Compression and Universal Testing Machines JYG139	1cN~5MN	$U_{rel}=0.2\%$		
		Coaxiality		(1~25) %	$U=5\%$		
64	Standard Dynamometers	Force Value	V.R. of Standard Dynamometers JYG144	1cN~5000kN	$U_{rel}=0.1\%$		
65	Shore A Durometers	Hardness	V.R. of Shore A Durometers JYG304	(20~100) HA	$U=0.22HA$		
		Length		(0~200) mm			
66	*Cement Paste mixer	Rotational Speed	V.R. of Cement Paste mixer JYG (ji) 3005	(50~300) r/min	$U=0.2r/min$		
		Time		(0~3600) s	$U=0.2s$		
		Length		(0~300) mm			
67	*Standard Devices for Rotational Speed	Rotational Speed	V.R. of Standard Devices for Rotational Speed JYG326	(10~60000) r/min	$U_{rel}=0.01\%$		
68	*Constant Revolution Speed Source	Rotational Speed	C.S. for Constant Revolution Speed Source JYG (ji) 146	(10~10000) r/min	$U_{rel}=0.3\%$		
69	*Mixer for mixing mortars	Rotational Speed	V.R. of Mixer for mixing mortars JYG (ji) 3008	(50~300) r/min	$U=0.2r/min$		
		Time		(0~3600) s			
		Length		(0~300) mm			
70	*Los Angeles Testing Machine	Rotational Speed	V.R. of Los Angeles Testing Machine JYG (jiaotong) 108	(20~1000) r/min	$U=0.3r/min$		



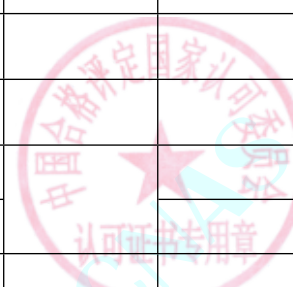
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length		(0~150) mm			
		Mass		(0~12000) g			
71	*Jolting Table for Compacting Mortars	Length	V.R. of Jolting Table for Compacting Mortars JJG (ji) 40	(0~2) m			
		Mass		(0~50) kg			
		Time		(1~300) s	U=0.3s		
72	*Mechanical Sieve Shaker	Frequency	C.S. for mechanical sieve shaker SL411	(100~300) times/min	U=2times/min		
73	*Asphalt Centrifugal Extractor	Rotational Speed	V.R. of Asphalt Centrifugal Extractor JJG (jiaotong) 132	(10~60000) r/min	U _{rel} =0.15%		
74	Force Transducers	Force Value	V.R. of Force Transducers JJG391	20N~5000kN	U _{rel} =0.1%		
75	*Calibration Specification for Oedometers	Force Value	C.S. for Oedometers JJF1311	(100~10000) N	U _{rel} =0.3%		
		Length		(0~300) mm	U=0.02mm		
76	*Electronic Universal Testing Machine	Coaxiality	V.R. of Electronic Universal Testing Machine JJG475	(1~25) %	U=5%		
		Force Value		1N~5MN	U _{rel} =0.2%		
		Speed		(0~500) mm/min	U _{rel} =0.15%		
		Length		(0.02~0.3) mm	U=0.40 μm		
				(0.4~25) mm	U _{rel} =0.15%		
77	*Marshall Stability Test Machine	Velocity	V.R. of Marshall Stability Test Machine JJG (Ji) 44	(10~100) mm/min	U=0.2mm/min		
		Force Value		(1~100) kN	U _{rel} =0.3%		
78	*Anchorage Testing	Force Value	V.R. of Anchorage Testing	1N~5MN	U _{rel} =0.2%		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	gMachines	Displacement	Machines JJG1083	(0.02~0.3) mm	$U=0.40 \mu\text{m}$		
				(0.4~25) mm	$U_{\text{rel}}=0.15\%$		
79	*Working Force Measuring Machines for Special Purposes	Force Value	C.S. for Working Force Measuring Machines for Special Purposes JJF1134	1cN~5MN	$U_{\text{rel}}=0.5\%$		
80	*Measuring Instrument for Cement Bright Degumming Equipment	acceleration	V.R. of Measuring Instrument for Cement Bright Degumming Equipment JJG974	(4.9~100) m/s ²	$U_{\text{rel}}=1.5\%$		
		Frequency		(20~2000) Hz	$U_{\text{rel}}=1.5\%$		
		Amplitude		(0.01~5) mm	$U_{\text{rel}}=1.5\%$		
		Rotational Speed		(50~30000) r/min	$U_{\text{rel}}=0.1\%$		
		Time		(0~3600) s	$U=0.05\text{s}$		
81	Adhesion Coefficient Testers	Force Value	C.S. for Adhesion Coefficient Testers JJF1551	(5~1000) N	$U_{\text{rel}}=0.3\%$		
82	*High Strength Bolt Testers	Force	C.S. for High Strength Bolt Testers JJF1478	(5~1000) kN	$U_{\text{rel}}=0.3\%$		
		Torque		(1~3000) Nm	$U_{\text{rel}}=0.3\%$		
83	*Static Torque Measuring Devices	Torque	V.R. of Static Torque Measuring Devices JJG995	(1~3000) Nm	$U_{\text{rel}}=0.3\%$		
84	*Working Torque-meters	Torque	V.R. of Working Torque-meters JJG1146	(1~3000) Nm	$U_{\text{rel}}=0.3\%$		
85	*Interface Tensiometers	Force	C.S. for Interface Tensiometers JJF1464	1mg~5kg	$U=2\text{mg}$		
		Length		(0~200) mm	$U=0.005\text{mm}$		
86	*Falling Weight Impact Testing Machines	Hardness	C.S. for Falling Weight Impact Testing Machines JJF1445	(20~95) HR	$U=0.4\text{HR}$		
		Mass		(0~200) g	$U=0.2\text{mg}$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				> 200g~20kg	U=1g		
		Length		(0~7.5) m	U=1mm		
		Velocity		(1~8) m/s	U _{rel} =0.5%		
87	*Compaction Instrument of Soil	Mass	V.R. of Compaction Instrument of Soil JJG(jiaotong)058	(0~12) kg	U=1g		
		Length		(0~1) m	U=0.5mm		
88	*Pendulum Impact Testing Machines	Energy	V.R. of Pendulum Impact Testing Machines JJG145	(15~40) J	U=1J		
		Length		(40~330) J	U _{rel} =3%		
		Angle		(0~10) mm	U=0.02mm		
				(0~360) °	U=1'		
89	*Type A Barcol Hardness Testers	Hardness	V.R. of Type A Barcol Hardness Testers JJG610	(42~88) Hba	U=0.8Hba		
90	Shore D Durometer	Hardness	V.R. of Shore D Durometer JJG1039	(0~100) HD	U=0.6HD		
		Length		(0~200) mm	U=0.005mm		
91	*Metallic Webster Hardness Testing Machines	Hardness	V.R. of Metallic Webster Hardness Testing Machines JJG944	(5~18) HWA	U=0.8HWA		
92	*Flow Table for Determine Cement Mortar Fluidity	Mass	V.R. of Flow Table for Determine Cement Mortar Fluidity JJG(jiaotong)096	(0~12000) g	U=2g		
		Frequency		(0~100) 次/s	U=0.2 次/s		
		Length		(0~300) mm	U=0.05mm		
93	*Mortar Setting Time Meter	Force	C.S. for Mortar Setting Time Meter JJF(ji)197	(1~100) N	U _{rel} =0.5%		
		Length		(0~300) mm	U=0.05mm		



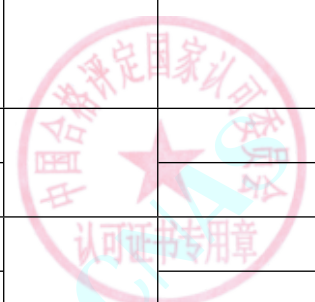
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
94	*concrete Vibrating table test	Time	C.S. for concrete Vibrating table test JJF(ji)123	(0~3600) s	$U=0.3s$		
		Vibrating		(0.3~0.7) mm	$U=0.05mm$		
		Frequency		(40~60) Hz	$U=0.8Hz$		
		Force		(0.3~3.0) kN	$U_{rel}=0.6%$		
		Noise		(30~130) dB	$U=1.0 dB$		
95	*Coefficient of Friction Tester	Force	C.S. for Coefficient of Friction Tester JJF(ji)125	1cN~300N	$U_{rel}=0.6%$		
		Velocity		(0~50) mm/s	$U=0.3mm/s$		
		Mass		(0~210) g	$U=0.01g$		
96	*Paint Film Scrub Resistance Testers	Length	C.S. for Paint Film Scrub Resistance Testers JJF(shihua)001	(0~150) mm	$U=0.5mm$		
		Mass		(0~3200) g	$U=0.1g$		
		Frequency		(0~50) 次/min	$U=0.3 次/min$		
97	Instrument of Testing Mortar-strength by Penetration Resistance Method	Force	C.S. for Instrument of Testing Mortar-strength by Penetration Resistance Method JJF1372	(100~1000) N	$U_{rel}=0.5%$		
		Length		(0~150) mm	$U=0.03mm$		
98	*Portable Brinell Hardness Testers	Force	C.S. for Portable Brinell Hardness Testers JJF1595	(0.3~3.0) kN	$U_{rel}=0.5%$		
		Hardness		(8~650) HB	$U_{rel}=2.5%$		
99	*Pencil Hardness Testers	Mass	C.S. for Pencil Hardness Testers JJF(shihua)007	(0~3200) g	$U=0.1g$		
		Angle		(0~320) °	$U=10'$		



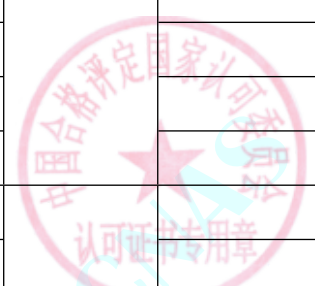
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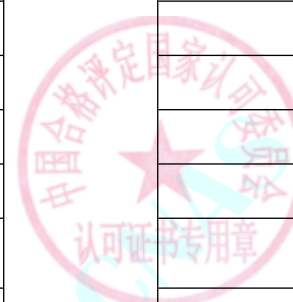
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
100	*Ultrasonic Hardness Testers	Force	C.S. for Ultrasonic Hardness Testers JJF1436	(1~98) N	$U_{rel}=0.5\%$		
		Hardness		(50~1000) HV	$U_{rel}=3.5\%$		
101	*Perforation Resistance Tester	Force	V.R. of Perforation Resistance Tester JJG(ji)057	100N~3000N	$U_{rel}=0.6\%$		
		Length		(0~150) mm	$U=0.05\text{mm}$		
102	Motor Vehicle Engine Speed Measuring Instruments	Rotate Speed	C.S. for Motor Vehicle Engine Speed Measuring Instruments JJF1375	(30~30000)r/min	$U_{rel}=0.1\%$		
		Time		(0~3600) s	$U=0.2\text{s}$		
		Voltage		10mV~1000V	$U_{rel}=0.1\%$		
103	*Elevator Overspeed Governor Testers	speed	C.S. for Elevator Overspeed Governor Testers JJF1374	(0.1~20) m/s	$U_{rel}=0.2\%$		
		Acceleration		(0.1~99.9) cm/s ²	0.1cm/s ²		
104	Glass Container	Capacity	V.R. of General Volumetric Glass JJG196, V.R. of Special glassware JJG10, V.R. of Syringes for Medical Use JJG18	(0.1~10)mL	$U=0.004\text{mL}$		
				[10~20)mL	$U=0.007\text{mL}$		
				[20~100)mL	$U=0.028\text{mL}$		
				[100~200)mL	$U=0.07\text{mL}$		
				[200~500)mL	$U=0.13\text{mL}$		
				[500~1000)mL	$U=0.24\text{mL}$		
				[1000~2000)mL	$U=0.26\text{mL}$		
105	C.S. Bottle Top Dispenser	Capacity	C.S. for Bottle Top Dispenser JJF(ji)181	(0.1~10)mL	$U=0.003\text{mL}$		
				[10~200)mL	$U=0.02\text{mL}$		
	Automated	Capacity	C. S. for Automated Dilution and Standard Solution	(10~100) μ L	$U=0.2 \mu \text{L}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Standard Solution Preparation Instrument		Preparation Instrument" JJF(Ji)189	(100~1000) μ L	U=0.7 μ L		
				(1000~10000) μ L	U=0.002mL		
107	Eudiometer in Oxygen Analyzers	Capacity	C.S. for Calibration Specification for Eudiometer in Oxygen Analyzers JJF(Ji)165	(0~100)mL	U=0.01mL		
108	Comprehensive calibration device for sampler	flow	C.S. for Sampler Flow and Pressure Calibrator Z/JF-HYH-002	(5~50000)mL/min	U _{rel} =0.27%		
				(50~100)L/min	U _{rel} =0.21%		
				(100~260)L/min	U _{rel} =0.30%		
				(260~1500)L/min	U _{rel} =0.36%		
				(0.01~10) L/min	U _{rel} =0.12%		
				(0.01~120) m3/h	U _{rel} =0.12%(Class 0.1 Bell Jar)		
		pressure		(0.016~120)m3/h	U _{rel} =0.35%(Master Meter Method)		
				static: (-50~-0.01) kPa	U _{rel} =0.4%		
				static: (0.01~50) kPa	U _{rel} =0.4%		
				dynamic(0.1~2000) Pa	U _{rel} =0.1%		
				static: (-100~-3) kPa	U _{rel} =0.05%		
				static: (3~250) kPa	U _{rel} =0.05%		
				Dynamic: (0.001~2.5) kPa	U=0.6Pa		
(800~1060)kPa	U=0.25kPa						

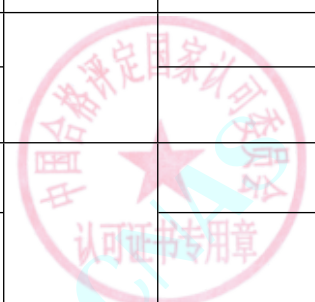


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(0~50)°C	0.1°C		
109	*Measuring Instruments for Cereals Density	volume	V. R. of Measuring Instruments for Cereals Density JJG 264	(0.1~1000) mL	U=0.08mL		
		quality		1mg~1000g	U= (0.02~0.1) mg		
110	*Digital Weighted-Method Liquid Density Meters	Density	Digital Weighted-Method Liquid Density Meters JJG999	(650~2000) kg/m ³	U=0.5kg/m ³		
111	*Digital Density Refractivemete	density	Calibration method of digital density Refractivemeter Z/JF-HXY-008	(650~2000) kg/m ³	U=0.2kg/m ³		
		Refraction		nD (1.3330~1.6580)	U=3×10 ⁻⁴		
112	Standard Piston Type Pressure Gauge	Effective Cross-area of Piston	V.R. of Piston Gauge JJG59	(0.01~2)cm ²	U _{rel} =0.006%		
		Weight Value of Mass		(0.001~6200)g	U _{rel} =0.003%		
113	*Precise Pressure Gauge and Vacuum Gauge	Pressure	V.R. of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG49	(0.04~250)MPa	U _{rel} =0.1%		
				(-0.1~-0.003)MPa	U _{rel} =0.1%		
				(0.003~0.25)MPa	U _{rel} =0.1%		
114	*Pressure Gauge (Pressure Vacuum Gauge and Vacuum Gauge)	Pressure	Elastic Element Pressure Gauges, Pressure-Vacuum Gauge sand Vacuum Gauges for General Use JJG52	-0.1MPa~-0.1Pa	U _{rel} =0.5%		
				0.1Pa~250MPa	U _{rel} =0.5%		
115	*Bursting Strength Testers for Paper (Board)	Pressure	Calibration Specification of Bursting Strength Testers for Paper(Board) JJF1811	Pressure value ,(0.1~6000)kPa	U _{rel} =0.1%		
				Clamping pressure indication, (0.1~6000)kPa	U _{rel} =0.5%		

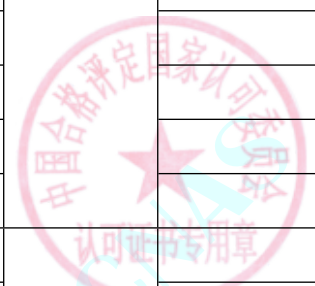


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
116	*Cement Fineness Negative Pressure Screen Analyzers	Pressure	Calibration Specification of Cement Fineness Negative Pressure Screen Analyzers JJF1827	(-10~-0.01)kPa	$U_{rel}=0.5\%$		
117	*Apparatus to Measure Water Permeability of Concrete	Pressure	Calibration Specification of Apparatus to Measure Water Permeability of Concrete JJF1812	(0~6)MPa	$U=0.01\text{MPa}$		
118	*Testing Machines of Resistance to Internal Pressure of Plastics Pipe	Pressure	Calibration Specification of Testing Machines of Resistance to Internal Pressure of Plastics Pipe JJF1628	(0.001~16)MPa	$U_{rel}=0.1\%$		
119	*Gasoline Vapor Recovery Detectors	Flow	Calibration Specification of Gasoline Vapor Recovery Detectors JJF 1948	(0.5~120) L/min	$U_{rel}=0.8\%$		
				(0.01~120) m ³ /h	$U_{rel}=0.12\%$		
		Pressure		U=0.6Pa	$U=0.064\text{s}$		
				(0.001~20)kPa	$U_{rel}=0.1\%$		
				(-20~-0.001)kPa	$U_{rel}=0.1\%$		
				(0.001~2.5)kPa	$U=0.6\text{Pa}$		
				(-0.001~-2.5)kPa	$U=0.6\text{Pa}$		
				(3~5)kPa	$U_{rel}=0.05\%$		
(-3~-5)kPa	$U_{rel}=0.05\%$						
120	Mass Comparators	Mass	C.S.for Mass Comparators JJF1326	1mg~6g	$U=(0.0010\sim0.0083)\text{mg}$		
				(6~50]g	$U=(0.0083\sim0.012)\text{mg}$		

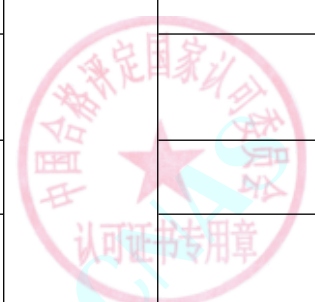


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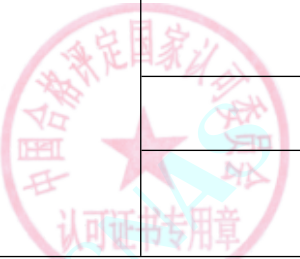
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(50~500]g	$U=(0.012\sim 0.086)\text{mg}$		
				(500g~5kg]	$U=(0.26\sim 3.6)\text{mg}$		
				(5~80]kg	$U=(3.6\sim 41)\text{mg}$		
				(80~2000]kg	$U=(0.15\sim 4.1)\text{g}$		
				(2000~5000]kg	$U=(12\sim 28)\text{g}$		
121	*GoriolisMassFlowMeters	Flow	V.R. of oriolis Mass Flow Meters JJG1038	(1~650)m ³ /h, DN2~DN100	$U_{\text{rel}}=0.64\%(\text{mobiledevice})$		
				(0.1~12)L/min, DN2~DN15(gas)	$U_{\text{rel}}=0.68\%(0.5\text{LevelSoapFilm method})$		
				(0.01~10)L/min, DN2~DN15(gas)	$U_{\text{rel}}=0.16\%(\text{PistonDevice})$		
				(0.01~120)m ³ /h, DN10~DN100(gas)	$U_{\text{rel}}=0.12\%(0.1\text{levelBellType})$		
				Air: (1~1723)m ³ /h, DN15~DN400	$U_{\text{rel}}=0.34\%(\text{MeansofCriticalFlowVezzlesNozzlez})$		
				gas: (80~11200)m ³ /h, DN125~DN400	$U_{\text{rel}}=0.34\%(\text{Standardmetermethod})$		
				Air: (16~40)m ³ /h, DN50~DN300	$U_{\text{rel}}=0.35\%(\text{Highpressureloop})$		
Air: (40~7500)m ³ /h, DN50~DN300	$U_{\text{rel}}=0.30\%(\text{Highpressureloop})$						



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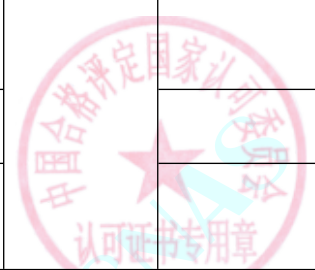
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.07%(Staticqualitymeth od)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	U _{rel} =0.07%(Microflowquality method)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.63%(Standardmetermet hod)		
				(0.1~6)m/s, DN25~DN400 (water)	U _{rel} =1.0%(Calibrationonsite)		
122	*TurbineFlowmete r	Flow	V.R. of Turbine Flowmeter JJG1037	(1~650)m ³ /h, DN2~DN100(gas)	U _{rel} =0.54%(mobiledevice)		
				(0.01~120)m ³ /h, DN10~DN100(gas)	U _{rel} =0.12%(0.1levelBellType)		
				Air: (1~1723)m ³ /h, DN15~DN400	U _{rel} =0.33%(MeansofCriticalFlowVezzlesNozzlez)		
				Air: (80~11200)m ³ /h, DN125~DN400	U _{rel} =0.35%(Mastermetermeth od)		
				Air: (16~40)m ³ /h, DN50~DN300	U _{rel} =0.35%(Highpressureloop)		
Air: (40~7500)m ³ /h, DN50~DN300	U _{rel} =0.3%(Highpressureloop)						



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.07%(Staticqualitymeth od)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	U _{rel} =0.07%(Microflowquality method)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.59%(Standardmetermet hod)		
				(0.1~6)m/s, DN25~DN500 (water)	U _{rel} =1.0%(Calibrationonsite)		
123	*UltrasonicFlowm eters	Flow	V.R. of Ultrasonic Flowmeter JJG1030, calibration specification for DN1000~DN2000 online liquid ultrasonic floweter JJF (冀) 196	(1~650)m ³ /h, DN2~DN100(gas)	U _{rel} =0.56%(mobiledevice)		
				(0.01~120)m ³ /h, DN10~DN100(gas)	U _{rel} =0.12%(0.1levelBellType)		
				Air: (1~1723)m ³ /h, DN15~DN400	U _{rel} =0.31%(MeansofCriticalFlowVezzlesNozzlez)		
				Air: (80~11200)m ³ /h, DN125~DN400	U _{rel} =0.33%(Mastermetermeth od)		
				Air: (16~40)m ³ /h, DN50~DN300	U _{rel} =0.35%(Highpressureloop)		
				Air: (40~7500)m ³ /h, DN50~DN300	U _{rel} =0.30%(Highpressureloop)		

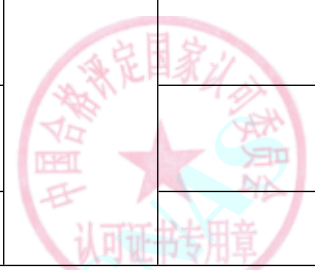


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.07\%$ (Staticqualitymeth od)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	$U_{rel}=0.07\%$ (Microflowquality method)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.6\%$ (Standardmetermeth od)		
				(0.1~7)m/s, DN25~DN2000 (water)	$U_{rel}=1.0\%$ (Calibrationonsite)		
124	*DifferentialPressureTypeFlowmeter	Flow	V.R. of DifferentialPressureType Flowmeter JJG640	(1~650)m ³ /h, DN2~DN100(gas)	$U_{rel}=0.56\%$ (mobiledevice)		
				(0.01~120)m ³ /h, DN10~DN100(gas)	$U_{rel}=0.12\%$ (0.1levelBellType)		
				(0.01~10)L/min, DN2~DN15(gas)	$U_{rel}=0.16\%$ (PistonDevice)		
				Air: (1~1723)m ³ /h, DN15~DN400	$U_{rel}=0.58\%$ (Volumetricmetho d)		
				Air: (80~11200)m ³ /h, DN125~DN400	$U_{rel}=0.59\%$ (Mastermetermeth od)		
				Air: (16~40)m ³ /h, DN50~DN300	$U_{rel}=0.35\%$ (Highpressureloop)		

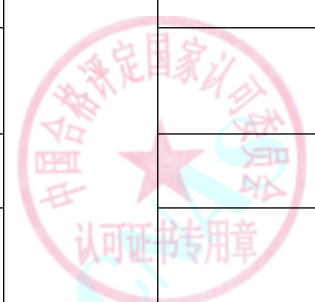


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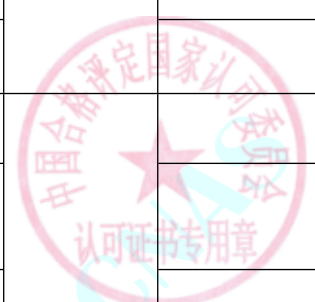
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Air: (40~7500)m ³ /h, DN50~DN300	0.30%(Highpressureloop)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.34%(Staticqualitymethod)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	U _{rel} =0.34%(Microflowqualitymethod)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.60%(Standardmetermethod)		
				(0.1~6)m/s, DN25~DN2000 (water)	U _{rel} =1.0%(Calibrationonsite)		
125	*Vortex-sheddingFloemeter	Flow	V.R. of Vortex-shedding Floemeter JJG1029	(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.09%(Staticqualitymethod)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	U _{rel} =0.09%(Microflowqualitymethod)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	U _{rel} =0.54%(Standardmetermethod)		
				(0.1~6)m/s, DN25~DN500 (water)	U _{rel} =1.0%(Calibrationonsite)		
				Air: (1~1723)m ³ /h, DN15~DN400	U _{rel} =0.45%(MeansofCriticalFlowVezzlesNozzlez)		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Air: (80~11200)m ³ /h, DN125~DN400	$U_{rel}=0.46\%$ (Mastermeter method)		
				Air: (16~40)m ³ /h, DN50~DN300	$U_{rel}=0.35\%$ (Highpressureloop)		
				Air: (40~7500)m ³ /h, DN50~DN300	$U_{rel}=0.30\%$ (Highpressureloop)		
126	SpecialOrificeFlowmeters	Flow	Calibration Specification for Special Orifice Flowmeters JJF(Ji)117	(0.016~120)m ³ /h	$U_{rel}=0.35\%$ (Mastermeter method)		
127	*ColdWaterMeter	Flow	V.R.ofColdWaterMeter JJG162	(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.31\%$ (Staticqualitymethod)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	$U_{rel}=0.31\%$ (Microflowqualitymethod)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.58\%$ (Standardmetermethod)		
				(0.1~6)m/s, DN25~DN2000 (water)	$U_{rel}=1.0\%$ (Calibrationonsite)		
128	*ElectromagneticFlowmeter	Flow	V.R. of Electromagnetic Flowmeter JJG1033, online calibration specification for largediameter electromagnetc floweters JJF (冀) 182	(0.012~5090)m ³ /h, DN6~DN800	$U_{rel}=0.09\%$ (Staticqualitymethod)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (水介质)	$U_{rel}=0.09\%$ (Microflowqualitymethod)		
				(0.012~5090)m ³ /h, DN6~DN800	$U_{rel}=0.54\%$ (Standardmetermethod)		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.1~6)m/s, DN25~DN2000 (water)	$U_{rel}=1.0\%$ (Calibrationonsite)		
129	*LiquidDisplacementMeters	Flow	V.R. of Liquid Positive Displacement FlowMeter JJG667	(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.07\%$ (Staticqualitymethod)		
				(0.00001~0.08)m ³ /h, DN2~DN15 (Water)	$U_{rel}=0.07\%$ (Microflowqualitymethod)		
				(0.012~5090)m ³ /h, DN6~DN800 (Water)	$U_{rel}=0.6\%$ (Standardmetermethod)		
				(0.1~6)m/s, DN25~DN500 (water)	$U_{rel}=1.0\%$ (Calibrationonsite)		
130	*LiquidLevelGauges	Pressure	Verification Regulation of Liquid Level Gauges JJG971	(0~98) m	$U=0.3\text{mm}$		
				(-90~110) kPa	$U_{rel}=0.1\%$		
131	*CalibrationSepecificationforActivePistonProvers	Flow	Calibration Sepecification for Active Piston Provers JJF1586	(2~500)L	$U_{rel}=0.05\%$		
132	Compensated Micro-manometer		Compensated Micro-manometer JJG158	(-2500~-0.1)Pa	$U=0.6\text{Pa}$		
				(0.1~2500)Pa	$U=0.6\text{Pa}$		
III Thermology measurement equipment							
1	IndustrialPlatinumCopperResistanceThermometer	Resistance	V.R. of Industrial Platinum Copper Resistance Thermometer JJG229	(-60~0)°C	$U=(0.028~0.020)^\circ\text{C}$		
				(0~300)°C	$U=(0.020~0.029)^\circ\text{C}$		



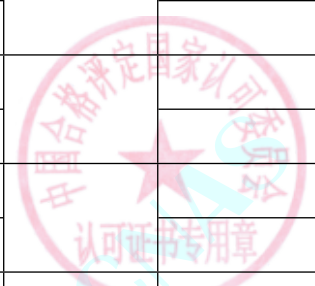
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Thermostatic Bath	Temperature	C.S. for Measurement and Test Norm of Thermostatic Bath's Metrological Characteristics JJF1030	(-80~300)°C	U=3°C		
3	Thermistor Thermometers	Temperature	C.S. for Thermistor Thermometers JJF1379	(-50~200)°C	U=0.015°C		
4	Temperature Data Acquisition Instrument	Temperature	C.S. for Temperature Data Acquisition Instruments JJF1366	(-80~300)°C	U= (0.011~0.017)°C		
5	Standard Platinum Rhodium10/Platinum Thermocouple (Grade1)	Temperature	V.R. of Standard Platinum Rhodium10/Platinum Thermocouple JJG75	1084.62°C	U=0.45°C		
				660.323°C	U=0.38°C		
				419.527°C	U=0.38°C		
6	Working Base Noble Thermometer	Temperature	V.R. of Working Base Noble Thermometer JJG141	1084.62°C	U=0.7°C		
				660.323°C	U=0.6°C		
				419.527°C	U=0.6°C		
				(1100~1500)°C	U=3.1°C		
7	*Working Radiation Thermometers	Temperature	V.R. of Working Radiation Thermometers JJG856	(-10~500) °C	U= (0.6~1.3) °C		
				(500~+1400) °C	U= (1.3~3.4) °C		
8	*Thermal Imagers	temperature	C.S. for Thermal Imagers JJF1187	(-10~50) °C	U= (0.6~0.4) °C		
				(50~500)°C	U= (0.4~0.6) °C		
9	*Bimetallic Thermometer	temperature	C.S. for Bimetallic Thermometers JJF1908	(-60~100)°C	U=0.3°C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(100~300)°C	U=(0.3~0.7)°C		
10	*PressureTypeThermometers	temperature	C.S. for Filled System Thermometers JJF1909	(-60~0)°C	U=(0.3~0.2)°C		
				(0~300)°C	U=(0.2~0.9)°C		
11	TemperatureItinerantDetectingInstrument	temperature	C.S for Temperature Itinerant Detecting Instrument JJF1171	withIPRT(-60~0)°C	U=(0.09~0.07)°C		
				withIPRT(0~300)°C	U=(0.07~0.09)°C		
				withTc(300~1100)°C	U=0.6°C		
				withTc(1100~1500)°C	U=2.0°C		
12	ClinicalelectronicThermometer	temperature	V.R. of the Clinical Electronic Thermometer JJG1162	(35~44)°C	U=0.07°C		
13	MechanicalThermohygrometers	temperature	V.R. of Mechanical Thermohygrometers JJG205	(5~50) °C	U= (0.5~0.6) °C		
		humidity		30%RH~95%RH	U=1.5%RH~2.0%RH		
14	*Melting-pointMeasurementInstrument	temperature	V.R. of Melting-point Measurement Instrument JJG701	(52~287)°C	U=0.3°C		
15	WorkingDisappearing-FilamentofOpticalPyrometer	temperature	V.R. of Disappearance Filamentof Photo-Pyrometer for Working JJG68	(900~1400)°C	U=9°C		
				(1400~2000)°C	U=10°C		
16	*BacteriumFosterBox	Temperature	Calibration Specification for the Equipment of the Environmental Testing for Temperatureand Humidity Parameters JJF1101	(5~50)°C	U=0.2°C		



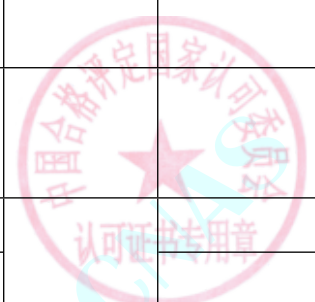
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
17	BaseMetalThermometer	Temperature	C.S. for Base Metal Thermocouples JJF1637	(-60~300)°C	U=0.1°C		
				(300~1300)°C	U=0.6°C~1.0°C		
18	*Box-typeResistanceFurnace	Temperature	C.S. For Box-type Resistance Furnace JJF1376	(300~1300) °C	U= (1.2~1.5) °C		
19	*Oxygenbombcalorimeter	calorificcapacity	V.R. of Oxygen bombcalorimeter JJG672	(5000~11000) J/K	U=20J/K		
20	*babyincubator	temperature	C.S. for baby incubator JJF1260	(20~40) °C	U=(0.18~0.20)°C		
		Humidity		20%RH~60%RH	U=1.8%RH~1.6%RH		
				60%RH~80%RH	U=1.6%RH~2.2%RH		
		Noise		(30~130)dB	U=1.6dB		
oxygencontent	(30~40) %	U=2%					
21	*OpenCupFlashPointRester	Temperature	C.S. for Open/Closed Cup Flash Point Rester JJF1384	(115~250) °C	U= (6.1~8.5) °C		
22	*ThermocoupleandResistanceThermometers	Temperature	C.S. for Auto-measuring System of Thermocoupleand Resistance Thermometers JJF1098	(300~1100) °C	U=0.6°C		
23	*ThermocoupleCalibrationFurnaces	Temperature	Testing specification of Temperature Uniformityim Thermocouple Calibration Furnaces JJF1184	(300~1100) °C	U=0.2°C		
24	Armoredthermocouple	Temperature	C.S. for sheathed Thermocouples JJF1262	(-60~300) °C	U=0.2°C		
				(300~1100)°C	U=1.0°C		

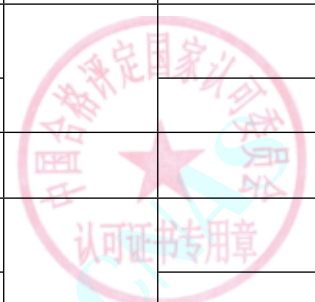


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
25	*Temperature calibration instrument	Temperature	C.S. for Temperature Indicators and Simulators by Electrical Simulation and Measurement JJF1309	Thermal resistance (-200~600) °C	U=0.1°C		
				Base Metal Thermoc (0~1100) °C	U=0.2°C		
				noble metal thermocouples (0~1600) °C	U=0.3°C		
26	*the Recorders for Industrial-Process measurement	Temperature	V.R. of the Recorders for Industrial-Process measurement JJG74	(-60~200) °C	U=0.08°C		
				(0~1600) °C	U=(0.2~0.8) °C		
27	*Pressure steam sterilizer	Temperature	C.S. for Thermometers of Clinic Autoclave JJF1308, Calibration Specification for Temperature and Pressure Parameters of Small Stream Sterilizer JJF(冀)195	(0~150) °C	U=0.4°C		
		Pressure		(0~400) kPa	U=0.3kPa		
28	*Analogue Temperature Indicators and Controllers	Temperature	V.R. of Analogue Temperature Indicators and Controllers JJG951	(-60~200) °C	U=0.08°C		
				(0~1600) °C	U=(0.2~0.8) °C		
29	*Digital Temperature Indicators and Controllers	Temperature	V.R. of Digital Temperature Indicators and Controllers JJG617	with IPRT (-60~200) °C	U=0.08°C		
				with Tcs (0~1600) °C	U=(0.2~0.8) °C		
30	*Calorimeter	calorific capacity	Verification Regulation of bomb calorimeters JJG 672	(0~15000) J/K	U=20J/K		
31	*Temperature Transmitter with Sensor	Temperature	C.S. for the Temperature Transmitter JJF1183	without IPRT (-80~500) °C	U=0.05%FS		
				without Tc (500~1100) °C	U=0.09%FS		



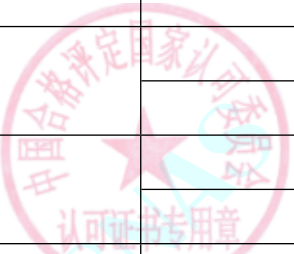
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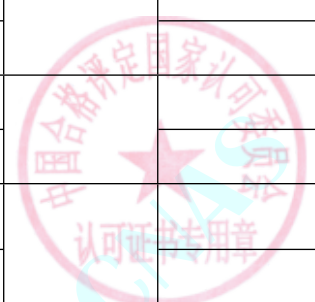
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				with IPRT (-80~500) °C	U=0.05%FS		
				with Tc (500~1100) °C	U=0.1%FS		
32	Precision Dew-point Hygrometers	Dewpoint	V.R. of Precision Dew-point Hygrometers JJG499	dewpoint: (-70~20) °C	U= (0.40~0.30) °C		
33	Resistance and Capacitance Dew Point Hygrometer	Dewpoint	C.S. for Resistance and Capacitance Dew Point Hygrometer JJF1272	dewpoint: (-70~20) °C	U=0.4 °C ~0.3 °C		
34	*Humidity Generator	Humidity	V.R. of Secondary Standard Divided Flow Humidity Generator JJG826	5%RH~95%RH	U=1.2%RH		
35	*Blackbody Radiation Sources	Temperature	C.S. for Blackbody Radiation Sources of Radiation Thermometry from -10 °C to 200 °C JJF1552	(-10~200) °C	U= (0.6~1.0) °C		
36	*Blackbody Radiation Sources	Temperature	Calibration Method for Blackbody Radiation Sources of Radiation Thermometry meters as standard Z/JF-RGF-001-2022	(-50~-10) °C	U= (0.8~0.6) °C		
				(200~2000) °C	U= (0.5~5.6) °C		
37	*Differential Scanning Calorimeters	temperature	V.R. of Differential Scanning Calorimeters JJG936	(156.52~327.77) °C	U=0.6 °C		
		Calories		(23.02~60.24) J/g	U _{rel} =2%		
38	*Temperature and Humidity Standard Chambers	temperature	C.S. for Temperature and Humidity Standard Chambers JJF1564	(5~50) °C	U=0.1 °C		
		humidity		10%RH~95%RH	U=0.5%RH		
39	*Environmental test equipment	humidity	Calibration Specification for the Equipment of the Environmental Testing for	5%RH~60%RH	U=2.0%RH~1.6%RH		
				60%RH~95%RH	U=1.6%RH~2.2%RH		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature	Temperature and Humidity Parameters JJF1101	(-80~100) °C	U=(0.4~0.2)°C		
				(100~300) °C	U=(0.2~0.4)°C		
40	*Bomb Calorimeters	Calorific value	Verification Regulation of bomb calorimeters JJG 672	26458J/g	U=37J/g		
41	*Temperature Block Calibrators	Temperature	Calibration Guideline of the Temperature Block Calibrators JJF1257	0°C	U=0.03°C		
				(-40~140) °C	U=0.2°C		
				(140~600) °C	U=(0.2~0.4)°C		
				(600~1100) °C	U=0.6°C		
42	Passive Medical Cold Boxes	Temperature	Calibration Specification for Temperature Parameter of Passive Medical Cold Boxes JJF1676	(-20~20) °C	U=0.13°C		
43	*Temperature Parameter of Vibrating Wire Readout	Temperature	C.S. for Temperature Parameter of Vibrating Wire Readout JJF(Ji) 163	(-30~85) °C	U=0.1°C		
		Resistance		(320~53200) Ω	U=(1~7) Ω		
44	*Polymerase Chain Reaction Analyzers	concentration	Calibration Specification for Polymerase Chain Reaction Analyzers JJF1527	(1.11 × 10 ¹ ~1.04 × 10 ⁷) copies/μL	U _{rel} =6.2%~9.3%		
		Temperature		(0~120) °C	U=(0.2~1.0)°C		
45	*Closed Cup Flash Point Rester	Temperature	C.S. for Open/Closed Cup Flash Point Rester JJF1384	(70~110) °C	U=5.0°C		
				(110~200) °C	U=6.0°C		
46	*steady state thermal conductivity meter	Thermal conductivity	C.S. for steady state thermal conductivity meter JJF(ji) 108	(0.01~1) W/(m·K)	U _{rel} =4%		
		Temperature		(-30~100) °C	U=0.1°C		

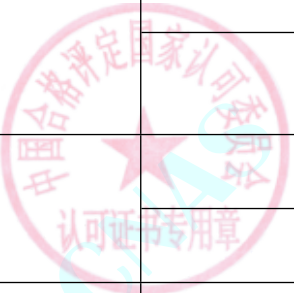


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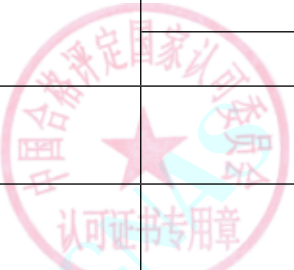
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
47	*	Temperature	Calibration method for Surface temperature control equipment Z/JF-RGG-001-2022	(-50~600) °C	U=2.0°C		
48	*microwave digestion instrument	Temperature	Calibration Method for Microwave Digestion Instrument Z/JF-RGG-004-2022	(0~200) °C	U=0.4°C		
49	*Illumination test chambers	Temperature	Calibration Method for Illumination Test Chambers Z/JF-RGG-005-2022	(0~100) °C	U=0.2°C		
		humidity		10%RH~90%RH	U=2.0%RH		
		illuminan		(10~10000) lx(50~100)uW/cm ²	U=213lx		
50	*Temperature Indicators	Temperature	Calibration Specification for Temperature Indicators JJF1664	with IPRT (-200~600) °C	U=0.08°C		
				with Tcs (0~1600) °C	U=(0.2~0.8) °C		
51	*Vacuum Ovens	Temperature	Calibration method for Vacuum Ovens JJF(津)01-2018	(0~150) °C	U=0.2°C		
		pressure		(10~500) kPa(Absolute pressure)	U=0.6kPa		
52	*Ash Fusibility Tester	Temperature	Calibration method for Ash Fusibility Tester JJF(新)05-2017	(900~150) °C	U=(2.0~3.0) °C (ErrorOfTemperatureControl)		
				(900~1500) °C	U=(9.0~26) °C (ErrorOfMeasuringInstrument)		
53	*Pour Point and Cloud Point Testers	Temperature	Calibration Specification for Pour Point and Cloud Point Testers of Petroleum Products JJF1869	Pour Point: (-80~100) °C	U=4.2°C		
				Cloud Point: (-80~100) °C	U=2.2°C		
54	Standard Mercury-	Temperature	V.R. of Standard Mercury-in-Glass Thermometer JJG161	(-60~0)°C	U=(0.05~0.04)°C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	in-Glass Thermometer			(0~300)°C	U=(0.04~0.05)°C		
55	Standard Platinum Resistance Thermometer (Grade II)	Temperature	V.R. of Standard Platinum Resistance Thermometer JJG160	(0~419.527)°C	U=3.7mK(Rtp)		
				(0~419.527)°C	U=7.8mK(Wsn)		
				(0~419.527)°C	U=11mK(Wzn)		
56	Standard Clinical Thermometer	Temperature	V.R. of Standard Clinical Thermometer JJG881	(35~44)°C	U=0.017°C		
57	*Infrared Thermometers for Measurement of Human Temperature	Temperature	C.S. for Infrared Thermometers for Measurement of Human Temperature JJF1107	(30~42) °C	U=0.2°C		
58	Liquid-in-Glass Thermometer	temperature	V.R. of Liquid-in-Glass Thermometers for Working JJG130	(-60~0)°C	U=(0.07~0.01)°C		
				(0~150)°C	U=(0.010~0.022) °C		
				(150~300)°C	U=(0.022~0.10)°C		
59	Electric Contact Mercury-in-Glass Thermometer	temperature	V.R. of Electric Contact Mercury-in-Glass Thermometer JJG131	(-30~100)°C	U=(0.06~0.10)°C		
				(100~200)°C	U=(0.10~0.22)°C		
				(200~300)°C	U=(0.22~0.6)°C		
60	Semiconductor Point Thermometer	Temperature	C.S. for Thermistor Thermometers JJF1379	(-30~300)°C	U=0.3°C		
61	Clinical Thermometers	temperature	V.R. of Clinical Thermometers JJG111	(35~44)°C	U=0.05°C		
62	Electric Ventilation	Temperature	V.R. of Electric Ventilation Psychrometer JJG993	(5~50)°C	U=0.03°C		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Psychrometer	Humidity		30%RH~95%RH	$U=1.3\%RH$		
63	*DigitalThermo- hygrometers(Conta insHumiditySensor s)	Temperature	Calibration Specification for Digital Temperatue- hygrometers JJF 1076	(-40~100)°C	$U= (0.2\sim0.4) ^\circ C$		
		Humidity		5%RH~95%RH	$U=0.5\%RH\sim1.2\%RH$		
64	ThermometersofW BGT-indexMeters	Temperature	C.S. for Thermometers of WBGT-index Meters JJF1407	(5~120)°C	$U=0.3^\circ C$		
65	Triplepiontofwater	Temperature	Calibration SpecificationofFixed- PointDevicesforStandardPlati num ResistanceThermometer JJF1178	0.01°C	$U=0.7mk$		
66	TherometersforTra nsformerWindings	Temperature	Calibration Specification of Therometers for Transformer Windings JJF(Ji)148	(0~150) °C	$U=0.3^\circ C$		
67	SurfaceThermomet ers	Temperature	Calibration Specification for the Surface Thermometers JJF1409	(50~400) °C	$U= (0.7\sim2.4) ^\circ C$		
IV Electromagnetics measurement equipment							
1	*LF Voltmeter	Voltage	C. S. for Low-frequency Volt-meter JJF1925	10mV~100V(1kHz)	$U_{rel}=0.6\%$		
		Frequency Response		1V (10Hz~1MHz)	$U_{rel}=0.7\%$		
2	*Amperemeter\Vol tmeter\Wattmeter	DC current	V.R. of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG124	10μA~50A	$U_{rel}=3\times 10^{-4}$		
		AC current		1mA~50A (45Hz~ 65Hz)	$U_{rel}=3\times 10^{-4}$		
				50A~100A (45Hz~ 65Hz)	$U_{rel}=8\times 10^{-4}$		



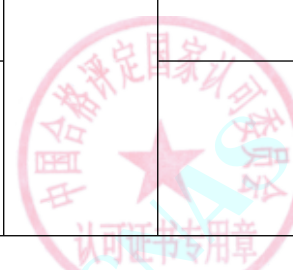
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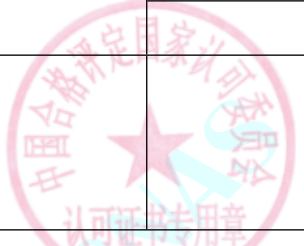
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC voltage		10mV~600V	$U_{rel}=3 \times 10^{-4}$		
		AC voltage		100mV~600V (45Hz~65Hz)	$U_{rel}=3 \times 10^{-4}$		
		DC power		15W~6kW	$U_{rel}=3 \times 10^{-4}$		
		AC power		15W~6kW (45Hz~65Hz)	$U_{rel}=3 \times 10^{-4}$		
3	*Electric Meters for Measuring Alternating-current Electrical Energy	Electric energy	Electrical Meters for Measuring Alternating-current Electrical Energy JJG596	Single-phase load and three-phase blance: (30~400)V, 0.005A, cos ϕ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.022\%$		
				Single-phase load and three-phase blance: (30~400)V, (0.01~0.02) A, cos ϕ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.020\%$		
				Single-phase load and three-phase blance: (30~400)V, (0.05~0.1) A, cos ϕ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.014\%$		
				Single-phase load and three-phase blance: (30~400)V, (0.2~100) A, cos ϕ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.013\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Three-phase unbalanced load : (30~400) V, (0.05~0.1) A,cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.016\%$		
				Three-phase unbalanced load : (30~400) V, (0.2~10) A,cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.014\%$		
				Three-phase unbalanced load : (30~400) V, (20~100) A,cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.015\%$		
				Unbalancedload: (57.7~400) V, (0.01~100) A,cos φ =1.0	$U_{rel}=0.08\%$		
				Unbalancedload: (57.7~400) V, (0.01~100) A,cos φ =0.5L	$U_{rel}=0.10\%$		
				Time/Day	(-50~50)s/d		
4	*Reference Meters for Electric Energy	Electric Energy	V.R. of Reference Meters for Electrical Energy JJG1085	Single-phase load and three-phase blance: (30~400) V,0.005A,cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.022\%$		

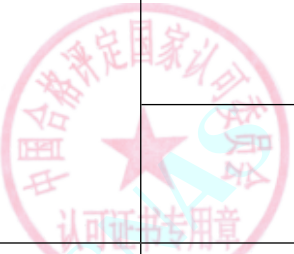


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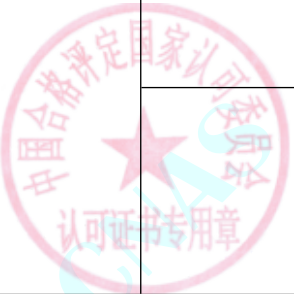
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Single-phase load and three-phase balance: (30~400) V, (0.01~0.02) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.020\%$		
				Single-phase load and three-phase balance: (30~400) V, (0.05~0.1) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.014\%$		
				Single-phase load and three-phase balance: (30~400) V, (0.2~100) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.013\%$		
				Three-phase unbalanced load : (30~400) V, (0.05~0.1) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.016\%$		
				Three-phase unbalanced load: (30~400) V, (0.2~10) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.014\%$		
				Three-phase unbalanced load: (30~400) V, (20~100) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.015\%$		
5	*Single-phase Verification Equipment for Electricity	Electric Energy	V.R. of Verification Equipment for A.C. Electrical Energy Meter JIG597	(30~400)V,0.005A,cos φ=(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.022\%$		



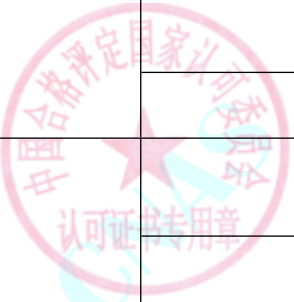
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	calEnergyMeter		ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(30~400)V, (0.01~0.02) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.020\%$		
				(30~400)V, (0.05~0.1) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.014\%$		
				(0.2~100) A	$U_{rel}=0.013\%$		
		(57.7~380)V, (0.005~100) A,		$U_{rel}=0.03\%$			
		AC indication error		(0.001~100) %	$U_{rel}=0.05\%$		
		Waveform Distortion					
6	*3-phase Verification Equipment for Electrical Energy Meter	Electric Energy	V.R. of Verification Equipment for A.C. Electrical Energy Meter JJG597	Single-phase load and three-phase balance: (30~400) V, 0.005A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.022\%$		
				Single-phase load and three-phase balance: (30~400) V, (0.01~0.02) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.020\%$		
				Single-phase load and three-phase balance: (30~400) V, (0.05~0.1) A, cos φ =(1.0,0.5L,0.8C,0.5C)	$U_{rel}=0.014\%$		



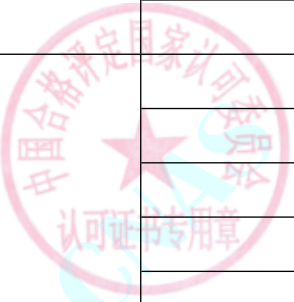
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Single-phase load and three-phase balance: (30~400) V, (0.2~100) A, cos φ = (1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.013\%$		
				Three-phase unbalanced load: (30~400) V, (0.05~0.1) A, cos φ = (1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.016\%$		
				Three-phase unbalanced load: (30~400) V, (0.2~10) A, cos φ = (1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.014\%$		
				Three-phase unbalanced load: (30~400) V, (20~100) A, cos φ = (1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.015\%$		
		AC indication error	(57.7~380)V, (0.005~100) A,	$U_{rel}=0.03\%$			
		Waveform Distortion		(0.001~100) %	$U_{rel}=0.05\%$		
7	*Single phase AC standard power source	Power indication error	Standard AC Power Source JJG(Military Industry)6	(57.7~380)V,(0.005~100)A,(45Hz~65Hz)	$U_{rel}=0.02\%$		
		Error or voltage indication		(57.7~380)V,(45Hz~65Hz)	$U_{rel}=0.02\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Error of current indication		(0.005~100)A,(45Hz~65Hz)	$U_{rel}=0.02\%$		
		Phase indication error		$0^\circ \sim 360^\circ$	$U_{rel}=0.02\%$		
8	*Three phase AC standard power source	Power indication error	Standard AC Power Source JJG(Military Industry)6	(57.7~380)V,(0.005~100)A,(45Hz~65Hz)	$U_{rel}=0.02\%$		
		Error of current indication		(0.005~100)A,(45Hz~65Hz)	$U_{rel}=0.02\%$		
		Error or voltage indication		(57.7~380)V,(45Hz~65Hz)	$U_{rel}=0.02\%$		
		Phase indication error		$0^\circ \sim 360^\circ$	$U_{rel}=0.02\%$		
9	*Dielectric loss tester	Dielectric loss factor	V.R. of High Voltage Capacitance Bridges JJG563	0.001%~0.01%	$U_{rel}=12\%$		
				0.01%~0.1%	$U_{rel}=1.2\%$		
				0.1%~10%	$U_{rel}=0.6\%$		
10	High Insulation Resistance Meters	Resistance	V.R. of High Insulation Resistance Meters JJG690	100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.6\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		Voltage		10V~1000V	$U_{rel}=0.012\%$		

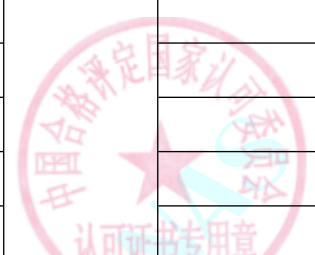


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	*Earth-Continuity Testers	AC resistance	V.R. of Earth-Continuity Testers JJG984	100 $\mu\Omega$ ~ 11.11 Ω (45Hz~65Hz)	$U_{rel}=0.12\%$		
		DC resistance		100 $\mu\Omega$ ~ 11.11 Ω	$U_{rel}=0.06\%$		
		AC current		1A ~ 60A (45Hz~65Hz)	$U_{rel}=0.15\%$		
		DC current		1A ~ 60A	$U_{rel}=0.1\%$		
12	*Earth Resistance Meters	Resistance	V.R. of Earth Resistance Meters JJG366	1m Ω ~ 10m Ω	$U_{rel}=12\%$		
				10m Ω ~ 100m Ω	$U_{rel}=4\%$		
				100m Ω ~ 1 Ω	$U_{rel}=0.6\%$		
				1 Ω ~ 10k Ω	$U_{rel}=0.12\%$		
13	*Clamp Earth Resistance Meters	Resistance	V.R. of Clamp Earth Resistance Meters JJG1054	1m Ω ~ 10m Ω	$U_{rel}=12\%$		
				10m Ω ~ 100m Ω	$U_{rel}=2.4\%$		
				100m Ω ~ 1 Ω	$U_{rel}=0.6\%$		
				1 Ω ~ 10k Ω	$U_{rel}=0.12\%$		
14	Insulation Resistance Meters	Resistance	V.R. of Megohmmeter JJG622, V.R. of Electronic Insulating Resistance Meters JJG1005	100 Ω ~ 10M Ω	$U_{rel}=0.24\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.6\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		Voltage	10V ~ 10kV	$U_{rel}=1.2\%$			
15	*Leakage Current Tester	AC current	V.R. of Leakage Current Tester JJG843	0.2mA ~ 20mA (45Hz~65Hz)	$U_{rel}=0.12\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC current		0.2mA ~ 20mA	$U_{rel}=0.06\%$		
		AC Voltage		10V ~ 250V (45Hz ~ 65Hz)	$U_{rel}=0.12\%$		
		DC Voltage		10V ~ 250V	$U_{rel}=0.06\%$		
16	D.C.Potentiometers	Voltage	V.R. of D.C. Potentiometers JYG123	10nV ~ 100 μ V	$U_{rel}=2.5 \times 10^{-3}$		
				100 μ V ~ 1mV	$U_{rel}=2.6 \times 10^{-4}$		
				1mV ~ 10mV	$U_{rel}=3 \times 10^{-5}$		
				10mV ~ 100mV	$U_{rel}=1.4 \times 10^{-5}$		
				100mV ~ 2.1V	$U_{rel}=2.5 \times 10^{-6}$		
17	Standard Cell	Voltage	V.R. of Standard Cell JYG153	1.017901V ~ 1.02000V	$U=12 \mu$ V		
18	Standard Resistor	Resistance	V.R. of D.C. Resistors JYG166	1 Ω	$U_{rel}=1.2 \times 10^{-6}$		
				100m Ω , 10 Ω , 100 Ω , 1k Ω , 10k Ω	$U_{rel}=3.6 \times 10^{-6}$		
				1m Ω , 10m Ω , 100k Ω	$U_{rel}=7.1 \times 10^{-6}$		
19	D.C.Bridges	Resistance	V.R. of D.C. Bridge JYG125	100 μ Ω	$U_{rel}=0.12\%$		
				1m Ω	$U_{rel}=0.06\%$		
				10m Ω	$U_{rel}=0.025\%$		
				100m Ω ~ 100k Ω	$U_{rel}=0.012\%$		
				10 Ω , 100 Ω , 1k Ω , 10k Ω	$U_{rel}=1 \times 10^{-5}$		
20	D.C.Comparison Bridges	Resistance	V.R. of D.C. Comparison Bridges JYG546	1 Ω	$U_{rel}=1.2 \times 10^{-6}$		



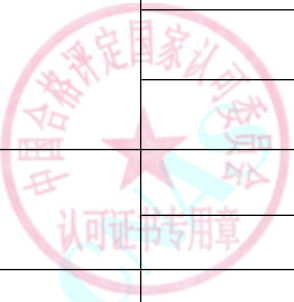
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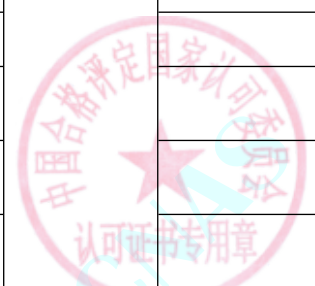
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	bridges			10 Ω ~ 1k Ω	$U_{rel}=3.6 \times 10^{-6}$		
				10k Ω	$U_{rel}=7.1 \times 10^{-6}$		
21	Alternating Current Bridge	Inductance	V.R. of Alternating Current Bridge JJG441	10 μ H ~ 1H (1kHz)	$U_{rel}=0.13\%$		
				1H(100Hz)	$U_{rel}=0.13\%$		
		Capacitance		100pF ~ 10nF(50Hz ~ 400Hz)	$U_{rel}=0.5\%$		
				100pF ~ 10nF(400Hz ~ 2kHz)	$U_{rel}=0.26\%$		
				100pF ~ 10nF(2kHz ~ 10kHz)	$U_{rel}=0.5\%$		
				10nF ~ 1 μ F(50Hz ~ 400Hz)	$U_{rel}=0.26\%$		
				10nF ~ 1 μ F(400Hz ~ 2kHz)	$U_{rel}=0.13\%$		
				10nF ~ 1 μ F(2kHz ~ 10kHz)	$U_{rel}=0.26\%$		
				1 μ F ~ 5 μ F(50Hz ~ 2kHz)	$U_{rel}=0.13\%$		
				1 μ F ~ 5 μ F(2kHz ~ 4kHz)	$U_{rel}=0.26\%$		
				1 μ F ~ 5 μ F(4kHz ~ 10kHz)	$U_{rel}=0.3\%$		
22	*Powerfrequency magneticfieldtestequipment	magnetic density	C.S. for Power Frequency Magnwtic Field Simulators JJF1737	1A/m~300A/m	$U_{rel}=5\%$		
		Current		0.3A~350A	$U_{rel}=3\%$		
23	*Instrument forTransformerTes	Ratio Difference	V.R. of Transformer Test Set JJG169	±0.01% ~ ±100%	$U_{rel}=0.3\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	t Device	Phase Difference		0.05' ~ 500'	$U_{rel}=0.3\%$		
24	*Voltage Transformers	Voltage ratio	V.R. of Instrument Voltage Transformers JJG314	$U_1: (0\sim 1000)V; U_2: (1\times 10^{-6}\sim 1)U_1$	$U=1.2\times 10^{-6}$		
		Phase Difference		$(0\sim 500)'$	$U=1.2\times 10^{-6}rad$		
		Voltage Ratio		$(6\sim 35)kV/100V, (6\sim 35)kV/\sqrt{3}/100/\sqrt{3}V, (6,10)kV/100/\sqrt{3}V, (20\%U_b)$	$U=0.005\%$		
				$(6\sim 35)kV/100V, (6\sim 35)kV/\sqrt{3}/100/\sqrt{3}V, (6,10)kV/100/\sqrt{3}V, (50\%U_b)$	$U=0.004\%$		
				$(6\sim 35)kV/100V, (6\sim 35)kV/\sqrt{3}/100/\sqrt{3}V, (6,10)kV/100/\sqrt{3}V, (80\%\sim 120\%)U_b$	$U=0.003\%$		
		Phase Difference		$(0\sim 500)'$, $(20\%U_b)$	$U=0.16'$		
				$(0\sim 500)'$, $(50\%U_b)$	$U=0.12'$		
				$(0\sim 500)'$, $(80\%\sim 120\%)U_b$	$U=0.09'$		
Voltage Ratio	$110kV/100V, 110kV/\sqrt{3}/100/\sqrt{3}V, (20\%U_b)$	$U=0.05\%$					
	$110kV/100V, 110kV/\sqrt{3}/100/\sqrt{3}V, (50\%U_b)$	$U=0.04\%$					

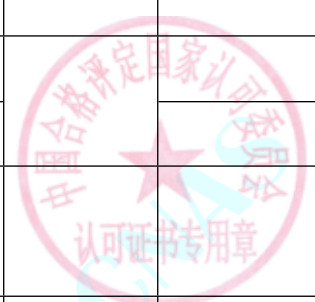


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase Difference	ilac-MAS INTERNATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	110kV/100V, 110kV $\sqrt{3}/100 \sqrt{3}V, ((80\% \sim 120\%)U_b)$	$U=0.03\%$		
				(0~500)' , (20%U _b)	$U=1.5'$		
				(0~500)' , (50%U _b)	$U=1.1'$		
				(0~500)' , ((80%~120%)U _b)	$U=0.8'$		
25	Dielectric Strength Detector of Insulating Oils	Voltage	Dielectric Strength Detector of Insulating Oils JJG(Ji)112	(1~80)kV	$U_{rel}=0.6\% \sim 0.9\%$		
26	*Transformers Turn Ratio Test Sets	Transformers Ratio	Transformers Turn Ratio Test Sets JJG970	1~10000	$U_{rel}=0.008\%$		
27	Contactless Electrostatic Voltage Measuring Instruments	Direct voltage	Calibration Specification for Contactless Electrostatic Voltage Measuring Instruments JJF1517	(0.1~20) kV	$U_{rel}=1.3\%$		
28	*Third-harmonic Generator	Voltage	V. R. of AC Standard Voltage Source JZ/JF-DCG-002	(1~1000) V	$U_{rel}=0.1\%$		
		Frequency		(50~200) Hz	$U_{rel}=0.1\%$		
29	*EDM Leak Detector	Alternate Voltage	Verification Regulation of Withstanding Voltage Testers JJG795	(0.1~50) kV	$U_{rel}=0.6\%$		
		Direct voltage		(0.1~50) kV	$U_{rel}=0.6\%$		
30	*Impulse Voltage Testers	Peak voltage	Calibration Specification for Impulse Voltage Testers for Winding Interturn Insulation JJF1691	(0.1~15) kV	$U_{rel}=0.6\%$		
		Difference In Ratio	Calibration Specification for Testing Instrument of	(0.01~100) %	$U_{rel}=0.6\%$		

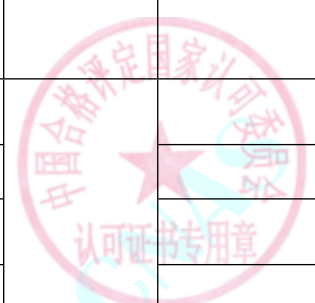


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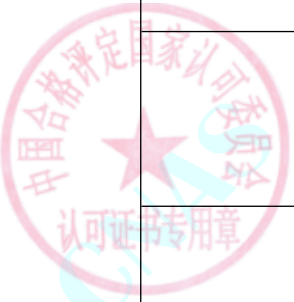
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	of Transformer Secondary Loop Voltage Drops and Loads	Phase Difference	Transformer Secondary Loop Voltage Drops and Loads	(0.05 ~ 500) %	$U_{rel}=0.6\%$		
		Impedance	JJF1619	(0.001 ~ 10) Ω	$U_{rel}=0.6\%$		
		Admittance		(0.01 ~ 10) mS	$U_{rel}=0.6\%$		
32	*High Voltage Resonant Test Device	Alternate Voltage	Verification Regulation of High-voltage Divider at Power Frequency JJG496	(0.1 ~ 100) kV	$U_{rel}=0.6\%$		
		Frequency		20Hz ~ 300Hz	$U_{rel}=0.1\%$		
33	Withstanding Voltage Tester Calibrators	Alternate Voltage	C.S. for withstanding voltage tester calibrator JJF (Ji) 3006	(0.1 ~ 15) kV	$U_{rel}=0.6\% \sim 0.9\%$		
		Direct Voltage		(0.1 ~ 15) kV	$U_{rel}=0.14\% \sim 0.16\%$		
		Alternate Current		(0.1 ~ 200) mA	$U_{rel}=0.6\% \sim 0.9\%$		
		Direct current		(0.1 ~ 200) mA	$U_{rel}=0.09\% \sim 0.6\%$		
		Time		(0.003 ~ 24) h	$U_{rel}=0.6\%$		
34	*High-voltage Divider at Power Frequency	Alternate Voltage	Verification Regulation of High-voltage Divider at Power Frequency JJG496	(0.1 ~ 220) kV	$U_{rel}=U \cdot 0.15\% \sim 0.6\%$		
35	Withstanding Voltage Testers	Alternate voltage	Verification Regulation of Withstanding Voltage Testers JJG795	(0.1 ~ 15) kV	$U_{rel}=0.6\% \sim 0.9\%$		
		Direct voltage		(0.1 ~ 15) kV	$U_{rel}=0.14\% \sim 0.16\%$		
		Alternate current		(0.1 ~ 200) mA	$U_{rel}=0.6\% \sim 0.9\%$		
		Direct current		(0.1 ~ 200) mA	$U_{rel}=0.09\% \sim 0.6\%$		



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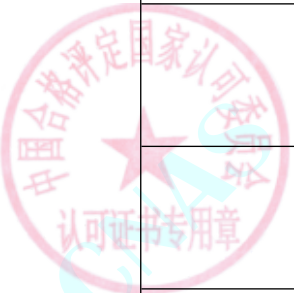
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		(0.003~24)h	$U_{rel}=0.6\%$		
36	*Impulse Voltage Generator	Partial pressure ratio	C. S. for Impulse Divider DL/T1222	(100~10000)	$U_{rel}=1.6\%$		
		Voltage amplitude		(10~2000)kV	$U_{rel}=1.6\%$		
		Time		10ns~20 μs	$U_{rel}=4\%$		
37	Fieldcalibratorfor electrical energy meter	Electrical energy	V.R. of Reference Meters for Electrical Energy JJG1085	Singlephaseandthree-phasefour-wire: (30~400) V,0.005A,cos φ=(1.0,0.5L,0.8C,0.5C	$U_{rel}=0.022\%$		
				Singlephaseandthree-phasefour-wire: (30~400) V, (0.01~0.02) A,cos φ=(1.0,0.5L,0.8C,0.5C	$U_{rel}=0.020\%$		
				Singlephaseandthree-phasefour-wire: (30~400) V, (0.05~0.1) A,cos φ=(1.0,0.5L,0.8C,0.5C	$U_{rel}=0.014\%$		
				Singlephaseandthree-phasefour-wire: (30~400) V,(0.2~100) A,cos φ=(1.0,0.5L,0.8C,0.5C	$U_{rel}=0.013\%$		
				Three-phasethree-wire: (30~400) V,(0.05~0.1) A,cos φ=(1.0,0.5L,0.8C,0.5C	$U_{rel}=0.016\%$		

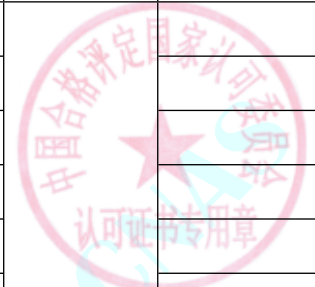


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Three-phase three-wire: (30~400) V, (0.2~10) A, cos φ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.014\%$		
				Three-phase three-wire: (30~400) V, (20~100) A, cos φ =(1.0, 0.5L, 0.8C, 0.5C)	$U_{rel}=0.015\%$		
38	Multi-function electrical energy meter	Electrical Energy	Electrical Meters for Measuring Alternating-current Electrical Energy JIG596	Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ =1.0	$U_{rel}=0.07\%$		
				Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ =(0.5L, 0.8C)	$U_{rel}=0.09\%$		
				Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ =0.5C	$U_{rel}=0.12\%$		
				Unbalanced load: (57.7~400) V, (0.01~100) A, cos φ =1.0	$U_{rel}=0.08\%$		
				Unbalanced load: (57.7~400) V, (0.01~100) A, cos φ =0.5L	$U_{rel}=0.10\%$		
		Time/Day		(-50~50)s/d	$U=0.01s/d$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
39	Electric power monitoring instrument	Electrical Energy	Electrical Meters for Measuring Alternating-current Electrical Energy JJG596	Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ =1.0	$U_{rel}=0.07\%$		
				Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ = (0.5L, 0.8C)	$U_{rel}=0.09\%$		
				Single phase and balanced load: (57.7~400) V, (0.01~100) A, cos φ =0.5C	$U_{rel}=0.12\%$		
				Unbalanced load: (57.7~400) V, (0.01~100) A, cos φ =1.0	$U_{rel}=0.08\%$		
				Unbalanced load: (57.7~400) V, (0.01~100) A, cos φ =0.5L	$U_{rel}=0.10\%$		
40	Process Calibrators (Electrical part)	Input DC voltage	C.S. for Process Calibrators JJF1472	20mV~200mV	$U_{rel}=1.5 \times 10^{-5}$		
				200mV~2V	$U_{rel}=7 \times 10^{-6}$		
				2V~20V	$U_{rel}=4 \times 10^{-6}$		
				20V~200V	$U_{rel}=6 \times 10^{-6}$		
				200V~300V	$U_{rel}=8 \times 10^{-6}$		
		Input DC current		20μA~200μA	$U_{rel}=1 \times 10^{-4}$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			C.S. for Electrical Meters JJF1284	200μA~2mA	$U_{rel}=5 \times 10^{-5}$		
				2mA~20mA	$U_{rel}=5 \times 10^{-5}$		
				20mA~100mA	$U_{rel}=5 \times 10^{-5}$		
		Input DC resistance		1Ω, 10Ω, 100Ω, 1kΩ, 10kΩ, 100kΩ	$U_{rel}=1 \times 10^{-5}$		
				1MΩ, 10MΩ	$U_{rel}=2 \times 10^{-5}$		
				100MΩ	$U_{rel}=5 \times 10^{-5}$		
		Output DC Voltage		20mV~200mV	$U_{rel}=1.5 \times 10^{-5}$		
				200mV~2V	$U_{rel}=7 \times 10^{-6}$		
				2V~20V	$U_{rel}=4 \times 10^{-6}$		
				20V~200V	$U_{rel}=6 \times 10^{-6}$		
				200V~1000V	$U_{rel}=8 \times 10^{-6}$		
		Output DC current		20μA~200μA	$U_{rel}=1 \times 10^{-4}$		
				200μA~100mA	$U_{rel}=5 \times 10^{-5}$		
		41		Calibrators for Electrical Meters	DC Voltage		
200mV~2V	$U_{rel}=7 \times 10^{-6}$						
2V~20V	$U_{rel}=4 \times 10^{-6}$						
20V~200V	$U_{rel}=6 \times 10^{-6}$						
200V~1000V	$U_{rel}=8 \times 10^{-6}$						
Dc Current	20μA~200μA		$U_{rel}=1 \times 10^{-4}$				

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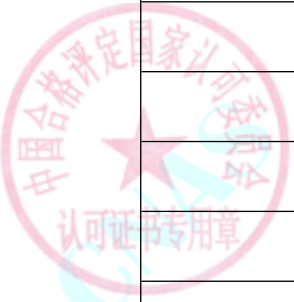
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	200μA~2A	$U_{rel}=5 \times 10^{-5}$		
				2mA~20mA	$U_{rel}=5 \times 10^{-5}$		
				20mA~200mA	$U_{rel}=5 \times 10^{-5}$		
				200mA~2A	$U_{rel}=9 \times 10^{-5}$		
				2A~20A	$U_{rel}=1 \times 10^{-4}$		
				20A~100A	$U_{rel}=1 \times 10^{-4}$		
		Resistance		1 Ω ~ 100k Ω	$U_{rel}=1 \times 10^{-5}$		
				100k Ω ~ 10M Ω	$U_{rel}=2 \times 10^{-5}$		
				10M Ω ~ 100M Ω	$U_{rel}=5 \times 10^{-5}$		
		AC current		20μA~220μA(40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				20μA~220μA(1kHz~5kHz)	$U_{rel}=3 \times 10^{-4}$		
				20μA~220μA(5kHz~10kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				220μA~2.2mA(40Hz~1kHz)	$U_{rel}=2 \times 10^{-4}$		
				220μA~2.2mA(1kHz~5kHz)	$U_{rel}=2.2 \times 10^{-4}$		
				220μA~2.2mA(5kHz~10kHz)	$U_{rel}=1.8 \times 10^{-3}$		
				2.2mA~22mA(40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2mA~22mA(1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		



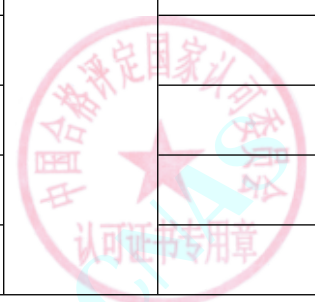
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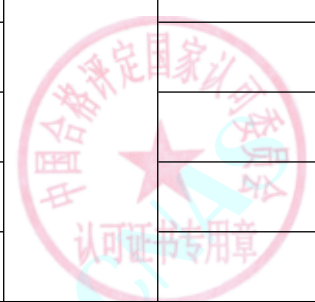
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				2.2mA~22mA(5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				22mA~220mA(40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				22mA~220mA(1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		
				22mA~220mA(5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				220mA~2.2A(40Hz~1kHz)	$U_{rel}=2.8 \times 10^{-4}$		
				220mA~2.2A(1kHz~5kHz)	$U_{rel}=5 \times 10^{-4}$		
				220mA~2.2A(5kHz~10kHz)	$U_{rel}=8 \times 10^{-3}$		
				2.2A~20A(40Hz~1kHz)	$U_{rel}=5 \times 10^{-4}$		
				2.2A~20A(1kHz~5kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				2.2A~20A(5kHz~10kHz)	$U_{rel}=4.5 \times 10^{-3}$		
				20A~100A (60Hz~5kHz)	$U_{rel}=1 \times 10^{-4}$		
		AC voltage		20mV~220mV(40Hz~20kHz)	$U_{rel}=9 \times 10^{-5}$		
				20mV~220mV(20kHz~50kHz)	$U_{rel}=2.1 \times 10^{-4}$		
				20mV~220mV(50kHz~100kHz)	$U_{rel}=5 \times 10^{-4}$		



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				20mV~ 220mV(100kHz~ 300kHz)	$U_{rel}=9.5 \times 10^{-4}$		
				20mV~ 220mV(300kHz~ 500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				20mV~ 220mV(500kHz~1MHz)	$U_{rel}=2.8 \times 10^{-3}$		
				220mV~2.2V(40Hz~ 20kHz)	$U_{rel}=6 \times 10^{-5}$		
				220mV~2.2V(20kHz~ 50kHz)	$U_{rel}=9 \times 10^{-5}$		
				220mV~2.2V(50kHz~ 100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2V~22V(40Hz~ 20kHz)	$U_{rel}=6 \times 10^{-5}$		
				2.2V~22V(20kHz~ 50kHz)	$U_{rel}=8 \times 10^{-5}$		
				2.2V~22V(50kHz~ 100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2V~22V(100kHz~ 300kHz)	$U_{rel}=3 \times 10^{-4}$		
				2.2V~22V(300kHz~ 500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V(500kHz~ 1MHz)	$U_{rel}=2 \times 10^{-3}$		
				22V~220V(40Hz~ 20kHz)	$U_{rel}=6 \times 10^{-5}$		

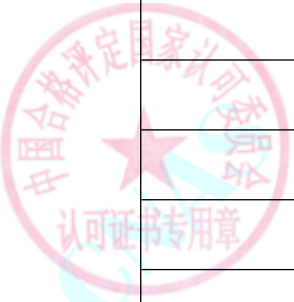


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	22V~220V(20kHz~50kHz)	$U_{rel}=9 \times 10^{-5}$		
				22V~220V(50kHz~100kHz)	$U_{rel}=1.6 \times 10^{-4}$		
				220V~1000V(40Hz~1kHz)	$U_{rel}=9 \times 10^{-5}$		
42	Testers for Relaying Protection	AC voltage	V.R. of Testers for Relaying Protection JJG1112	5V~120V(40Hz~1kHz)	$U_{rel}=0.023\%$		
		AC current		5mA~50A(40Hz~1kHz)	$U_{rel}=0.023\%$		
		DC voltage		5V~120V	$U_{rel}=0.023\%$		
		DC current		5mA~50A	$U_{rel}=0.023\%$		
		Time measurement		1ms~100s	$U=5.8 \mu s$		
		Phase		0~359.999°	$U=0.08^\circ$		
43	Power Meter/Electrical Parameters Meter/Transformer characteristic tester	AC voltage	C.S. for Digital AC Electrical Parameters Meter JJF1491	1.5V~15V(45Hz~65Hz)	$U_{rel}=0.1\%$		
				15V~30V(45Hz~65Hz)	$U_{rel}=0.06\%$		
				30V~100V(45Hz~65Hz)	$U_{rel}=0.03\%$		
				100V~300V(45Hz~65Hz)	$U_{rel}=0.05\%$		
				300V~600V(45Hz~65Hz)	$U_{rel}=0.08\%$		
				600V~1000V(45Hz~65Hz)	$U_{rel}=0.1\%$		
		AC current		2mA~20mA(45Hz~65Hz)	$U_{rel}=0.1\%$		



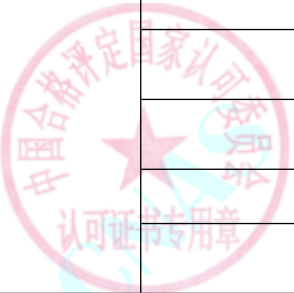
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				20mA~50mA(45Hz~65Hz)	$U_{rel}=0.06\%$		
				50mA~100mA(45Hz~65Hz)	$U_{rel}=0.04\%$		
				100mA~1A(45Hz~65Hz)	$U_{rel}=0.03\%$		
				1A~2A(45Hz~65Hz)	$U_{rel}=0.03\%$		
				2A~10A(45Hz~65Hz)	$U_{rel}=0.05\%$		
				10A~25A(45Hz~65Hz)	$U_{rel}=0.1\%$		
				25A~100A(45Hz~65Hz)	$U_{rel}=0.1\%$		
				100mW~300mW(45Hz~65Hz)	$U_{rel}=0.5\%$		
				300mW~30W(45Hz~65Hz)	$U_{rel}=0.1\%$		
				30W~1kW(45Hz~65Hz)	$U_{rel}=0.1\%$		
		AC power		1kW~3kW(45Hz~65Hz)	$U_{rel}=0.05\%$		
				3kW~15kW(45Hz~65Hz)	$U_{rel}=0.1\%$		
				15kW~60KW(45Hz~65Hz)	$U_{rel}=0.1\%$		
		Frequency		45Hz~65Hz	$U_{rel}=0.1\%$		
		Factor(Phase)		0°~360°(45Hz~65Hz)	$U=0.01^\circ$		

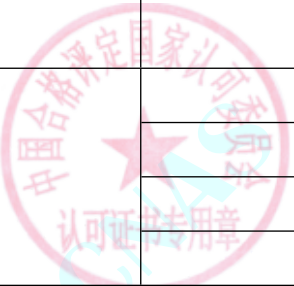


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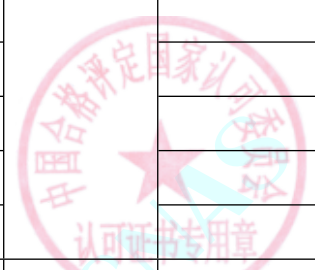
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
44	AC Digital Powermeter	AC power	V.R. of AC Digital Powermeter JJG780	1W~12kW(45Hz~65Hz)	$U_{rel}=0.05\%$		
45	*Clamp Ammeters	Current	C.S. for Clamp Ammeters JJF1075,C.S. for Multimeters JJF1587	100mA~20A	$U_{rel}=0.2\%$		
				20A~2000A	$U_{rel}=0.4\%$		
				100mA~20A(45Hz~65Hz)	$U_{rel}=0.2\%$		
				20A~2000A(45Hz~65Hz)	$U_{rel}=0.4\%$		
		DC voltage		20mV~330mV	$U_{rel}=0.5\%$		
		330mV~33V		$U_{rel}=0.3\%$			
		33V~1000V		$U_{rel}=0.1\%$			
		AC voltage		20mV~330mV(45Hz~65Hz)	$U_{rel}=0.5\%$		
				330mV~33V(45Hz~65Hz)	$U_{rel}=0.3\%$		
				33V~1000V(45Hz~65Hz)	$U_{rel}=0.1\%$		
Resistance	100 Ω ,1k Ω ,10k Ω ,100k Ω	$U_{rel}=0.1\%$					
46	D.C.Resistos	Resistance	V.R. of D.C. Resistors JJG166	1 Ω ~200 Ω	$U_{rel}=1 \times 10^{-5}$		
				200 Ω ~2M Ω	$U_{rel}=1.2 \times 10^{-5}$		
				2M Ω ~20M Ω	$U_{rel}=2 \times 10^{-5}$		
				20M Ω ~200M Ω	$U_{rel}=1 \times 10^{-4}$		
47	D.C. low Resistance Meters	Resistance	V.R. of D.C. low Resistance Meters JJG837	1 $\mu \Omega$ ~10 $\mu \Omega$	$U_{rel}=1.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				10 μΩ ~ 100 μΩ	U _{rel} =0.6%		
				100 μΩ ~ 1mΩ	U _{rel} =0.12%		
				1mΩ ~ 10mΩ	U _{rel} =0.06%		
				10mΩ ~ 20kΩ	U _{rel} =0.012%		
48	Loop Resistance Tester and DC Resistance Tester/Contact Resistance Tester	Resistance	V.R. of Loop Resistance Tester and DC Resistance Meters JJG1052	1 μΩ ~ 60 Ω (1A ~ 600A)	U _{rel} =0.03%		
				100 μΩ ~ 100kΩ (5mA ~ 1A)	U _{rel} =0.012%		
		Current		0.1A ~ 600A	U _{rel} =0.03%		
49	Surface Resistance Tester/Antistatic Wrist Strap	Resistance	C.S. for Surface Resistance Tester JJF1285	100 Ω ~ 10MΩ	U _{rel} =0.24%		
				10MΩ ~ 100MΩ	U _{rel} =0.6%		
				100MΩ ~ 1GΩ	U _{rel} =1.2%		
				1GΩ ~ 1000GΩ	U _{rel} =2.4%		
		AC voltage		10V ~ 1000V	U _{rel} =1.2%		
50	D.C. Bridges for Measuring Temperature	Resistance	V.R. of D.C. Bridges for Measuring Temperature JJG484	1mΩ ~ 100mΩ	U _{rel} =1%		
				100mΩ ~ 1Ω	U _{rel} =0.1%		
				1Ω ~ 10Ω	U _{rel} =0.01%		
				10Ω ~ 100Ω	U _{rel} =0.005%		
				100Ω ~ 100kΩ	U _{rel} =0.001%		
51	Peak Voltmeter	Voltage	V.R. of Impulse Peak Voltmeters JJG588	10mV ~ 1000V (1Hz ~ 1kHz)	U _{rel} =0.1%		



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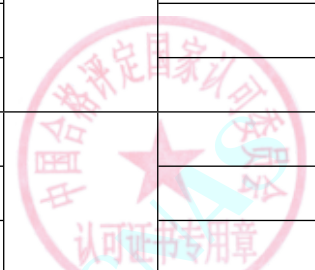
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
52	Four-probe Resistivity Measuring Instrument	Resistivity	V.R. of Resistivity Measuring Instruments with Four-Probe Array Method JJG508	100 μ Ω .cm~10k Ω .cm	U _{rel} =1.5%		
53	Soil Resistivity Tester	Resistance	V.R. of Earh Resistance Meters JJG366	1m Ω ~10m Ω	U _{rel} =12%		
				10m Ω ~100m Ω	U _{rel} =2.4%		
				100m Ω ~1 Ω	U _{rel} =0.6%		
		1 Ω ~1k Ω		U _{rel} =0.12%			
AC voltage	10mV~100V(45Hz~65Hz)	U _{rel} =0.02%					
54	Power Frequency Grounding Resistance Tester	Resistance	V.R. of Ground Resistance Tester for Grounding Grid JJG (JI) 169	1 μ Ω ~10 μ Ω	U _{rel} =4%		
				10 μ Ω ~100 μ Ω	U _{rel} =1.2%		
		Current		100 μ Ω ~20 Ω	U _{rel} =0.12%		
		Voltage		0.1A~100A	U _{rel} =0.12%		
				10mV~1000V	U _{rel} =0.02%		
55	*Comprehensive Tester for Electrical Safety Performance	Leakage current	Calibration Method of Comprehensive Test Instrument for Electrical Apparatus Safety Performance Z/JF-DCD-001	0.2mA~20mA	U _{rel} =0.1%	合格评定 国家认可 母 认可证书专用章	
				0.2mA~20mA(45Hz~65Hz)	U _{rel} =0.12%		
		Test voltage		10V~250V	U _{rel} =0.1%		
				10V~250V (45Hz~65Hz)	U _{rel} =0.12%		
		Insulation resistance		100 Ω ~10M Ω	U _{rel} =0.24%		
				10M Ω ~100M Ω	U _{rel} =0.6%		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 1T Ω	$U_{rel}=2.4\%$		
		DC voltage		10V ~ 10kV	$U_{rel}=0.12\%$		
		Grounding Resistance		1m Ω ~ 11.11 Ω (45Hz ~ 65Hz)	$U_{rel}=0.12\%$		
				1m Ω ~ 11.11 Ω	$U_{rel}=0.06$		
		(AC/DC) Current		1A ~ 60A (45Hz ~ 65Hz)	$U_{rel}=0.15\%$		
				1A ~ 60A	$U_{rel}=0.1\%$		
		Earth resistance		1m Ω ~ 10m Ω	$U_{rel}=12\%$		
				10m Ω ~ 100m Ω	$U_{rel}=2.4\%$		
				100m Ω ~ 1 Ω	$U_{rel}=0.6\%$		
				1 Ω ~ 10k Ω	$U_{rel}=0.12\%$		
		AC and DC Voltage		100V ~ 15kV (45Hz ~ 65Hz)	$U_{rel}=0.12\%$		
				100V ~ 15kV	$U_{rel}=0.12\%$		
		Time		1s ~ 99s	$U=0.6s$		
56	Lightning Protection Device Tester	DC voltage	C.S. for Components Lightning of Testers JJF (Gui) 18	10V ~ 1999V	$U_{rel}=0.06\%$		
		DC current		10 μ A ~ 100 μ A	$U_{rel}=0.5\%$		
				100 μ A ~ 1mA	$U_{rel}=0.2\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
57	Resistance Strain Gauge Indicators	Dependent variable	V.R. of Resistance Strain Gauge Indicators JJG623	$0.1 \mu \xi \sim 10^5 \mu \xi$	$U_{rel}=U0.06\%$		
58	Residual Current Operation protector(Leakage Switch Tester)	Current	C.S. for Residual Current Operated protective Device	5mA~2.5A(45Hz~65Hz)	$U_{rel}=0.15\%$		
		Time	Operated Characteristic Tester JJF1283	10ms~5s	$U_{rel}=0.03\%$		
59	High Voltage Switch Operation Characteristic Testers	Time	V.R. of High Voltage Switch Operation Characteristic Testers JJG1120	1ms~10ms	$U_{rel}=6 \times 10^{-3}$		
				10ms~100ms	$U_{rel}=6 \times 10^{-4}$		
				100ms~1s	$U_{rel}=6 \times 10^{-5}$		
				1s~200s	$U_{rel}=6 \times 10^{-6}$		
		Speed		0.2m/s~5m/s	$U_{rel}=0.24\%$		
60	Zinc Oxide Arrester Tester	Reference voltage	C.S.of Resistive Current Tester of Zinc Oxide Surge Arrester JJF (Ji) 186	100mV~220V	$U_{rel}=0.5\%$		
		Full current		100 μ A~20mA	$U_{rel}=0.5\%$		
		Resistive current		100 μ A~20mA	$U_{rel}=0.5\%$		
		Capacitive current		100 μ A~20mA	$U_{rel}=0.5\%$		
61	Detector of On-load Tap-changers	Resistance	C.S. for Detector of On-load Tap-changers JJF(Ji)113	100m Ω ~ 1 Ω	$U_{rel}=1.2\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.06\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.012\%$		
62	*Second Three-Wheel Bending Tester	AC Voltage	C.S. for Multifunction Standard Sources Z/JF-DCD-004	10mV~450V(45Hz~65Hz)	$U_{rel}=0.1\%$		
		AC Current		1A~35A(45Hz~65Hz)	$U_{rel}=0.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
63	*Battery Comprehensive Tester/Battery Charging Tester/Battery Discharge Tester/DC Stabilized Power Supplies	DC Voltage	C.S. for DC Stabilized Power Supplies JJF1597	10mV~1000V	$U_{rel}=0.005\%$		
		DC Current		0.1A~100A	$U_{rel}=0.006\%$		
				100A~1000A	$U_{rel}=0.006\%$		
				1000A~2000A	$U_{rel}=0.006\%$		
64	*Welding Machine	DC Voltage	C.S. for the Power Supply of DC Electric Welder JJF (Liao) 196	10mV~1000V	$U_{rel}=0.012\%$		
		DcCurrent		1A~1000A	$U_{rel}=0.06\%$		
65	*Part discharge testing instrument	Voltage	Method of voltage calibration for local dischargedetection system Z/JF-DCL-001,C. S. for Partial Discharge Testers Based Pulse Current Method JJF1616	(0.1~120)kV	$U_{rel}=1.2\%$		
		cut-offfrequency		1Hz~5MHz	$U_{rel}=0.04\%$		
		coulometry		(0.1~1000)pC	$U_{rel}=1.3\%$		
66	*Sparkdevice	Voltage	Calibration method of sparktester Z/JF-DCL-002	(0.1~25) kV	$U_{rel}=0.6\%$		
67	DC High Voltage Dividers	DC Voltage	Verification Regulation of DC High Voltage Dividers JJG1007	(0.1~200)kV	$U_{rel}=0.16\%$		
68	Magneto meters Based Magnetic Force	Magnetic flux density	CalibrationSpecificationforMagnetometersBasedMagneticForce JJF1656	(-10~10)mT	$U_{rel}=1.6\%$		
69	Pressure test device for insulating shoes (boots) and gloves	AC Voltage	Pressure test device for insulating shoes (boots) and gloves Z/JF-DCG-003	(0.1~50) kV	$U_{rel}=0.3\%$	合格评定 国家认可 有限公司 认可证书专用章	
		Electric current		(0.1~200) mA	$U_{rel}=0.3\%$		
70	Multimeter	DC Voltage	C.S. for Multimeters JJF1587	20mV~200mV	$U_{rel}=1.5 \times 10^{-5}$		



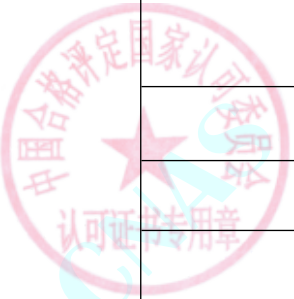
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Voltage	ilac-M	200mV~2V	$U_{rel}=7 \times 10^{-6}$		
				2V~20V	$U_{rel}=4 \times 10^{-6}$		
				20V~200V	$U_{rel}=6 \times 10^{-6}$		
				200V~1000V	$U_{rel}=8 \times 10^{-6}$		
				20mV~220mV (10Hz~20Hz)	$U_{rel}=2.5 \times 10^{-4}$		
				20mV~220mV(20Hz~40Hz)	$U_{rel}=1.0 \times 10^{-4}$		
				20mV~220mV(40Hz~20kHz)	$U_{rel}=9.0 \times 10^{-5}$		
				20mV~220mV(20kHz~50kHz)	$U_{rel}=2.1 \times 10^{-4}$		
				20mV~220mV(50kHz~100kHz)	$U_{rel}=5.0 \times 10^{-4}$		
				20mV~220mV(100kHz~300kHz)	$U_{rel}=9.5 \times 10^{-4}$		
				20mV~220mV(300kHz~500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				20mV~220mV(500kHz~1MHz)	$U_{rel}=2.8 \times 10^{-3}$		
				220mV~2.2V(10Hz~20Hz)	$U_{rel}=3.0 \times 10^{-4}$		
				220mV~2.2V(20Hz~40Hz)	$U_{rel}=1.0 \times 10^{-4}$		

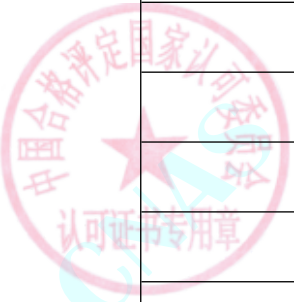


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				220mV~2.2V(40Hz~20kHz)	$U_{rel}=6.0 \times 10^{-5}$		
				220mV~2.2V(20kHz~50kHz)	$U_{rel}=9.0 \times 10^{-5}$		
				220mV~2.2V(50kHz~100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				220mV~2.2V(100kHz~300kHz)	$U_{rel}=6.0 \times 10^{-4}$		
				220mV~2.2V(300kHz~500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				220mV~2.2V(500kHz~1MHz)	$U_{rel}=2.5 \times 10^{-3}$		
				2.2V~22V(10Hz~20Hz)	$U_{rel}=2.6 \times 10^{-4}$		
				2.2V~22V(20Hz~40Hz)	$U_{rel}=1.1 \times 10^{-4}$		
				2.2V~22V(40Hz~20kHz)	$U_{rel}=6.0 \times 10^{-5}$		
				2.2V~22V(20kHz~50kHz)	$U_{rel}=8.0 \times 10^{-5}$		
				2.2V~22V(50kHz~100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2V~22V(100kHz~300kHz)	$U_{rel}=3.0 \times 10^{-4}$		
				2.2V~22V(300kHz~500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V(500kHz~1MHz)	$U_{rel}=2.0 \times 10^{-3}$		
				22V~220V(10Hz~20Hz)	$U_{rel}=2.5 \times 10^{-4}$		



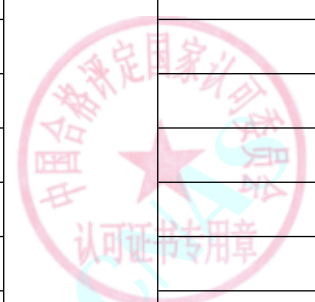
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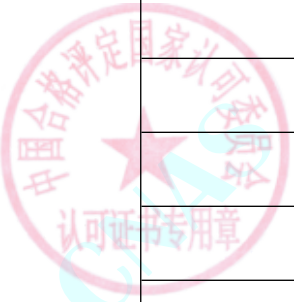
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				22V~220V(20Hz~40Hz)	$U_{rel}=1.0 \times 10^{-4}$		
				22V~220V(40Hz~20kHz)	$U_{rel}=6.0 \times 10^{-5}$		
				22V~220V(20kHz~50kHz)	$U_{rel}=9.0 \times 10^{-5}$		
				22V~220V(50kHz~100kHz)	$U_{rel}=1.6 \times 10^{-4}$		
				22V~220V(100kHz~300kHz)	$U_{rel}=1.0 \times 10^{-3}$		
				22V~220V(300kHz~500kHz)	$U_{rel}=5.0 \times 10^{-3}$		
				22V~220V(500kHz~1MHz)	$U_{rel}=9.0 \times 10^{-3}$		
				220V~1000V(40Hz~50Hz)	$U_{rel}=3.5 \times 10^{-4}$		
				220V~1000V(50Hz~1kHz)	$U_{rel}=9.0 \times 10^{-5}$		
		Resistance		1Ω, 10Ω, 100Ω, 1kΩ, 10kΩ, 100kΩ	$U_{rel}=1 \times 10^{-5}$		
				1MΩ, 10MΩ	$U_{rel}=2 \times 10^{-5}$		
				100MΩ	$U_{rel}=5 \times 10^{-5}$		
		DCCurrent		20μA~200μA	$U_{rel}=1 \times 10^{-4}$		
				200μA~2mA	$U_{rel}=5 \times 10^{-5}$		
				2mA~20mA	$U_{rel}=5 \times 10^{-5}$		
				20mA~200mA	$U_{rel}=5 \times 10^{-5}$		



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		AC Current		200mA~2A	$U_{rel}=9 \times 10^{-5}$		
				2A~11A	$U_{rel}=1 \times 10^{-4}$		
				11A~100A	$U_{rel}=2 \times 10^{-4}$		
				2.2mA~22mA (10Hz~20Hz)	$U_{rel}=3.0 \times 10^{-4}$		
				2.2mA~22mA (20Hz~40Hz)	$U_{rel}=1.8 \times 10^{-4}$		
				2.2mA~22mA (40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2mA~22mA (1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		
				2.2mA~22mA (5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				22mA~220mA (10Hz~20Hz)	$U_{rel}=2.6 \times 10^{-4}$		
				22mA~220mA (20Hz~40Hz)	$U_{rel}=1.8 \times 10^{-4}$		
				22mA~220mA (40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				22mA~220mA (1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		
				22mA~220mA (5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				220mA~2.2A (20Hz~1kHz)	$U_{rel}=2.8 \times 10^{-4}$		
				220mA~2.2A (1kHz~5kHz)	$U_{rel}=5.0 \times 10^{-4}$		



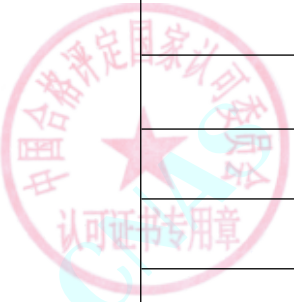
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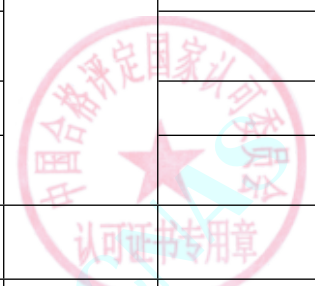
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				220mA~2.2A (5kHz~10kHz)	$U_{rel}=8.0 \times 10^{-3}$		
				2.2A~11A (40Hz~1kHz)	$U_{rel}=5.0 \times 10^{-4}$		
				2.2A~11A (1kHz~5kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				2.2A~11A (5kHz~10kHz)	$U_{rel}=4.5 \times 10^{-3}$		
				11A~100A (40Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				11A~100A (1kHz~10kHz)	$U_{rel}=6.0 \times 10^{-4}$		
71	*Industry frequency single-phase meter	Phase	V.R. of Industry Frequency Single-Phase Meter JJG440	-180° ~ +180°	$U=0.1^\circ$		
72	*Variable Frequency Electric Quantity Analyzer	Voltage	C.S. for Variable Frequency Electric Quantity Analyzer JJF1559	50mV~220mV(10Hz~1.5kHz)	$U_{rel}=0.04\%$		
				220mV~220V(10Hz~40Hz)	$U_{rel}=0.04\%$		
				220mV~220V(40Hz~1.5kHz)	$U_{rel}=0.02\%$		
		220V~1000V (50Hz~1kHz)		$U_{rel}=0.02\%$			
		Current		100mA~220mA(10Hz~1.5kHz)	$U_{rel}=0.04\%$		
				220mA~2.2A(20Hz~1kHz)	$U_{rel}=0.05\%$		
220mA~2.2A(1000Hz~1.5kHz)	$U_{rel}=0.07\%$						

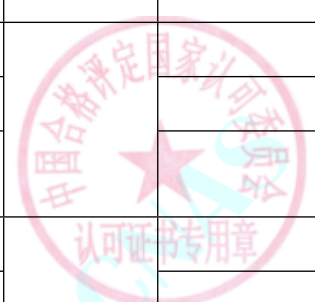


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			C.S. for AC&DC Resistance Simulators JJF1723	2.2A~10.9999A(50Hz~1kHz)	$U_{rel}=0.1\%$		
				2.2A~10.9999A(1kHz~1.5kHz)	$U_{rel}=0.2\%$		
				11A~20A(50Hz~1000Hz)	$U_{rel}=0.2\%$		
				20A~100A(50Hz~300Hz)	$U_{rel}=0.2\%$		
				20A~100A(300Hz~1kHz)	$U_{rel}=0.2\%$		
		Phase		0°~360° (50Hz~65Hz)	$U=0.12^\circ$		
				0°~360° (65Hz~500Hz)	$U=0.3^\circ$		
				0°~360° (500Hz~1kHz)	$U=0.6^\circ$		
Power	1W~20kW(50Hz~1kHz)	$U_{rel}=0.2\%$					
73	AC&DC Resistance Simulators	DC Resistance	C.S. for AC&DC Resistance Simulators JJF1723	1 μΩ ~ 200 Ω	$U_{rel}=0.003\%$		
		AC Resistance		1 μΩ ~ 200 Ω (45Hz~60Hz)	$U_{rel}=0.006\%$		
		DC Current		0.1A~1000A	$U_{rel}=0.003\%$		
		AC Current		0.1A~1000A(45Hz~60Hz)	$U_{rel}=0.006\%$		
74	Dc Shunt	Current	V.R. of DC Shunts JJG1069	25 μΩ ~ 20mΩ (5A~2000A)	$U_{rel}=0.006\%$		
75	Verification	Resistance	V.R. of High Voltage and high Value D.C. Resistor	100 Ω ~ 100M Ω	$U_{rel}=0.06\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	insulation resistance meter		JJG1072,C.S. for Multimeter JJF1587	100M Ω ~ 10G Ω	$U_{rel}=0.24\%$		
				10G Ω ~ 100G Ω	$U_{rel}=0.6\%$		
				100G Ω ~ 2T Ω	$U_{rel}=1.2\%$		
		Voltage 10V ~ 10kV	$U_{rel}=0.06\%$				
76	High Voltage and high Value D.C. Resistor/High Resistance Box	Resistance	V.R. of High Voltage and high Value D.C.Resistor JJG1072	100 Ω ~ 100M Ω	$U_{rel}=0.06\%$		
				100M Ω ~ 10G Ω	$U_{rel}=0.24\%$		
				10G Ω ~ 100G Ω	$U_{rel}=0.6\%$		
				100G Ω ~ 10T Ω	$U_{rel}=1.2\%$		
77	D.C. Resistance Box	Resistance	V.R. of D.C. Resistance Box JJG982	100 μ Ω ~ 100m Ω	$U_{rel}=1\%$		
				100 μ Ω ~ 100m Ω	$U_{rel}=0.1\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.01\%$		
				10 Ω ~ 100 Ω	$U_{rel}=0.005\%$		
				100 Ω ~ 10M Ω	$U_{rel}=0.001\%$		
78	Calibration Device for Electrocardiograph and Electroencephalograph	Voltage	V.R. of Calibration Device for Electrocardiograph and Electroencephalograph JJG749	0.1mV ~ 10V	$U_{rel}=0.20\%$		
		Period		50ms ~ 10s	$U_{rel}=0.004\%$		
		Distortion		0.1% ~ 30% (20Hz ~ 200Hz)	$U=12\%$		
79	*Calibrator	DC Voltage	C.S. for Multifunction Standard Sources JJF1638	20mV ~ 200mV	$U_{rel}=1.5 \times 10^{-5}$		
				200mV ~ 2V	$U_{rel}=7 \times 10^{-6}$		

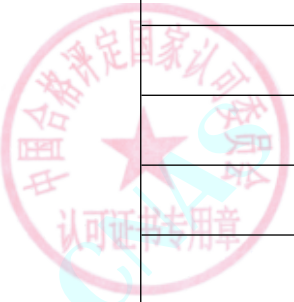


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Voltage		2V~20V	$U_{rel}=4 \times 10^{-6}$		
				20V~200V	$U_{rel}=6 \times 10^{-6}$		
				200V~1000V	$U_{rel}=8 \times 10^{-6}$		
				20mV~220mV(20Hz~20kHz)	$U_{rel}=9 \times 10^{-5}$		
				20mV~220mV(20kHz~50kHz)	$U_{rel}=2.1 \times 10^{-4}$		
				20mV~220mV(50kHz~100kHz)	$U_{rel}=5 \times 10^{-4}$		
				220mV~2.2V(20Hz~20kHz)	$U_{rel}=6 \times 10^{-5}$		
				220mV~2.2V(20kHz~50kHz)	$U_{rel}=9 \times 10^{-5}$		
				220mV~2.2V(50kHz~100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2V~22V(20Hz~20kHz)	$U_{rel}=6 \times 10^{-5}$		
				2.2V~22V(20kHz~50kHz)	$U_{rel}=8 \times 10^{-5}$		
				2.2V~22V(50kHz~100kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2V~22V(100kHz~300kHz)	$U_{rel}=3.0 \times 10^{-4}$		
				2.2V~22V(300kHz~500kHz)	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V(500kHz~1MHz)	$U_{rel}=2.0 \times 10^{-3}$		

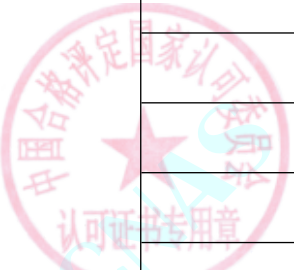


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				22V~220V(20Hz~20kHz)	$U_{rel}=6.0 \times 10^{-5}$		
				22V~220V(20kHz~50kHz)	$U_{rel}=9.0 \times 10^{-5}$		
				22V~220V(50kHz~100kHz)	$U_{rel}=1.6 \times 10^{-4}$		
				220V~1000V(20Hz~1kHz)	$U_{rel}=9 \times 10^{-5}$		
		DC Current		20μA~200μA	$U_{rel}=1 \times 10^{-4}$		
				200μA~2mA	$U_{rel}=5 \times 10^{-5}$		
				2mA~20mA	$U_{rel}=5 \times 10^{-5}$		
				20mA~200mA	$U_{rel}=5 \times 10^{-5}$		
				200mA~2A	$U_{rel}=9 \times 10^{-5}$		
				2A~20A	$U_{rel}=1 \times 10^{-4}$		
				20A~100A	$U_{rel}=1 \times 10^{-4}$		
		AC Current		20μA~220μA (20Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				20μA~220μA(1kHz~5kHz)	$U_{rel}=3.0 \times 10^{-4}$		
				20μA~220μA(5kHz~10kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				220μA~2.2mA(20Hz~1kHz)	$U_{rel}=2.0 \times 10^{-4}$		
				220μA~2.2mA(1kHz~5kHz)	$U_{rel}=2.2 \times 10^{-4}$		

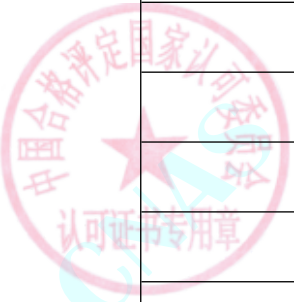


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				220μA~2.2mA(5kHz~10kHz)	$U_{rel}=1.8 \times 10^{-3}$		
				2.2mA~22mA(20Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				2.2mA~22mA(1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		
				2.2mA~22mA(5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				22mA~220mA(20Hz~1kHz)	$U_{rel}=1.5 \times 10^{-4}$		
				22mA~220mA(1kHz~5kHz)	$U_{rel}=2.5 \times 10^{-4}$		
				22mA~220mA(5kHz~10kHz)	$U_{rel}=1.6 \times 10^{-3}$		
				220mA~2.2A(20Hz~1kHz)	$U_{rel}=2.8 \times 10^{-4}$		
				220mA~2.2A(1kHz~5kHz)	$U_{rel}=5.0 \times 10^{-4}$		
				220mA~2.2A(5kHz~10kHz)	$U_{rel}=8.0 \times 10^{-3}$		
				2.2A~20A(20Hz~1kHz)	$U_{rel}=5.0 \times 10^{-4}$		
				2.2A~20A(1kHz~5kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				2.2A~20A(5kHz~10kHz)	$U_{rel}=4.5 \times 10^{-3}$		
				20A~100A (60Hz~5kHz)	$U_{rel}=1 \times 10^{-4}$		
		DC Resistance		1Ω~100kΩ	$U_{rel}=1 \times 10^{-5}$		



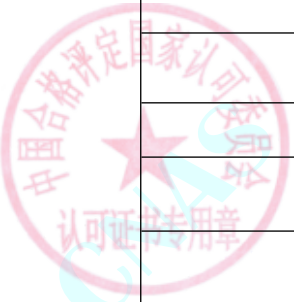
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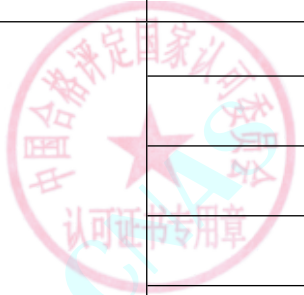
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
80	Power Quality Analyzer			100kΩ ~ 10MΩ	$U_{rel}=2 \times 10^{-5}$		
				10MΩ ~ 100MΩ	$U_{rel}=5 \times 10^{-5}$		
		AC Voltage	V.R. of code for powerquality analyzer DL/T1028,C.S. for AC Electrical Parameters Meter JJF1491	50V~90V(45Hz~65Hz)	$U_{rel}=0.08\%$		
				90V~180V(45Hz~65Hz)	$U_{rel}=0.02\%$		
				180V~360V(45Hz~65Hz)	$U_{rel}=0.01\%$		
				360V~650V(45Hz~65Hz)	$U_{rel}=0.02\%$		
		AC Current		0.2A~2A(45Hz~65Hz)	$U_{rel}=0.02\%$		
				2A~10A(45Hz~65Hz)	$U_{rel}=0.01\%$		
				10A~20A(45Hz~65Hz)	$U_{rel}=0.01\%$		
				20A~80A(45Hz~65Hz)	$U_{rel}=0.02\%$		
		AC Power		10W~180W(45Hz~65Hz)	$U_{rel}=0.1\%$		
				180W~7.2kW(45Hz~65Hz)	$U_{rel}=0.01\%$		
				7.2kW~28.8kW(45Hz~65Hz)	$U_{rel}=0.05\%$		
		Phase		0° ~ 360°	$U=0.01^\circ$		
		Harmonic Voltage		0.5V~27V (100Hz~3kHz)	$U=0.01V$		
				27V~54V (100Hz~3kHz)	$U=0.05V$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Harmonic Current	ilac-M	54V~108V (100Hz~3kHz)	$U=0.1V$		
				108V~195V (100Hz~3kHz)	$U=0.2V$		
				200mA~300mA (100Hz~3kHz)	$U=0.0003A$		
				300mA~600mA (100Hz~3kHz)	$U=0.0005A$		
				600mA~1.5A (100Hz~3kHz)	$U=0.001A$		
				1.5A~3A (100Hz~3kHz)	$U=0.003A$		
				3A~6A (100Hz~3kHz)	$U=0.005A$		
				6A~15A (100Hz~3kHz)	$U=0.01A$		
				15A~24A, (100Hz~3kHz)	$U=0.02A$		
		Shoter Flicker		Pst=1	$U_{rel}=0.3\%$		
81	Power Transmitter	Voltage	V.R. of AC Power Conversion for DC electrical Measurement transmitter JIG126	1V~10V(45Hz~65Hz)	$U_{rel}=0.05\%$		
				10V~100V(45Hz~65Hz)	$U_{rel}=0.05\%$		
				100V~600V(45Hz~65Hz)	$U_{rel}=0.03\%$		
		2mA~20mA(45Hz~65Hz)		$U_{rel}=0.05\%$			
		20mA~100mA(45Hz~65Hz)		$U_{rel}=0.05\%$			
Current							

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Power	ilac-M	100mA~1A(45Hz~65Hz)	$U_{rel}=0.03\%$		
				1A~10A(45Hz~65Hz)	$U_{rel}=0.03\%$		
				10W~4kW(45Hz~65Hz)	$U_{rel}=0.05\%$		
82	*Verification on Equipment of Electrical Measuring Device	AC Voltage	C. S. for Verification Equipment of Electrical Measuring Devices JJF1923	20mV~220mV(45Hz~65Hz)	$U_{rel}=9 \times 10^{-5}$		
				220mV~220V(45Hz~65Hz)	$U_{rel}=6.0 \times 10^{-5}$		
				220V~1000V(45Hz~65Hz)	$U_{rel}=9.0 \times 10^{-5}$		
		AC Current		20μA~20mA(45Hz~65Hz)	$U_{rel}=2 \times 10^{-4}$		
				20mA~100A(45Hz~65Hz)	$U_{rel}=1 \times 10^{-4}$		
		Active power		Single-phase load and three-phase balance: (30~600) V, (0.2~100) A, $\cos \phi=(1.0, 0.5L, 0.5C)$	$U_{rel}=1 \times 10^{-4}$		
				Three-phase unbalanced load: (30~600) V, (0.2~100) A, $\cos \phi=(1.0, 0.5L, 0.5C)$	$U_{rel}=2 \times 10^{-4}$		
				Phase	0° ~ 360°		
		Frequency		45Hz~65Hz	$U_{rel}=1 \times 10^{-4}$		

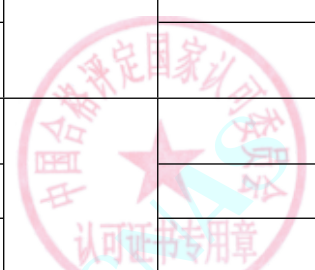


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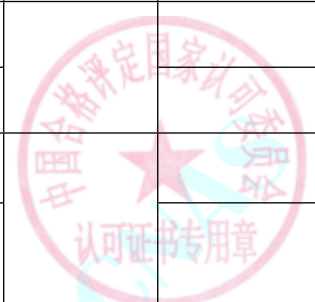
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date						
		DC Voltage	V.R. of DC Voltmeters for Measurement of Leakage Currents JJG(Ji)3007	20mV~200mV	$U_{rel}=1.5 \times 10^{-5}$								
				200mV~2V	$U_{rel}=7 \times 10^{-6}$								
				2V~200V	$U_{rel}=4 \times 10^{-6}$								
				20V~200V	$U_{rel}=6 \times 10^{-6}$								
				200V~1000V	$U_{rel}=8 \times 10^{-6}$								
		DC Current		20μA~200μA	$U_{rel}=1 \times 10^{-4}$								
				200μA~2mA	$U_{rel}=5 \times 10^{-5}$								
				2mA~20mA	$U_{rel}=5 \times 10^{-5}$								
				20mA~200mA	$U_{rel}=5 \times 10^{-5}$								
				200mA~2A	$U_{rel}=9 \times 10^{-5}$								
				2A~20A	$U_{rel}=1 \times 10^{-4}$								
				20A~100A	$U_{rel}=1 \times 10^{-4}$								
				83	Clamp Ammeters for Measurement of Leakage Currents			DC Current	V.R. of Clamp Ammeters for Measurement of Leakage Currents JJG(Ji)3007	1mA~60A	$U_{rel}=0.2\%$		
								AC Current		10mA~60A (45~65)Hz	$U_{rel}=0.2\%$		
84	*AC Charging Spot for Electric Vehicles	Electric Energy	AC Charging Spot for Electric Vehicles JJG1148	10V~480V, 10mA~72A	$U_{rel}=0.09\%$								
		Time		(0.1~99999)s	$U=0.3s$								
		temperature		(-33~50) °C	$U=0.5^{\circ}C$								
85	*Off-board Charger for Electric Vehicles		Off-board Charger for Electric Vehicles JJG1149	30V~750V, 5A~250A	$U_{rel}=0.15\%$								

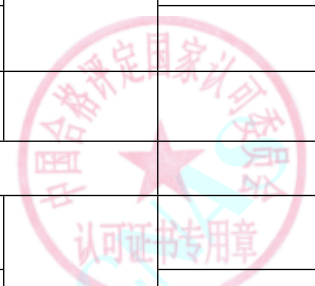


No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0.1~99999)s	U=0.3s		
				(-33~50) °C	U=0.5°C		
86	*Verification Equipment for Direct-current Electrical Energy Meter		Verification Equipment for Direct-current Electrical Energy Meter Z/JF-DCN-001	0.1V~1000V 1mA~600A	U _{rel} =0.013%		
87	*Reference Meters for Direct-current Electrical Energy		Reference Meters for Direct-current Electrical Energy Z/JF-DCN-002	0.1V~1000V 1mA~600A	U _{rel} =0.013%		
88	*Magnetic Yoke Detectors	magnetizing current	C. S. for Magnetic Yoke Detectors JJF1458	(0.1~20)A	U=0.3A		
		lifting force		(0.1~300)N	U=12N		
89	*Magnetic Particle Flaw Detectors	circumferential magnetizing current	C. S. for Magnetic Particle Flaw Detectors JJF1273	1A~10kA	U _{rel} =1.0%		
		length wise magnetizing current		1A~10kA	U _{rel} =1.0%		
90	*Eddy Current Flaw Detector	Excitation source voltage	Eddy Current Flaw Detector JJG (MinHang) 0061	40mV~20V	U _{rel} =4.6×10 ⁻²		
		Excitation source frequency		10Hz~20MHz	U _{rel} =2.4×10 ⁻⁵		
91	*Current Transformers	Current Ratio	V.R. of Instrument Current Transformers JJG313	0.1A/5A~5000A/5A, 5%I _b	U=0.005%		
				0.1A/5A~5000A/5A, (20%~120%)I _b	U=0.003%		
		Phase		(0~500) ' , 5%I _b	U=0.2'		

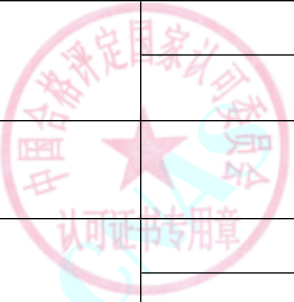


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Difference		(0~500) V, (20%~120%)I _b	U _{rel} =0.09%		
92	*Current Calibration Specification for Burden Box of Instrument Transformers	impedance	C. S. for Burden Box of Instrument Transformers JJF1264	(0.0001~199.9) Ω	U _{rel} =0.6%		
93	*Voltage Calibration Specification for Burden Box of Instrument Transformers	admittance	C. S. for Burden Box of Instrument Transformers JJF1264	(0.0001~199.9) mS	U _{rel} =0.6%		
94	*Strong current generator	Current	C. S. of High Current Generator JJF(Jixie)1037	(0.5~5000) A	U _{rel} =0.6%		
95	*Instrument for measuring the comprehensive characteristic of mutual inductor	Transformers Ratio	C.S. of transformer characteristic testers JJF (Ji) 172	1~10000	U _{rel} =0.02%		
		Current		(0.1~1000) A	U _{rel} =0.6%		
		Voltmeter		(0.1~1000) V	U _{rel} =0.3%		
96	Electrostatic voltmeter	AC Voltage	V.R of high voltage electrostatic voltmeter JJG494	(0.6~110)kV	U _{rel} =0.6%		
		Voltmeter for DC		(0.6~200) kV	U _{rel} =0.6%		
97	Tesla-Meter	Magnetic field intensity	C.S. of (1mT~2.5T) magnetometers JJF1832	1mT~2T	U _{rel} =0.09%		
V Optics measurement equipment							
1	*Laser for Medicine	Laser Power	V.R. of Lasers for Medicine JJG581	0.1mW~2W (190nm~1.06 μm)	U _{rel} =3.2%		
				(2~200) W (190nm~1.06 μm)	U _{rel} =4.0%		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		laser energy		1mJ~2J (190nm~1.06 μm)	$U_{rel}=4.0\%$		
				2J~200J (190nm~1.06 μm)	$U_{rel}=4.0\%$		
2	*Focimeters	vertexpower	V.R. of Focimeters JJG580	(-25~+25)m ⁻¹	$U=0.03m^{-1}$		
3	TrialCaseLenses	vertexpower	V.R. of Trial Case Lenses JJG579	(-20~+20)m ⁻¹	$U=0.03m^{-1}$		
4	*eyeRefractometers	vertexpower	V.R. of Eye Refractometers JJG892	(-20~+20)m ⁻¹	$U=0.09m^{-1}$		
5	Luminance Meter	Brightness	V.R. of Brightness Meter JJG211	Imaging luminance Meter(5~1000)cd/m ² , Brightness Meter for Screen (16~1000) cd/m ²	$U_{rel}=2.0\%$		
6	Illuminometer	Illumination	Illuminance Meter JJG245	(7~3000)lx	$U_{rel}=1.0\%$		
7	*Viewing Equipment for Medical Imaging Photograph	Brightness	Calibration Specification for Medical imaging film observation device JJF(JI) 198	(100~1000) cd/m ²	$U_{rel}=3.2\%$		
8	AbbeRefractometer	Refraction	V.R. of Abbe Refractometer JJG625	$n_D 1.4700-1.6724$	$U=0.8 \times 10^{-4}$		
		averagedispersion		$n_F-n_C, 0.00704-0.02087$	$U=1.3 \times 10^{-4}$		
9	HandheldSugarMeter	sugarcontent	Hand Saccharimeter(Contentmeter) and Hand Refractometer JJG820	0.1%~80%	$U_{rel}=0.3\%$		
10	Hazemeter	Haze	Calibration Specification for Hazemeter JJF1303	(1-30)	$U=0.30$		
		Haze,transmittance		0.1~1.0	$U=0.009$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	Ultraviolet irradiance meter	Ultraviolet irradiation intensity	Ultraviolet irradiance meter JJG879	UVA, (0.1~2000) μ W/cm ² , UV-254 (0.1~300) μ W/cm ² , UVB, (0.1~200) μ W/cm ²	$U_{rel}=18\%$		
12	Reflectometers	reflectivity	calibration Specification for Reflectometers JJF1232	$R_Y: 60\sim 95$	$U=2.0$		
13	standard light box	illuminance	Calibration Specification for Standard Light Sources Boxes JJF(Textile) 055	(10~3000) lx	$U_{rel}=2.0\%$		
		colour temperature		(2000~7000)K	$U_{rel}=2.0\%$		
14	*Solar Simulators	spectral match	Calibration Specification for Solar Simulators JJF1615	0.2~3, (300nm~1100nm)	$U_{rel}=8\%$		
		irradiance non-uniformity		0.001~1.0, (300nm~1100nm)	$U_{rel}=3\%$		
		irradiance instability		0.002~1.0, (300nm~1100nm)	$U_{rel}=3\%$		
15	Opacimeters Light Filter, Transmittance Meter Light Filter of Automobile	Transmittance	Calibration Method for Opacimeters Light Filter and Transmittance Meter Light Filter of Automobile Z/JF-HFG-001	10%~90%	$U=0.6\%$		
16	reference filter for calibrations spectrophotometer	Wavelength	Reference Filter for Calibration Spectrophotometer JJG1034	200nm~900nm	$U=0.3nm$		
		Transmittance		0.01~1.00	$U=0.3\%$		
		Absorbance		(0~5)A	$U=1.1\%$		
17	Beer colorimeter	Beer color value	Beer colorimeter JJG923	(1.52~7.0) EBC	$U=0.25EBC$		
18	*UV Analyzer	radiation intensity	Calibration methods for ultraviolet analyzers Z/JF-	UV-365 (1~2000) μ W/cm ²	$U_{rel}=18\%$		



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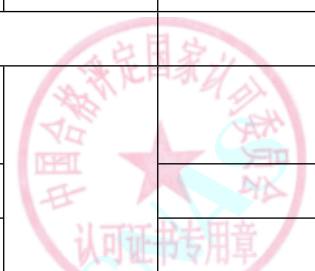
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			HFG-002	UV-254 (1~1000) $\mu\text{W}/\text{cm}^2$	$U_{\text{rel}}=18\%$		
19	*SpecularGlossMe tersandGlossPlates	Glossvalue	Specular Gloss Metersand Gloss Plates JJG696	(1.0-120.0)GU	1.2GU		
				(1.0-120.0)GU	1.2GU		
20	Motorvehicleheadl ampTestercalibrato r	luminousinten sity	Calibrator for Headlamp Tester of Motorvehicle JJG967	(5000-150000) cd	$U_{\text{rel}}=1.8\%$		
		Opticalaxisan gle		(0~3)°	$U=1.1'$		
21	*OpticalStepTablet	OpticalStep	Optical Step Tablet JJG452	(0,2.0]	$U=0.02$		
				(2,4.0]	$U=0.025$		
				(4,5.0]	$U=0.03$		
22	*DiffuseTransmiss ionVisualDensitom eters	Transmission OpticalStep	Diffuse Transmission Visual Densitometers JJG920	(0,2.0]	$U=0.02$		
				(2,4.0]	$U=0.025$		
				(4,5.0]	$U=0.03$		
23	*medicalImagefil mobservationdevic e	Brightness	Calibration Specification for Medical imaging film observation device JJF(JI) 198	(100~1000) cd/m^2	$U_{\text{rel}}=3.2\%$		
24	ColorStandardPlat es	Stimulusvalue	V.R. of Color Standard Plates JJG453	Y: 0.0~100.0	$U=1.0$		
		Chromaticcoo rdinates		x,y: Allcolorrange	$U=0.005$		
25	WhitenessMeters	whiteness	V.R.ofWhitenessMeters JJG512	R_{457} : 0.1~100.0	$U=1.1$		
26	ColorimetersandC olorDifferenceMet	Stimulusvalue	V.R. of Colorimeters and Color Difference Meters JJG595	Y: 0.0~100.0	$U(Y)=1.0$		

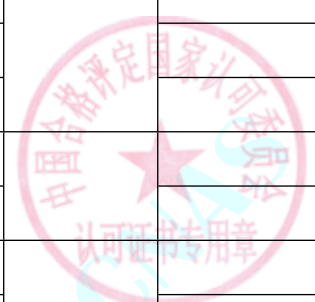


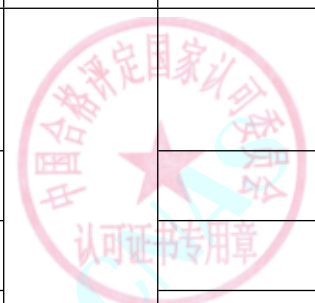
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	ers	Chromatic coordinates		x,y: Allcolor range	$U(x), U(y) = 0.0052$		
27	*Clarity Test Equipment	illumination	Calibration Specification for Clarity Test Equipment JJF1287	(1000~4000)lx	$U_{rel}=6\%$		
28	LED Standard light source	luminous flux	C.S for Single Low Power LED JJF1501	luminous flux (10~2000) lm	$U_{rel}=3.0\%$		
		Average LED Luminous intensity		(10~3000) cd	$U_{rel}=2.0\%$		
		Color parameters		Color coordinates x,y, total gamut	$U=0.006$		
29	Electroluminescence defect detection system for solar module	spatial resolution	Calibration specification for electroluminescence defect detection system for solar module Z/JF-HJG-002-2022	(0.50~2.00) mm	$U=0.13\text{mm}$		
		forward current		(1~10) A	$U_{rel}=0.4\%$		
30	Photovoltaic Solar Irradiance Meter	Irradiance	Calibration Specification for Photovoltaic Solar Irradiance Meter Z/JF-HJG-004-2022	(10-1000)W/m ²	$U_{rel}=1.5\%$		
		Temperature deviation		(-40~60) °C	$U=0.2\text{°C}$		
VI Chemistry measurement equipment							
1	Dissolved Oxygen Meter	Dissolved Oxygen Concentration	V.R. of Dissolved Oxygen Meter JJG291	(0~20)mg/L	$U=0.08\text{mg/L}$		
		Temperature		(0~50) °C	$U=0.1\text{°C}$		
		Time		(0~3600)s	$U=0.1\text{s}$		
2	*Determinators for Total Sulfur in Coal	Total Sulfur	V.R. of Determinators for Total Sulfur in Coal JJG1006	(0.47~1.00) %	$U=0.06\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(1.00~4.00) %	U=0.12%		
				(4.00~4.50) %	U=0.18%		
				(300~1300)°C	U=2.5°C		
3	Wood Moisture Content Measuring Meters	Moisture Content	V.R. of Wood Moisture Content Measuring Meters JJG986	(6~28) %	U=0.6%		
4	*Dust Samplers	Flow	V.R. of Dust Samplers JJG520	(0.1~80)L/min	U _{rel} =1.1%		
				(80~150)L/min	U _{rel} =1.1%		
		Time		(0~3600) s	U=0.1s		
5	*Total Suspended Particulate Sampler	Flow	V.R. of Total Suspended Particulate Sampler JJG943	(5~140)L/min	U _{rel} =1.2%		
				(140~260)L/min	U _{rel} =1.1%		
				(0.8~1.2)m ³ /min	U _{rel} =1.3%		
		Temperature		(0~50)°C	U=0.3°C		
		Air inlet size deviation		(0.1~150)mm	U=0.01mm		
		Time		(0~3600)s	U=0.1s		
Pressure	(800~1060)hPa	U=0.25kPa					
6	*Monoxide Monitor Detector	Concentration	V.R. of Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG635	(10~3000)×10 ⁻⁶ mol/mol	U _{rel} =1.6%		
		Time		(0~3600)s	U=0.1s		
7	*Carbon Monoxide Detector	Concentration	V.R. of Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG635	(0.1~20)%mol/mol	U _{rel} =1.2%		
		Time		(0~3600)s	U=0.1s		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
8	*Infrared Gas Analyzer	Concentration	V.R. of Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG635	CO ₂ (10~3000)×10 ⁻⁶ mol/mol	U _{rel} =1.6%		
				CO ₂ (0.1~20)%mol/mol	U _{rel} =1.2%		
		Time		(0~3600)s	U=0.1s		
9	*Flue Gas Analyzers	Concentration	V.R. of Flue Gas Analyzers JJG968	O ₂ : (0.1~30)%	U _{rel} =0.7%		
				SO ₂ (10~5000) μmol/mol	U _{rel} =1.6%		
				NO: (10~5000) μmol/mol	U _{rel} =1.2%		
				NO ₂ : (10~5000) μmol/mol	U _{rel} =1.1%		
				CO: (10~5000) μmol/mol	U _{rel} =0.8%		
				H ₂ S: (10~500) μmol/mol	U _{rel} =1.7%		
				CO ₂ (0.1~30)%mol/mol	U _{rel} =1.0%		
		Time		(0~3600)s	U=0.1s		
10	*Ion Chromatograph	TheLeastconcentration	V.R. of Ion Chromatograph JJG823	≤0.02 μ g/mL(Cl-)电导检测器: electricalconductivitydetector:	U=0.0034 μ g/mL		
				electricalconductivitydetector: ≤0.02 μ g/mL(Li+)	U=0.0040 μ g/mL		
				UVVisdetector, ≤0.02 μ g/mL(NO ₂ -)	U=0.0038 μ g/mL		
				ElectrochemicalDetector: ≤0.02 μ g/mL(I-)	U=0.0043 μ g/mL		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
11	*Chemical Oxygen Demand (COD) Meters	Concentration	V.R. of Chemical Oxygen Demand(COD)Meters JJG975	(0.1~150)mg/L	$U_{rel}=1.6\%$		
				(150~1500)mg/L	$U_{rel}=1.0\%$		
		Temperature		(1~1000)mg/L	$U=0.7\text{mg/L}$		
				(100~250) °C	$U=0.1\text{°C}$		
Time	(0~3600)s	$U=0.1\text{s}$					
12	*Turbidimeters	Turbidity	V.R. of Turbidimeters JJG880	(0.1~400)NTU	$U_{rel}=3.6\%$		
13	Grain moisture meter	Moisture Content	V.R. of Instrument for Measuring the Moisture Content of Grain with Capacitance and Resistance Methods JJG891	(5~35)%	$U=0.15\%$		
14	*Oil Content in Water Analyzers	Concentration	V.R. of Oil Content in Water Analyzers JJG950	(0.1~10)mg/L	$U=0.17\text{mg/L}$		
				(10~1000)mg/L	$U_{rel}=3.4\%$		
15	*Ammonia-Nitrogen Automatic Analyzers	Concentration	V.R. of Ammonia-Nitrogen Automatic Analyzers JJG631	(0.5~2)mg/L	$U=0.10\text{mg/L}$		
				(2~150)mg/L	$U_{rel}=2.0\%$		
16	*Volatile Organic Compounds Photolionization Detectors	Concentration	C.S. for Volatile Organic Compounds Photolionization Detectors JJF1172	(1~10000) $\mu\text{mol/mol}$	$U_{rel}=2.5\%$		
		Time		(0~3600)s	$U=0.1\text{s}$		
17	*Chemiluminescent NO/NOx Analyzers	Concentration	V.R. of Chemiluminescent NO/NOx Analyzers JJG801	(10~300) $\mu\text{mol/mol}$	$U_{rel}=1.2\%$		
		Time		(0~3600) s	$U=0.1\text{s}$		
	*Ambient Air	flow	C.S. for Ambient Air Quality Continuous	flow: (0.1~100) mL/min	$U_{rel}=0.32\%$		



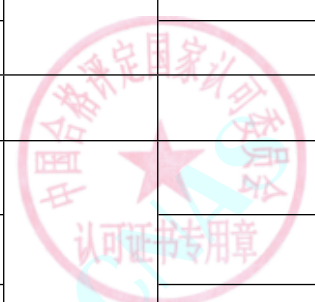
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
	Continuous Automated Monitoring System		Automated Monitoring System JJF (Ji) 119	flow: (0.1~10) L/min	$U_{rel}=0.32\%$			
				flow: (10~30) L/min	$U_{rel}=1.4\%$			
		concentration		SO ₂ : (50~500) nmol/mol	$U_{rel}=2.4\%$			
				NO: (20~500) nmol/mol	$U_{rel}=2.0\%$			
				CO: (5~50) μmol/mol;	$U_{rel}=1.8\%$			
				O ₃ : (200~800) nmol/mol	$U_{rel}=1.9\%$			
				mass	Particulate matter: (100~2000) μg (persquarecentimeter)			$U=3.5 \mu g$ (persquarecentimeter)
		time			(0~3600) s			$U=0.1s$
		temperature			(0~50) °C			$U=0.3^{\circ}C$
Pressure	(800~1060) hPa	$U=0.3kPa$						
19	Formaldehyde Gas Analyzer	concentration	V.R. of Formaldehyde Gas Analyzer JJG1022	(20~1300) nmol/mol	$U_{rel}=2.3\%$			
		time		(0~3600) s	$U=0.1s$			
20	Smoke Telescope	ringelmannblackness	C.S. for Ringelmann smoke Telescope JJF(Ji)144	0~5	$U=0.04$			
21	*Water Quality On-line of Total Phosphorus and Total Nitrogen	concentration	V.R. of Water Quality On-line of Total Phosphorus and Total Nitrogen JJG1094	Total phosphorus: (0.03~0.5) mg/L	$U=0.009mg/L$			
				Total phosphorus: (0.5~50) mg/L	$U_{rel}=1.0\%$			
				Total nitrogen: (0.2~2) mg/L	$U=0.008mg/L$			



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Total nitrogen: (2~100)mg/L	$U_{rel}=1.2\%$		
22	*On-line pH Meters	pH Value	C.S. for On-line pH Meters JJF1547	The instrument: pH, (0~14)	$U=0.02$		
		electric potential		Electric Meter, pH: (0~14)	$U=0.01$		
				(0.1~2000) mV	$U_{rel}=0.004\%$ (Resolution 0.1)		
				(-2000~-0.1) mV	$U_{rel}=0.004\%$ (Resolution 0.1)		
		temperature		(5~40) °C	$U=0.1^{\circ}C$		
23	*Dust Concentration Measuring Instruments	concentration	V.R. of Dust Concentration Measuring Instruments JJG846	(0.5~1000) mg/m ³	$U_{rel}=10\%$		
24	*On-line flue gas analyzer	concentration	C.S. for Continuous Emission Monitoring Systems of Flue Gas Emitted from Stationary Source JJF1585	O ₂ : (0.1~25)%	$U_{rel}=0.7\%$		
				SO ₂ : (10~5000) × 10 ⁻⁶ mol/mol	$U_{rel}=1.6\%$		
		time		(0~3600)s	$U=0.1s$		
25	*Fourier Transform Infrared Spectrometers	Wavenumber	C.S. for Fourier Transform Infrared Spectrometers JJF1319	(4000~400) cm ⁻¹	$U=0.57cm^{-1}$		
26	*Particle Analyzer	Particle Count	Calibration Specification for Particulate Analyzer JJF1290	(1000~2100) particle/mL	$U_{rel}=3\%$		
27	*Atomic Absorption Spectrophotometer	Detection limit	V.R. of Atomic Absorption Spectrophotometer JJG694	Flame atomizer: ≤0.02 μg/ml (Cu)	$U=0.001 \mu g/ml$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Graphite furnace Atomizer: ≤4pg(Cd)	U=0.3pg		
		Wavelength		(200~900)nm	U=0.1nm		
28	*Liquid Chromatography-Mass Spectrometers	signal to noise ratio	C.S. for Liquid Chromatography-Mass Spectrometers JJF1317	triple quadrupole, ESI+: reserpine: ≥30:1	U _{rel} =8%		
				triple quadrupole, ESI-: reserpine, ≥10:1	U _{rel} =8%		
				triple quadrupole, APCI+: reserpine: ≥30:1	U _{rel} =8%		
				ion trap, single quadrupole, ESI+: reserpine: ≥10:1	U _{rel} =8%		
				ion trap, single quadrupole, ESI-: reserpine: ≥10:1	U _{rel} =8%		
				ion trap, single quadrupole, APCI+: reserpine: ≥10:1	U _{rel} =8%		
29	*Silicate Analyzer	Concentration	C.S. for Silicate Analyzer JJF1539	(2.0~100) μg/L	U=2.3μg/L		
				(>100~100000) μg/L	U _{rel} =4%		
30	*Fluorescence Spectrophotometer	detection limit	V.R. of Fluorescence Spectrophotometer JJG537	Class A: Quininesulfate, ≤5×10 ⁻¹⁰ g/ml	U _{rel} =4%		
				Class B: ≤1×10 ⁻⁸ g/ml	U _{rel} =4%		
		Wavelength		(240~550)nm	U=0.6nm		
31	*Double Beam UV-VIS Spectrophotometers	Wavelength	V.R. of Ultraviolet,	(240~810)nm	U=0.5nm		
		Transmission Ratio	Visible, Near-Infrared Spectrophotometers JJG178	(7~52)%	U=0.5%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
32	*Visible Range Spectrophotometer	Wavelength	V.R. of Ultraviolet,	(340~900)nm	U=0.5nm		
		Transmission Ratio	Visible, Near-Infrared Spectrophotometers JJG178	(7~33)%	U=0.5%		
33	*Gas Chromatograph	sensitivity	V.R. of Gas Chromatograph JJG700	TCDsensitivity: benzene, methane, $\geq 800\text{mV}\cdot\text{mL}/\text{mg}$	$U_{\text{rel}}=4.2\%$		
		detectionlimit		FIDdetectionlimit: N-hexadecane: $\leq 0.5\text{ng}/\text{s}$	$U_{\text{rel}}=5.6\%$		
				FPD detection limit: $\leq 0.5\text{ng}/\text{s}(\text{S})$	$U_{\text{rel}}=3.6\%$		
				FPD detection limit: $\leq 0.1\text{ng}/\text{s}(\text{P})$	$U_{\text{rel}}=5.6\%$		
				NPDdetectionlimit: $\leq 5\text{pg}/\text{s}(\text{N})$	$U_{\text{rel}}=5.6\%$		
				NPDdetectionlimit: $\leq 10\text{pg}/\text{s}(\text{P})$	$U_{\text{rel}}=5.6\%$		
				ECD detection limit: Hexachlorocyclohexane, $\leq 5\text{pg}/\text{mL}$	$U_{\text{rel}}=5.8\%$		
				34	*Gas Chromatography-Mass Spectrometer	signaltonoiseratio	C.S. for Gas Chromatography-Mass Spectrometer JJF1164
CI+: Benzophenone: $\geq 10: 1$	$U_{\text{rel}}=8\%$						
CI-: Octafluoronaphthalene: $\geq 10: 1$	$U_{\text{rel}}=8\%$						
35	*Osmometers	Osmolarity	V.R. of Osmometers JJG1089	(100~400) mOsmol · kg ⁻¹	U=2.0mOsmol · kg-1		



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				(400~700) mOsmol · kg ⁻¹	U _{rel} =0.6%		
36	*Polarimeter and Polarimetric Saccharimeters	Optical Rotati on Sugar degree	V.R. of Polarimeter and Polarimetric Saccharimeters JJG536	(-60~+60) °	U=0.004 °		
				(-173~+173) ° Z	U=0.012 ° Z		
37	Routine Capillary Viscometers	Kinematic Viscosity	V.R. of Routine Capillary Viscometers JJG155	(1~10)mm ² /s	U _{rel} =0.3%		
				(10~200)mm ² /s	U _{rel} =0.5%		
				(200~5000)mm ² /s	U _{rel} =0.6%		
				(5000~100000)mm ² /s	U _{rel} =0.7%		
38	*Rotational Viscometers	Dynamic Viscosity	V.R. of Rotational Viscometers JJG1002	(1~10)mm ² /s	U _{rel} =0.5%		
				(10~200)mm ² /s	U _{rel} =2.0%		
				(200~1×10 ⁴)mm ² /s	U _{rel} =3.0%		
				(1×10 ⁴ ~1×10 ⁵)mm ² /s	U _{rel} =6.0%		
39	Flow Cup Viscometers	Kinematic Viscosity	V.R. of Flow Cup Viscometers JJG743	(1~10)mm ² /s	U _{rel} =0.5%		
				(10~200)mm ² /s	U _{rel} =0.7%		
				(200~1×10 ⁴)mm ² /s	U _{rel} =3.0%		
				(1×10 ⁴ ~1×10 ⁵)mm ² /s	U _{rel} =6.0%		
40	*Sulfur Hydrogen Gas Detectors	Concentration of gas	V.R. of Sulfur Hydrogen Gas detectors JJG695	(0.1~500)×10 ⁻⁶ mol/mol	U _{rel} =2.4%		
		time		(0~3600)s	U=0.2s		
		Concentration of gas	V.R. of Electrochemical Oxygen Meter JJG365, V.R.	(0.1~100) %mol/mol	U=1.1%FS		



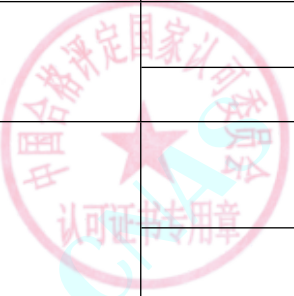
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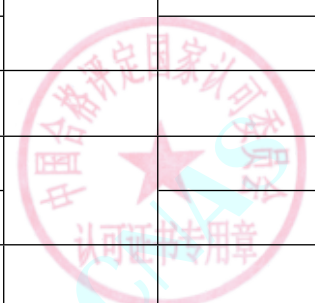
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		time	of Paramagnetic Oxygen Analyzers JJG662, V.R. of Zirconia Oxygen Analyzers JJG535	(0~3600)s	$U=0.2s$		
42	*Micro Oxygen analyzer	Concentration of gas time	V.R. of Micro Oxygen Analyzers JJG945	(2~1000) $\mu\text{mol/mol}$ (0~3600)s	$U_{\text{rel}}=1.4\%$ $U=0.2s$		
43	*Chlorine Alarm Detector	Concentration of gas time	C.S. for Chlorine Alarm Detectors JJF1433	(0.1~100) $\mu\text{mol/mol}$ (0~3600)s	$U_{\text{rel}}=2.5\%$ $U=0.2s$		
44	*Alarmer Detectors of Combustible Gases	Concentration of gas time	V.R. of Detector of Combustible Gases JJG693	methane: (0.01~100)%mol/mol hydrogen: (0.01~100)%LEL ISOBUTANE: (0.01~100)%LEL acetylene: (0.1~100)%LEL (0~3600)s	$U=0.28\%FS$ $U=0.50\%FS$ $U=0.50\%FS$ $U=0.50\%FS$ $U=0.2s$		
45	*Carbon Monoxide Detector	Concentration of gas time	V.R. of Carbon Monoxide Detector JJG915	(0.1~2000) $\mu\text{mol/mol}$ (0~3600)s	$U_{\text{rel}}=1.8\%$ $U=0.2s$		
46	*Liquid Chromatograph Used in Laboratory	Minimum detectable concentration	V.R. of Liquid Chromatograph JJG705	The Least concentration of Ultraviolet test: $\leq 5 \times 10^{-8}$ g/ml (Naphthalene) diode embattle test: $\leq 5 \times 10^{-8}$ g/ml (Naphthalene)	$U_{\text{rel}}=5.3\%$ $U_{\text{rel}}=5.3\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				The Least concentration of fluorescence test: 5×10^{-9} g/ml (Naphthalene)	$U_{rel}=5.2\%$		
				The Least concentration of refractometer test: 5.0μ g/ml (Cholesterol)	$U_{rel}=6.0\%$		
				The Least concentration of Evaporative light test: 5.0μ g/ml (Cholesterol)	$U_{rel}=6.6\%$		
				(0.1~2) mL/min	$U_{rel}=0.1\%$		
47	*Reading spectroscopic instruments	Detection limit	V.R. of Emission Spectrometer JJG768	C: $\leq 0.02\%$	$U_{rel}=23\%$		
				Mn: $\leq 0.02\%$	$U_{rel}=23\%$		
				Ni: $\leq 0.02\%$	$U_{rel}=23\%$		
				Si: $\leq 0.02\%$	$U_{rel}=24\%$		
				Cr: $\leq 0.01\%$	$U_{rel}=28\%$		
				V: $\leq 0.01\%$	$U_{rel}=23\%$		
		Wavelength		(120~800)nm	$U=0.02$ nm		
48	*ELISA Analytical Instruments	Absorbency	V.R. of ELISA Analytical Instruments JJG861	0.2~1.5	$U=0.005$		
49	*Atomic Fluorescence Spectrophotometer	detection limit	V.R. of Atomic Fluorescence Spectrophotometer JJG939	As: ≤ 0.4 ng	$U=0.02$ ng		
				Sb: ≤ 0.4 ng	$U=0.04$ ng		
50	*Blood Viscometers	viscosity	C.S. for blood Viscometers JJF1316	(1~20) mPa. s	$U_{rel}=5\%$		

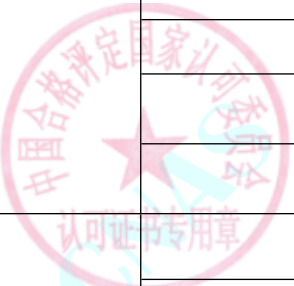


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
51	*Elemental Analyzers	Concentration	Calibration Specification for Elemental Analyzers JJF1321	Azotometer: (0.05~95) %	$U_{rel}=1.3\%$		
				CHN AnalyzerC: (0.01~100) %	$U_{rel}=1.4\%$		
				CHN AnalyzerH: (0.01~5.00) %	$U_{rel}=3.8\%$		
				CHN AnalyzerN: (0.01~1.5) %	$U_{rel}=6.0\%$		
				ONH AnalyzerO: (0.0001~0.5) %	$U_{rel}=0.5\%$		
				ONH AnalyzerN: (0.0001~2) %	$U_{rel}=0.8\%$		
				ONH AnalyzerH: (0.0001~0.1) %	$U_{rel}=0.8\%$		
52	*Urine Analyzers	SG	C.S. for Urine Analyzers JJF1129	1.006~1.026	$U=0.004$		
		Concentration		Urineprotein: (0.1~3.0) g/L	$U_{rel}=11\%$		
				urinesugar: (0.1~56) mmol/L	$U_{rel}=13\%$		
				Urineacid: (5.5~7.5)pH	$U_{rel}=6\%$		
				UrineRBC: (30~180)/ μ L	$U_{rel}=9\%$		
				UrineWBC: (40~260)/ μ L	$U_{rel}=7\%$		
53	*Automatic Potentiometric Titrators	electric potential	V.R. of Automatic Potentiometric Titrators	(-2000~2000)mV	$U=0.7mV$		
		capacity	JJG814	(0~100)mL	$U=0.01mL$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		concentration		0.1mol/L	$U_{rel}=0.5\%$		
54	*Flame Photometer	concentration	V.R. of Flame Photometer JYG630	K ⁺ :(0~0.200)mmol/L Na ⁺ : (0~0.200)mmol/L	$U=0.002\text{mmol/L}$ $U=0.003\text{mmol/L}$		
55	*Quadrupole Inductively Coupled Plasma Mass Spectrometers	detectionlimit	C.S. for Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be: $\leq 30\text{ng/L}$ In: $\leq 30\text{ng/L}$ Bi: $\leq 30\text{ng/L}$	$U_{rel}=7.0\%$ $U_{rel}=9.8\%$ $U_{rel}=9.0\%$		
56	*Automatic Amino Acid Analyzer	MinimAmount of Substance	V.R. of Automatic Amino Acid Analyzer JJG1064	$\leq 1.0\text{nmol}$ (Histidine)	$U_{rel}=9.0\%$		
57	*Instrument for KF Coulometry Titration	concentration	V.R. of Instrument for KF Coulometry Titration JJG1044	(10~5000) μg	$U_{rel}=2.0\%$		
58	*Electrode Salinometer	Concentration	V.R. of Electrode Salinometer JJG761	Salinity: 5~40	$U=0.008$		
59	*Antibiotics Potency Analyzers	diameter absorbance temperature	C.S. for Antibiotics Potency Analyzers JJF1614	Diameter,18mm~22mm Absorption,0.3~1.0 (20~40) $^{\circ}\text{C}$	$U=0.02\text{mm}$ $U=0.007$ $U=0.2^{\circ}\text{C}$		
60	*Residual Chlorine Meters	Concentration	C.S. for Residual Chlorine Meters JJF1609	(0.01~2.0) mg/L	$U_{rel}=2.1\%$		
61	*Total Organic Carbon Analyzer	concentration concentration	V.R. of Total Organic Carbon Analyzer JJG821	Inorganiccarbon: (20~1000) mg/L organiccarbon: (20~1000)%	$U_{rel}=2.4\%$ $U_{rel}=2.4\%$		
62	*Time-of-flight Mass Spectrometers	Mass to charge ratio	C.S. for Time-of-Flight Mass Spectrometers JJF1528	Relative molecular mass: 189.1~66446	$U=3 \times 10^{-5}$		

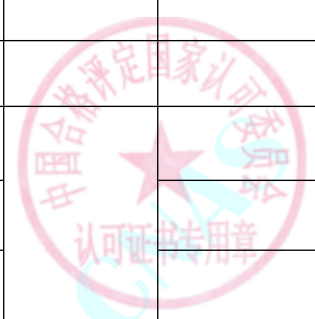


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		signaltonoise ratio		Relativemasstocharge ratio: 172~4071	$U=3 \times 10^{-5}$		
				S/N ≥ 10: 1	$U_{rel}=15\%$		
63	*Industry Electric Conductivity Analyzers	Electrical Conductivity	V.R. of Industry Electric Conductivity Analyzers JJG(Ji)062	(0.1~20000) $\mu S/cm^{-1}$	$U_{rel}=0.8\%$		
64	*Bacterial Endotoxin Analyzers	Temperature	C.S. for Bacterial Endotoxin Analyzers JJF1529	37°C	$U=0.12^{\circ}C$		
65	*Kinematic Viscosity Tester	Concentration	C.S. for Kinematic Viscosity Tester JJF1274	(1~10 ⁵) mm ² /s	$U_{rel}=3.4\%$		
		Temperature		(20~100) °C	$U=0.2^{\circ}C$		
66	*Water-Quality Synthetical Analyse Instrument	pH value	Calibration Method of Water-Quality Synthetical Analyse Instrument Z/JF-HFY-001	(0~14)pH	$U=0.003pH$		
		conductivity		(0.05~10000) $\mu S/cm^{-1}$	$U_{rel}=0.06\%$		
		dissolved oxygen		(0~20)mg/L	$U=0.2mg/L$		
		temperature		(0~50)°C	$U=0.2^{\circ}C$		
		turbidity		(0.1~400)NTU	$U_{rel}=3.3\%$		
67	*Phosphate Analyzers	Concentration	C.S. for Phosphate Analyzers JJF1567	(0~1000) mg/L	$U=0.3mg/L$		
68	*Flow Analyzers with Spectrophotography	Concentration	C.S. for Flow Analyzers with Spectrophotography JJF1568	Cyanogeninwater: (0.0006~0.1) mg/L	$U=0.0003mg/L$		
				Hydroxybenzeneinwater: (0.0006~0.1) mg/L	$U=0.0003mg/L$		
				Phosphorus: (0.0021~5) mg/L	$U=0.0020mg/L$		



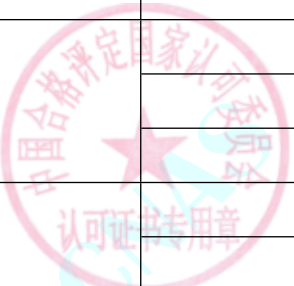
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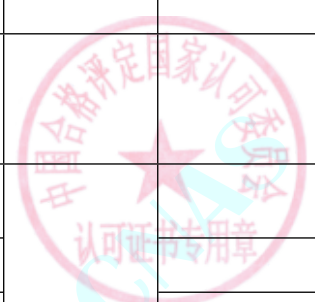
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Sulfide: (0.0021~1) mg/L	U=0.0020mg/L		
				Hexavalent chromium: (0.0021~1) mg/L	U=0.0003mg/L		
				Total nitrogen: (0.021~5) mg/L	U=0.002mg/L		
				Ammonia nitrogen: (0.021~5) mg/L	U=0.002mg/L		
				Anionic surfactant: (0.021~5) mg/L	U=0.002mg/L		
		wavelength	(190~1100) nm	U=1.6nm			
69	*Bromine Number and Bromine Index Meters	Concentration	C.S. for Bromine Number and Bromine Index Meters JJF1569	Bromine index: (0.2~20) mg/100g	U=2.3mg/100g		
				Bromine index: (20~1000) mg/100g	U=6.5mg/100g		
				Bromine price: (0.1~20) g/100g	U=2.4g/100g		
				Bromine price: (20~300) g/100g	U=3.8g/100g		
70	*Gel Permeation Chromatographs	Concentration	V.R. of Gel Permeation Chromatographs JJG342	1kg/mol~1Mg/mol	U _{rel} =9%		
		Temperature		(0~50)°C	U=0.2°C		
		Flow		(0.1~2) mL/min	U _{rel} =0.5%		
71	*Static Light Scattering Particle Size Analyzers	Particle size	C.S. for Static Light Scattering Particle Size Analyzers JJF1211	(1.0~5.0) μm	U _{rel} =5.7%		
				(5.0~20.0) μm	U _{rel} =3.6%		
				(20~120) μm	U _{rel} =3.5%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
72	*Oscilloscopic Polarograph	Detectionlimit	V.R. of Oscilloscopic Polarograph JJG748	$\leq 20 \mu\text{g/L}$	$U=0.2 \mu\text{g/L}$		
73	*Industrial Analyzers	quality	V.R. of Industrial Analyzers JJG1140	1g	$U=0.7\text{mg}$		
		temperature		(100~1100) °C	$U=3^\circ\text{C}$		
		Ashcontent		(0.1~15) %	$U=0.9\%$		
				(15~30) %	$U=0.7\%$		
		Volatilematter		(30~50) %	$U=0.4\%$		
				(0.1~20) %	$U=1.8\%$		
74	*Alarmsand Detectors of Chloroethylene Gas	concentration	V.R. of Alarmsand Detectors of Chloroethylene Gas JJG1125	(0~50) $\mu\text{mol/mol}$	$U=0.25\mu\text{mol/mol}$		
				(50~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.1\%$		
		time		(0~3600)s	$U=0.2\text{s}$		
75	*Alarmer Detectors of Sulfur Hexafluoride	concentration	C.S. for Alarmer Detectors of Sulfur Hexafluoride JJF1263	(0.1~2000) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.2\%$		
		time		(0~3600)s	$U=0.2\text{s}$		
76	*Karl IFischer Volumetric Titrators for Water Content	concentration	V. R. of Karl Fischer Volumetric Titrators for Water Content JJG1154	(1~20)mg	$U_{\text{rel}}=2.0\%$		
77	*Liquid Chromatograph-Atomic Fluorescence Spectrometers	Minimumdetectionquantity	V. R. of Liquid Chromatograph-Atomic Fluorescence Spectrometers JJG1151	As(V)<1.0ng; MMA<0.7ng; DMA<0.7ng	$U_{\text{rel}}=9.4\%$		
		Pumpflow		(0.5~1.5) mL/min	$U_{\text{rel}}=0.2\%$		
		linear		0.995~1.000	$U_{\text{rel}}=5.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
78	*Friability tester	Lengh	Calibration Method of Friabilitytester Z/JF-HFY-003	143mm	$U=0.2\text{mm}$		
		Time		4min	$U=0.6\text{s}$		
		Frequency		(0~100)r/min	$U=0.7\text{r/min}$		
79	*Raman Spectrometers	Spectral resolution	C.S. for Raman Spectrometers JJF1544	$\leq 3\text{cm}^{-1}$	$U=0.2\text{cm}^{-1}$		
		Shift		(80~4000) cm^{-1}	$U=1.5\text{cm}^{-1}$		
		Intensity		0.05~1.0	$U_{\text{rel}}=9.0\%$		
80	*Water Colorimeters	Colorimeter	C.S. for Water Colorimeters JJF1689	Digital display: (0~70)PCU	1PCU		
				visual: (0~70)PCU	9PCU		
81	*Pesticide Residue Detectors	Transmittance	C.S. for Pesticide Residue Detectors JJF1729	10%~30%	$U_{\text{rel}}=1.0\%$		
		Wavelength		(350~450)nm	$U=2\text{nm}$		
		Sensitivity		$\geq 50\%$	$U=5\%$		
82	*Water Hardness Analyzers	Concentration	Calibration Method of Water Hardness Analyzers Z/JF-HFY-005	(1~50)mg/L	$U_{\text{rel}}=1.8\%$		
		Temperature		0°C~50°C	$U=0.2\text{°C}$		
83	*McFarland Bacterial Turbidity Analyzers	Concentration	C.S. for McFarland Bacterial Turbidity Analyzers JJF1825	(0~4)MCF	$U=(0.05\sim 0.23)\text{MCF}$		
84	*Raw-Milk Freezing Point Testers	Freezing Point	C.S. for Raw-Milk Freezing Point Testers JJF1816	(-400~-600)m°C	$U_{\text{rel}}=0.4\%$		
85	*Dissolution testers	Angle	Calibration method of Dissolution testers Z/JF-HFY-002	Levelness: (0~360)°	$U=0.2\text{°}$		



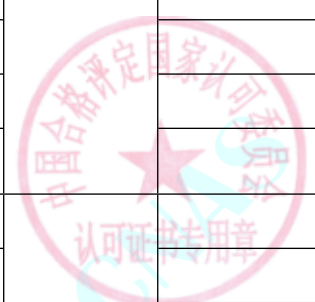
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Length	ilac-MRA CNAS NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	verticality: (0~360)°	$U=0.2^\circ$		
				Coaxiality: (0~10) mm	$U=0.4\text{mm}$		
				Swingvalue: (0~10) mm	$U=1.4\text{mm}$		
				depth: (0~150) mm	$U=1.2\text{mm}$		
		Rotation rate		(20~20000) r/min	$U_{\text{rel}}=0.2\%$		
Temperature	(5~60) °C	$U=0.2^\circ\text{C}$					
86	*Plate Electrophoresis Apparatus	voltage	C.S. for Plate Electrophoresis Apparatus JJF1654	(0.01~1000) V	$U_{\text{rel}}=1\%$		
		Current		(10~1000) mA	$U_{\text{rel}}=0.8\%$		
87	*Mud Density Meters	Density	V.R.of Mud Density Meters JJG 1045	(700~3000) kg/m ³	$U=0.5\text{kg/m}^3$		
88	*Dead-stop Titration Instruments	voltage	Calibration method of Dead-stop Titration Instruments Z/JF-HFY-004	(0.1~200) mV	$U_{\text{rel}}=2\%$		
89	*Ultraviolet Fluorescence Sulfur Analyzers	Concentration	C.S. for Ultraviolet Fluorescence Sulfur Analyzers JJF1685	(1~10) mg/L	$U_{\text{rel}}=3.2\%$		
				(> 10~100) mg/L	$U_{\text{rel}}=2.2\%$		
				(> 100~1000) mg/L	$U_{\text{rel}}=2.6\%$		
		Detection limit		<10mg/L	$U=0.01\text{mg/L}$		
90	*Medical Centrifuge	Rotation rate	C.S. for Medical Centrifuge JJF (JI) 167	(500~30000)r/min	$U_{\text{rel}}=0.15\%$		
		Noise		(30~130)dB	$U=1.6\text{dB}$		
		Time		(0~3600)s	$U=0.6\text{s}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(-20~200)°C	U=0.2°C		
91	*Thin Layer Chromatography Scanners	concentration	C.S. for Thin Layer Chromatography Scanners JJF1712	(0.01~0.04)mg/mL	U=0.0019mg/mL		
92	*Total Hydrocarbon Methane and Non-Methane Total Hydrocarbon Analyzers	concentration	C.S. for Total Hydrocarbon Methane and Non-Methane Total Hydrocarbon Analyzers JJF (Ji) 188	(1~20000) μmol/mol	U _{rel} =1.5%		
		Time		(0~3600)s	U=0.1s		
93	*On-line turbidimeters	Turbidity	Calibration method of On-line turbidimeters Z/JF-HYH-006	(0.1~400)NTU	U _{rel} =3.5%		
94	*Automatic water samplers	volume	Calibration method of automatic water samplers Z/JF-HYH-007	(0.1~200)mL	U _{rel} =3.0%		
				(200~2000)mL	U _{rel} =2.8%		
		Temperature		(0~50)°C	U=0.3°C		
		time		(0~3600)s	U=0.1s		
95	*On-line Automatic Monitors of Permanganate Index	concentration	C. S. for On-line Automatic Monitors of Permanganate Index JJF 1875	(0.1~5)mg/L	U=0.05mg/L		
				(5~200)mg/L	U _{rel} =3%		
96	*Smoke velocity meters	Temperature	Calibration method of Smoke velocity meters Z/JF-HYH-008	(0~500)°C	U=1.1°C		
		Pressure		static: (-50~-0.01)kPa	U _{rel} =0.6%		
				static: (0.01~50)kPa	U _{rel} =0.6%		
				dynamic: (0.1~2000)Pa	U _{rel} =0.2%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		flowrate		(0.5~50)m/s	$U_{rel}=1.6\%$		
97	*Digital Display Air Samplers	Flow	V. R. of Digital Display Air Samplers JJG (JI) 142	(0.1~6.0)L/min	$U_{rel}=1.6\%$		
		Temperature		(0~50)°C	$U=0.2^{\circ}\text{C}$		
		Pressure		(800~1060)hPa	$U=0.25\text{kPa}$		
		Time		(0~3600)s	$U=0.1\text{s}$		
98	Smoke moisture content testers	Temperature	Calibration method of Smoke moisture content testers Z/JF-HYH-009	(0~500)°C	$U=1.1^{\circ}\text{C}$		
		Humidity		(20~98)%RH	$U_{rel}=3.6\%$		
		Pressure		static: (-50~-0.01)kPa	$U_{rel}=0.6\%$		
				static: (0.01~50)kPa	$U_{rel}=0.6\%$		
		dynamic: (0.1~2000)Pa	$U_{rel}=0.2\%$				
99	*Carbon Dioxide Incubator	Temperature	Calibration method of Carbon Dioxide Incubator Z/JF-HYH-010	(0~80)°C	$U=0.2^{\circ}\text{C}$		
		concentration		CO ₂ : (0~10)%	$U=0.21\%$		
100	*Flue Gas Samplers	Flow	V. R. of Flue Gas Samplers JJG1169	(0.1~2.0)L/min	$U_{rel}=1.3\%$		
		Temperature		(0~50)°C	$U=0.3^{\circ}\text{C}$		
		Pressure		(800~1060)hPa	$U=0.3\text{kPa}$		
				(-50~-0.01)kPa	$U_{rel}=0.6\%$		
				(0.01~50)kPa	$U_{rel}=0.6\%$		
Time	(0~3600)s	$U=0.1\text{s}$					
101	*Sulfur Dioxide Gas Detectors	Concentration	V.R.of Sulfur Dioxide Gas Detectors JJG551	(1~1500) $\mu\text{mol/mol}$	$U=1.6\%\text{FS}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		time		(0~3600)s	$U=0.2s$		
102	*Ammonia Gas Detectors	Concentration	V.R. of Ammonia Gas Detectors JJG1105	(0.1~1000) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.6\%$		
		time		(0~3600)s	$U=0.2s$		
103	*Alarmer Detectors of Benzene	concentration	C.S. for Alarmer Detectors of Benzene JJF1674	(0~10) $\mu\text{mol/mol}$	$U=0.09\mu\text{mol/mol}$		
				(10~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.4\%$		
		time		(0~3600)s	$U=0.2s$		
104	*Hydrogen Chloride Gas Detectors and Alarms	Concentration	C.S. for Hydrogen Chloride Gas Detectors and Alarms JJF1888	(0.1~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.5\%$		
		time		(0~3600)s	$U=0.2s$		
105	*Hydrogen Cyanide Gas Detectors and Alarms	Concentration	Calibration Method for Hydrogen Cyanide Gas Detectors and Alarms Z/JF-HXB-004	(0.1~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=4\%$		
		time		(0~3600)s	$U=0.2s$		
106	*Tetrahydrothiophene Gas Detectors and Alarms	Concentration	Calibration Method for Tetrahydrothiophene Gas Detectors and Alarms Z/JF-HXB-002	(0.1~100) $\mu\text{mol/mol}$	$U=0.29\mu\text{mol/mol}$		
		time		(0~3600)s	$U=0.2s$		
107	*Nitric Oxide and Nitrogen Dioxide Gas Detectors and Alarms	Concentration	Calibration Method for Nitric Oxide and Nitrogen Dioxide Gas Detectors and Alarms Z/JF-HXB-003	(0.1~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.2\%$		
		time		(0~3600)s	$U=0.2s$		
108	*Laboratory pH Meters	pH	V.R. of Laboratory pH Meter JJG119	The electric meter: pH: (0~14)	$U=0.001$	Except for 0.001 level to Instrument	
				The instrument: pH(4~10)	$U=0.01$		



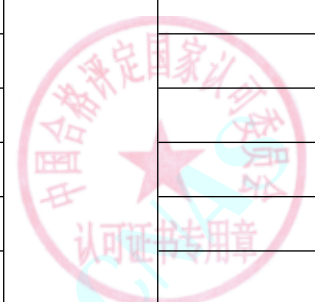
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		electric potential		(-2000~2000) mV	U=0.1mV		
		Temperature		(5~60)°C	U=0.2°C		
109	*Verifying Meter for pH Meters	voltage pH	V.R. of Verifying Meter for pH Meters JJG919	(-2000~2000)mV pH: (0~14)	U=0.008mV U=0.0002		
110	*ICP Emission Spectrometer	Detection limit	V.R. of Emission Spectrometer JJG768	Zn: ≤0.01mg/L	U _{rel} =22%		
				Mn: ≤0.005mg/L	U _{rel} =22%		
				Ni: ≤0.03mg/L	U _{rel} =22%		
				Cu: ≤0.02mg/L	U _{rel} =22%		
				Cr: ≤0.02mg/L	U _{rel} =22%		
		Ba: ≤0.005mg/L		U _{rel} =22%			
		Wavelength		196nm~767nm	U=0.01nm		
111	*Carbon-Sulfur Analyzer	Consistence	V.R. of Carbon-Sulfur Analyzer JJG395	C: (0.005~0.010)%	U=0.0005%		
				C: (0.010~0.100)%	U=0.002%		
				C: (0.100~1.00)%	U=0.003%		
				C: (1.00~4.00)%	U=0.004%		
				S: (0.003~0.010)%	U=0.0003%		
				S: (0.010~0.100)%	U=0.003%		
				S: (0.100~0.200)%	U=0.003%		

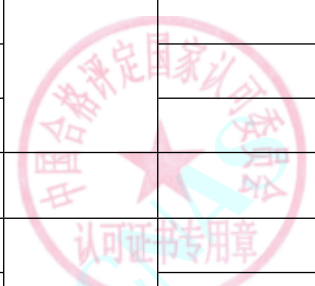


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
112	*Wavelength Dispersive X-Ray Fluorescence Spectrometers	Counting rate	V.R.of Wavelength Dispersive X-Ray Fluorescence Spectrometers JJG810	(0.1~3000)kCPS	$U_{rel}=0.08\%$		
113	*Dynamic Light Scattering Particle Size Analyzers	Particle size	V. R. of Dynamic Light Scattering Particle Size Analyzers JJG1104	(10~100) nm	$U_{rel}=2.6\%$		
				(200~300) nm	$U_{rel}=1.0\%$		
				(400~500) nm	$U_{rel}=1.0\%$		
				(600~1500) nm	$U_{rel}=0.9\%$		
		Temperature		(0~90)°C	$U=0.2^{\circ}C$		
114	*Energy Dispersive X-Ray Fluorescence Spectrometer	Concentration	Calibration Method for Energy Dispersive X-Ray Fluorescence Spectrometer Z/JF-HXH-003	Cd: (8.7~107)mg/kg	$U_{rel}=10\%$		
				Cr: (97.3~1122)mg/kg	$U_{rel}=9\%$		
				Hg: (91.5~1096)mg/kg	$U_{rel}=10\%$		
				Pb: (93.1~1122)mg/kg	$U_{rel}=10\%$		
		detection limit		Cd: ≤ 30 mg/kg	$U_{rel}=26\%$		
				Cr: ≤ 30 mg/kg	$U_{rel}=24\%$		
				Hg: ≤ 30 mg/kg	$U_{rel}=25\%$		
				Pb: ≤ 30 mg/kg	$U_{rel}=25\%$		
115	*Nucleic Acids Analyzers	Concentration	C. S. for Nucleic Acids Analyzers JJF1817	(0.1~40)ng/μL	$U_{rel}=6.8\%$		
116	*Acid-Alkali Meter	Concentration	Calibration Method for Acid-Alkali Meter Z/JF-HXH-001	NaCl: (0.1~20)%	$U_{rel}=1.6\%$		
				HCl: (0.1~20)%	$U_{rel}=1.6\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				NaOH: (0.1~20)%	$U_{rel}=1.6\%$		
117	*Copper and Iron Conent Analyzers	Concentration	Calibration Method for CopperandIron Conent Analyzers Z/JF-HXH-004	Cu: (0.1~200) μ g/L Fe: (0.1~200) μ g/L	$U_{rel}=1.4\%$ $U_{rel}=1.4\%$		
118	*Laboratory Ion Meters	pX electricpotenti al Temperature	V. R. of Laboratory Ion Meters JJG757	The electric meter pX: (0~14) The instrument pX: (2~4) (-2000~2000) mV (5~45) $^{\circ}$ C	$U=0.004$ $U=0.02$ $U=0.1mV$ $U=0.2^{\circ}C$		
119	*Oxidation- reduction Potential Meters	electricpotenti al	Calibration Method for Oxidation-reduction Potential Meters Z/JF-HXH-002	(-2000~2000) mV	$U=0.1mV$		
120	*Colony Counters	Counte Length	C. S. for Colony Counters JJF 1751	(20~300)CFU (0.1~5)mm	$U_{rel}=3\%$ $U=0.04mm$		
121	*Transformer Oiland Water Soluble Acid	pH	C. S. for Transformer Oiland Water Soluble Acid JJF(Ji)127	Theinstrument: pH(4~ 10)	$U=0.02$		
122	*Semiautomatic Clinical Chemistry Analyzers	absorbancy	V.R. of Semiautomatic Clinical Chemistry Analyzers JJG464	0.001~1.0	$U=0.004$		
123	*Electrolyte Analyzers	concentration	V.R. of Electrolyte Analyzers JJG1051	K+: (1.50~ 7.50)mmol/L Na+: (100.0~ 180.0)mmol/L Cl-: (80.0~ 160.0)mmol/L	$U_{rel}=5\%$ $U_{rel}=5\%$ $U_{rel}=5\%$		



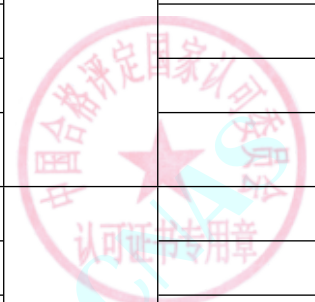
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Li+: (0.40~2.00)mmol/L	$U_{rel}=6\%$		
				iCa2+: (0.50~2.50)mmol/L	$U_{rel}=5\%$		
124	*Portable Blood Glucose Meters	Concentration	C.S. for Portable Blood Glucose Meters JJF1383	Blood sugar: (2.0~18.0) mmol/L	$U_{rel}=4\%$		
125	*Electrolytic Conductivity Meters	Electrical Conductivity	V.R. of Electrolytic Conductivity Meters JJG376	The electronic unit: 0.05 μ S.cm-1 ~ 100mS.cm-1	$U_{rel}=0.06\%$		
				The instrument: (127~1410) μ S.cm-1	$U_{rel}=0.46\%$		
		Temperature		(0~50)°C	$U=0.2^\circ\text{C}$		
126	*Samplers for Stack Dust	Flow	V.R. of Samplers for Stack Dust JJG680	(5~10)L/min	$U_{rel}=1.5\%$		
				(10~100)L/min	$U_{rel}=1.2\%$		
		Time		(0~3600)s	$U=0.1\text{s}$		
		Temperature		(0~250)°C	$U=0.3^\circ\text{C}$		
		Pressure		static: (-50~0.01)kPa	$U_{rel}=0.6\%$		
				static: (0.01~50)kPa	$U_{rel}=0.6\%$		
				dynamic: (0.1~2000)Pa	$U_{rel}=0.2\%$		
		(Before the flow meter: (-50~0.01)kPa	$U_{rel}=0.6\%$				
127	*Air Sampler	Flow	V.R. of Air Sampler JJG 956	(1~6000)mL/min	$U_{rel}=1.4\%$		
		Temperature		(0~50)°C	$U=0.2^\circ\text{C}$		
		Pressure		(800~1060)hPa	$U=0.25\text{kPa}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Time		(0~3600)s	U=0.1s		
128	*Mercury Analyzers	detection limit	V.R. of Mercury Analyzers JJG548	absorption type, $\leq 1.0\text{ng}$	U=0.12ng		
				fluorescence: $\leq 0.1\text{ng}$	U=0.002ng		
129	Ozone Gas Analyzers	concentration	V.R. of Ozone Gas Analyzers JJG1077	(0.1~1000) nmol/mol	U _{rel} =1.6%		
				(1~400) $\mu\text{mol/mol}$	U _{rel} =2.1%		
		time		(0~3600)s	U=0.1s		
130	*High-load Ambient Air Samplers	flow	V.R. of High-load Ambient Air Samplers JJG (Ji) 3016	(10~800)L/min	U _{rel} =1.2%		
		temperature		(0~50)°C	U=0.3°C		
		Pressure		(800~1060)hPa	U=0.3kPa		
		Time		(0~3600)s	U=0.1s		
		Length		(0.1~150)mm	U=0.01mm		
131	*Ambient Air Semi-Volatile Organic Compounds Samplers	Flow	V.R. for Ambient Air Semi-Volatile Organic Compounds Samplers JJG (Ji) 187	(0.1~1200)L/min	U _{rel} =1.3%		
		Temperature		(0~50)°C	U=0.3°C		
		Pressure		(800~1060)hPa	U=0.3kPa		
		Time		(0~3600)s	U=0.1s		
132	*PM _{2.5} /PM ₁₀ Samplers	flow	C. S. for Ambient Air Quality Continuous Automated Monitoring System JJF (JI) 119	(10~260) L/min	U _{rel} =1.4%		
		Temperature		(0~50)°C	U=0.3°C		
		Pressure		(800~1060)hPa	U=0.3kPa		
133	*Rotary Agitator	Temperature	Calibration Method for Rotary Agitator Z/JF-HJH-	(0~80)°C	U=0.3°C		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		RotateSpeed	011	(0~100)r/min	$U=0.4r/min$		
134	*Ambient Air online Monitoring Instruments	concentration	C. S. for Ambient Air online Monitoring Instruments JJF 1907	SO ₂ : (50~500) nmol/mol	$U_{rel}=2.4%$		
				NO: (20~500) nmol/mol	$U_{rel}=2.0%$		
				CO: (5~50) μ mol/mol;	$U_{rel}=1.8%$		
				O ₃ : (200~800)nmol/mol	$U_{rel}=1.9%$		
		time		(0~3600) s	$U=0.1s$		
135	*Organic High Resolution Magnetic Sector Mass Spectrometers	signal-to- noiseratio	C. S. for Organic High Resolution Magnetic Sector Mass Spectrometers JJF 1930	Hexachlorobenzene: ≥ 1000	$U_{rel}=15%$		
136	On-line dissolved oxygen Meters	Concentration	V.R. of On-line dissolved oxygen Meters JJG(Ji)183	(0~20)mg/L	$U=0.04mg/L$		
		Temperature		(0~50) °C	$U=0.1°C$		
		Time		(0~3600)s	$U=0.1s$		
137	*PM10 Mass Concentration Measurement Instruments	concentration	Calibration Method for PM10 Mass Concentration Measurement Instruments Z/JF-HJH-013	(10~1000) μ g/m ³	$U_{rel}=12%$		
		flow		(10~260) L/min	$U_{rel}=1.4%$		
		Temperature		(0~50)°C	$U=0.3°C$		
		Pressure		(800~1060)hPa	$U=0.3kPa$		
138	*PM2.5 Mass Concentration Measurement	concentration	C. S. for PM2.5 Mass Concentration Measurement JJF1659	(10~1000) μ g/m ³	$U_{rel}=12%$		
		flow		(10~260) L/min	$U_{rel}=1.4%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature		(0~50)°C	U=0.3°C		
		Pressure		(800~1060)hPa	U=0.3kPa		
139	*Single Wavelength Dispersive X-Ray Fluorescence Chlorine Analyzers	Concentration	Calibration Method of Single Wavelength Dispersive X-Ray Fluorescence Chlorine Analyzers Z/JF-HXY-006	(5~1000) mg/kg	U _{rel} = (1.2~4.2) %		
		Detection limit		≤5mg/kg	U=0.5mg/kg		
140	*Dispersive X-Ray Fluorescence Sulfur Analyzers	Concentration	Calibration Method of Dispersive X-Ray Fluorescence Sulfur Analyzers Z/JF-HXY-007	(5~500) mg/L	U= (0.2~12) mg/L		
		Concentration		(500~2000) mg/L	U _{rel} = (1.6~2.4) %		
		Detection limit		≤5mg/L	U=0.5mg/L		
141	*Engler Viscosimeter	Time	V.R. of Engler Viscosimeter JJG742	(50~52) s	U _{rel} =0.9%		
142	*Ultraviolet Visible Range Spectrophotometer In Single Beam	Wavelength	V.R. of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG178	(240~810)nm	U=0.5nm		
		Transmittance		(7~52)%	U=0.5%		
143	Funnel Viscometers	Time	Calibration Method of Funnel Viscometers Z/JF-HXY-009	(14~27) s	U _{rel} =0.9%		
144	*Conductivity Total Organic Carbon Analyzer	Concentration	Calibration Method of Conductivity Total Organic Carbon Analyzer Z/JF-HXY-010	(0.1~25) mg/L	U _{rel} =2%		
145	*insulation oleic acid value tester	Concentration	Calibration method of insulation oleic acid value tester Z/JF-HXB-001	(0.0001~1.0000) mg/g	U _{rel} =4.6%		
146	*Gas Transmittance	Temperature	Calibration method for Gas Transmittance Meter Z/JF-	(-40~140) °C	U=0.12°C		

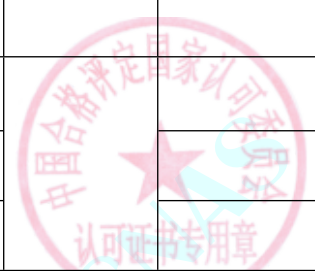


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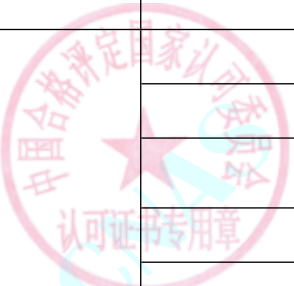
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Meter	gas transmittance rate	RGG-002	(4.7~11.2) cm ³ /(m ² ·24h·0.1MPa)	U= (1.4~2.2) cm ³ /(m ² ·24h·0.1MPa)		
147	*Oxygen Transmittance Meter	Temperature oxygen transmission rate	Calibration method for Oxygen Transmittance Meter Z/JF-RGG-003	(-40~140) °C (12.3~62.8) cm ³ /(m ² ·24h)	U=0.12°C U= (1.2~3.2) cm ³ /(m ² ·24h)		
148	*Water Vater Transmittance Ratetester	Temperature humidity Water vapor transmittance	Calibration Specification for Water Vater Transmittance Ratetester JJF(Ji)191	(-40~140) °C 5%RH~95%RH (1.8~4.4) g/(m ² ·24h)	U=0.12°C U=1.2% RH U=0.9g/(m ² ·24h)		
149	*On-line Automatic Determinator of Chemical Oxygen Demand (COD)	Concentration	V.R. of On-line Automatic Determinator of Chemical Oxygen Demand (COD) JJG1012	(16~1000)mg/L	U _{rel} =1.0%		
VII Acoustics measurement equipment							
1	*Ultrasonic Power Meter for Milliwatt Level	Ultrasonic Power	Verification Regulation of Ultrasonic Power Meter for Milliwatt Level JJG 665	(1~500)mW	U _{rel} =5%		
2	*Ultrasonic Flaw Detectors	Attenuation	V.R. of Ultrasonic Flaw Detectors JJG 746	(1~80) dB, (0.5~15) MHz	U=0.42dB		
		Level Linear		1%~100%, (0.5~15) MHz	U=0.6%		
		Vertical linearity		5%~100%, (0.5~15) MHz	U=1.7%		
3	Sound Level Meters	Sound Pressure Level	Verification Regulation of Sound Level Meters JJG188	Acoustic Signal:(30~124)dB, (10~400) Hz	U=0.5dB		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
			Verification Regulation of Mechanical Vibration Genetator for Testing JJG 189	Acoustic Signal:(30~124)dB, (500~3150) Hz	U=0.4dB			
				Acoustic Signal:(30~124)dB, (4~20) kHz	U=0.5dB			
				Electrical Signal: (10~140) dB, (10Hz~20kHz)	U=0.2dB			
				Busrt Signal: (10~140) dB, (0.25ms~1s) ,4kHz	U=0.2 dB			
		Time-average Sound Level		Steady State Electrical Signal: (10~140) dB, (20~8000) Hz	U=0.2 dB			
				Busrt Signal: (10~140) dB, (0.25ms~1s)	U=0.2 dB			
				Attenuation Rate	S: (1~50)dB/s,4kHz			U=0.4dB/s
					F: (1~50)dB/s,4kHz			U=3.0dB/s
4	*Mechanical Vibration Genetator for Testing	Frequency	(5~50)Hz	U=0.3Hz				
			(>50~2000)Hz	U=0.7Hz				
		Acceleration	(10~100) m/s ² ,(5~2000)Hz	U _{rel} =3.3%				
		Displacement	(0.01~2)mm,(5~100)Hz	U _{rel} =5%				
Distortion	0.03%~30%,(5~2000)Hz	U _{rel} =10%						



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
5	*Hydraulic Vibration Testing System	Frequency	Verification Regulation of Hydraulic Vibration Testing System JJG 638	(5~50)Hz	$U=0.3\text{Hz}$		
				(>50~2000)Hz	$U_{\text{rel}}=0.5\%$		
		acceleration		(10~100) m/s ² , (5~ 2000)Hz	$U_{\text{rel}}=3.3\%$		
		Displacement		(0.01~2)mm, (5~100)Hz	$U_{\text{rel}}=3.3\%$		
		Distortion		0.03%~20%, (5~ 2000)Hz	$U_{\text{rel}}=10\%$		
6	Piezoelectric Accelerometer	Acceleration	Verification Regulation of Piezoelectric Accelerometer JJG 233	Reference Point, 100m/s ² , 160Hz	$U_{\text{rel}}=1.0\%$		
				Passband: (2~100) m/s ² , (20Hz~2000Hz)	$U_{\text{rel}}=1.9\%$		
7	Pile Dynamic Measuring Instrument	Acceleration	Verification Regulation of Pile Dynamic Measuring Instrument JJG 930	Reference Point, 100m/s ² , 160Hz	$U_{\text{rel}}=1.2\%$		
				Passband: (2~100) m/s ² (20Hz~2000Hz)	$U_{\text{rel}}=2.1\%$		
		Time		0.04ms~0.1s	$U_{\text{rel}}=2\%$		
8	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Sound Power	V.R. of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JJG 639	(2~500)mW	$U_{\text{rel}}=10\%$		
9	Audiological Equipment Pure- tone Audiometers	Frequency	Verification Regulation of Audiological Equipment Pure-tone Audiometers JJG 388	(125~8000) Hz	$U=1\text{Hz}$		
		RETSPL		(-10~110) dB, (125~8000) Hz	$U=1.3\text{dB}$		
		RETFL		(-10~70) dB, (250~ 6000) Hz	$U=2.5\text{dB}$		



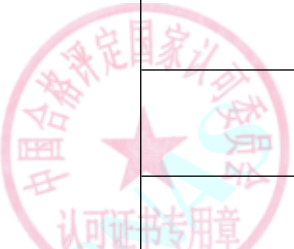
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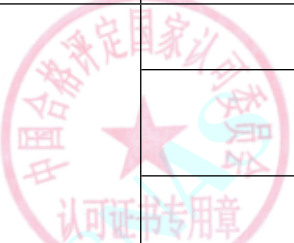
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Total Harmonic Distortion		0.05%~100%	U=10%FS		
10	*Electrodynamic Vibration Testing Systems	Frequency	Verification Regulation of Electrodynamic Vibration Testing Systems JJG 948	(5~100)Hz	U=0.016Hz		
				(>100~5000)Hz	U _{rel} =0.016%		
		Acceleration		(10~100) m/s ² , (5~2000)Hz	U _{rel} =3.3%		
		Distortion		0.03%~20%, (5~2000)Hz	U=2%		
11	Vibration Meters	Acceleration	Verification Regulation of Vibration Meters JJG 676	Reference Point, (100m/s ² , 160Hz,	U _{rel} =1.2%		
				Pass Band: (2~100) m/s ² (20Hz~2000Hz)	U _{rel} =2.1%		
		Velocity		(2~200) mm/s (20Hz~2000Hz)	U _{rel} =2.1%		
		Displacement		(10~1000) μm (20Hz~160Hz)	U _{rel} =2.1%		
		Frequency		(20~2000)Hz	U=0.5Hz		
12	Personal Sound Exposure Meters	Sound Pressure Level	V.R.of Personal Sound Exposure Meters JJG 980	Acoustic Signal:(30~124)dB, (63~400) Hz	U=0.5dB		
				Acoustic Signal:(30~130)dB, (500~3150) Hz	U=0.4dB		
				Acoustic Signal:(30~124)dB, (4~8) kHz	U=0.5dB		



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		Sound Exposure		Electrical Signal: (10~140) dB, (63Hz~8kHz)	$U=0.2\text{dB}$		
				Acoustic Signal:(0.1~99.9)Pa ² h, (63~8000) Hz	$U_{\text{rel}}=11\%$		
				Electrical Signal:0.5 Pa ² h~2.0 Pa ² h,4kHz	$U_{\text{rel}}=11\%$		
				Burst Signal:(0.1~99.9)Pa ² h, (0.25~1000) ms	$U_{\text{rel}}=13\%$		
13	*Ultrasonic Source for Ultrasonic Doppler Fetal Monitor	Sound Power	V.R.of Ultrasonic Source for Ultrasonic Doppler Fetal Monitor JJG 394	(2~500)mW	$U_{\text{rel}}=8.2\%$		
		Heart Rate		(65~210)min ⁻¹	$U_{\text{rel}}=1.7\%$		
14	*Ultrasonic Source of Ultrasonic Doppler Foetal Meters	Sound Power	V.R.of Ultrasonic Source of Ultrasonic Doppler Foetal Meters JJG 893	(2~500)mW	$U_{\text{rel}}=8.2\%$		
VIII Medicine Special category measurement equipment							
1	*Electrocardiograph	Voltage	V.R.of Electrocardiograph JJG 543	Calibration Voltage:1mV,1Hz	$U_{\text{rel}}=1.6\%$		
				Voltage Measurement:(0.5~5)mV, 10Hz	$U_{\text{rel}}=1.6\%$		
				Polarization Voltage:±300mV	$U_{\text{rel}}=1.6\%$		

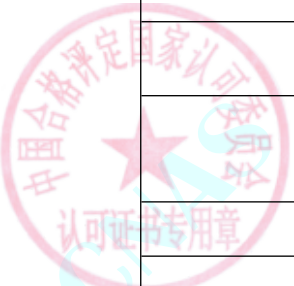


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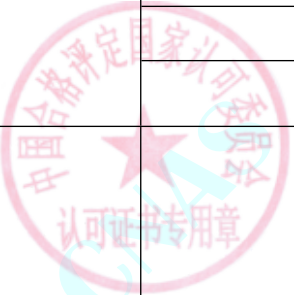
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			ilac-M	Amplitude-Frequency Characteristics: 1mV,(0.5~75)Hz	$U_{rel}=1.6\%$		
		Time		time interval: (0.1~5) s	$U_{rel}=2.3\%$		
2	*Digital Electrocardiographs	Voltage	V.R.of Digital Electrocardiographs JJG 1041	Calibration Voltage: 1mV,2.5Hz	$U_{rel}=1.6\%$		
				Voltage Measurement: (0.03~5) mV, 0.75Hz	$U_{rel}=1.6\%$		
				Polarization Voltage: ±300mV	$U_{rel}=1.6\%$		
		Time		Time Interval: 0.05s~3.84s, 1mV	$U_{rel}=2.3\%$		
		HeartRate		(30~200) min ⁻¹	$U_{rel}=1.2\%$		
3	*Ambulatory Electrocardiographs	Voltage	V.R. of Ambulatory Electrocardiographs JJG 1042	Calibration Voltage:1mV,1Hz	$U_{rel}=1.6\%$		
				Voltage Measurement: (0.05~6) mV, (6.7~10) Hz	$U_{rel}=1.6\%$		
				Frequency Response: 1mV,(0.5~40)Hz	$U_{rel}=1.6\%$		
				Sensitivity: 1mV,10Hz,(1~100)mm/mV	$U_{rel}=1.6\%$		
		CMRR	(80~100)dB	$U=2.2dB$			
		Scanning Speed		25mm/s	$U_{rel}=2.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	*Electroencephalographs	Voltage	V.R.of Electroencephalographs JIG 1043	Calibration Voltage: 2 μV~1mV,1s	$U_{rel}=1.6\%$		
				Voltage Measurement: 2 μV~2mV,0.1s	$U_{rel}=1.6\%$		
				Amplitude-Frequency Characteristics: 2 μV~2mV,(1~60)Hz	$U_{rel}=1.6\%$		
		Time		time interval: 0.05s~5s	$U_{rel}=2.3\%$		
5	*Digital Electroencephalographs	Voltage	V.R.of Digital Electroencephalographs JIG 954	Voltage Measurement: 2 μV~5mV,0.1s	$U_{rel}=2.1\%$		
		Time		Time Interval: (0.1~5) s	$U_{rel}=2.3\%$		
		CMRR		(80~100)dB	$U=2.2\text{dB}$		
6	*Ventilators	Tidal Volume	Calibration Specification for Ventilators JJF 1234	(400~800) mL	$U_{rel}=4\%$		
		Ventilation Frequency		(10~40)min ⁻¹	$U_{rel}=3\%$		
		Pressure		Airway peak-pressure: (1.0~3.0)kPa	$U=0.07\text{kPa}$		
				PEEP:(1.0~2.0)kPa	$U=0.07\text{kPa}$		
		Oxygen Concentration		21%~100%	$U=5\%$		
7	*Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography(CT)	Dose Index	V.R.of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography(CT) JJG 961	(1×10 ⁻⁴ ~1) Gy	$U_{rel}=5.0\%$		



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8	*Medical Magnetic Resonance Image	Magnetic Density	C.S.for Medical Magnetic Resonance Image JJF(Ji) 3002	(0.1~2) T	$U_{rel}=3\%$		
9	*Syringe Pumps and Infusion Pumps	Flow	C.S.for Syringe Pumps and Infusion Pumps JJF-1259	(5~20)ml/h	$U_{rel}=2.4\%$		
				(>20~200)ml/h	$U_{rel}=1.6\%$		
				(>200~1000)ml/h	$U_{rel}=2.6\%$		
		Pressure		Occlusion Pressure: (70~200)kPa	$U=3.3\text{kPa}$		
10	*Cardiac Defibrillators	Energy	Calibration Specification for Cardiac Defibrillators JJF 1149	(2~360) J	$U_{rel}=2.8\%$		
		Voltage		Voltage Measurement: (0.5~2)mV,0.4s	$U_{rel}=1.6\%$		
				Amplitude-Frequency Characteristics: 1mV,(1~25)Hz	$U_{rel}=1.6\%$		
		Scanning Speed		25mm/s	$U_{rel}=2.2\%$		
		Heart Rate		(30~200)min ⁻¹	$U_{rel}=1\%$		
		Pulse Frequency		(40~200)min ⁻¹	$U=1\text{min}^{-1}$		
		Pulse Width		(20~50)ms	$U_{rel}=2.3\%$		
Pulse Current Amplitude	(4~150)mA	$U_{rel}=2.3\%$					
11	*Hemodialysis Equipment	Conductivity	Calibration Specification for Hemodialysis Equipment JJF 1353	(1.4~12.8)mS/cm	$U_{rel}=3\%$		
		Temperature		(25~40)°C	$U=0.2\text{°C}$		



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		Pressure	ilac-M	Vein(artery) Pressure: (-40~60) kPa	$U=0.32\text{kPa}$		
				Dialysate Pressure: (-100~100)kPa	$U=0.78\text{kPa}$		
		Flow		Dialysate Flow:(400~700)mL/min	$U_{\text{rel}}=3\%$		
				Dewatered Water:500mL/h、1000mL/h	$U=33\text{mL/h}$		
				pH	6~8		
Mass	Weighing Meter: 2kg、10kg	$U=1.5\text{g}$					
12	*Electrosurgical Generator	Current	Calibrator Specification for Electrosurgical Generator JJF 1217	High-Frequency Leakage Current: (18~497) mA, (300kHz~1MHz)	$U=3.0\text{mA}$		
		Power		(50~395)W,(300~500)kHz	$U_{\text{rel}}=3.7\%$		
13	*Medical Element Analyzer	Concentration	Calibration Specification for Medical Element Analyzer JJF (JI) 126	Pb: (50~300) $\mu\text{g/L}$	$U_{\text{rel}}=10\%$		
				Cd: (2.00~10.00) $\mu\text{g/L}$	$U_{\text{rel}}=8\%$		
				Cu, (0.01~0.2) $\mu\text{g/mL}$	$U_{\text{rel}}=2\%$		
14	*Automatic Chemistry Analyzers	Absorbancy	Calibration Specification for Automatic Chemistry Analyzers JJF 1270	0.1~1.0	$U=0.004$		
		Concentration		ALT: (30~190)U/L	$U_{\text{rel}}=6\%$		
				GLU: (2~16)mmol/L	$U_{\text{rel}}=3\%$		
15	*Automatic Urinary Sediment Analyzers	Concentration	Calibration Specification for Automatic Urinary Sediment Analyzers JJF 1823	RBC: (150~2000) μL^{-1}	$U_{\text{rel}}=12\%$		

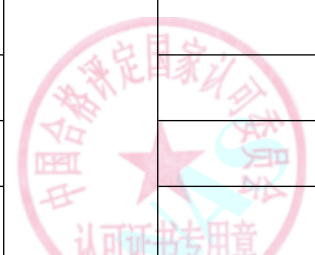
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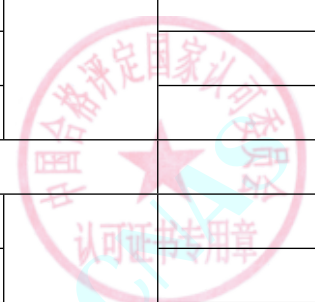
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				WBC: (150~2000) μL^{-1}	$U_{\text{rel}}=11\%$		
16	*Glycohemoglobin Analyzers	Concentration	Calibration Specification for Glycohemoglobin Analyzers JJF 1841	4.0%~11.0%	$U_{\text{rel}}=16\%$		
17	*Automatic Closed Luminescence Immunoassay Analyzers	Concentration	Calibration Specification for Automatic Closed Luminescence Immunoassay Analyzers JJF 1752	Insulin:(0.1~150) pmol/L AFP:25IU/mL	$U_{\text{rel}}=5\%$ 1.5IU/mL		
18	*Micro-spectrophotometers	Concentration	Calibration Specification for Micro-spectrophotometers JJF 1836	Salmonsperm DNA, (10~2200) mg/kg Bovine Serum Albumin:(0.030~2.0) mg/ml	$U_{\text{rel}}=6\%$ $U_{\text{rel}}=8\%$		
19	*(Automatic) Nucleic Acid Extractors	Temperature	Calibration Specification for (Automatic) Nucleic Acid Extractors JJF 1874	(55~90) $^{\circ}\text{C}$	$U=1.0^{\circ}\text{C}$		
		Frequency		(0.5~30) Hz	$U_{\text{rel}}=3\%$		
		Volume		(50~200) μL	$U=1.2 \mu\text{L}$		
		Concentration		1013mg/kg	$U=125\text{mg/kg}$		
20	*Cardiopulmonary Resuscitators	Pressure	Calibration Specification for Cardiopulmonary Resuscitators JJF 1748	(100~120) min^{-1}	$U_{\text{rel}}=0.7\%$		
		Single Blow Frequency		(10~20) min^{-1}	1^{-1}		
		Pressure Depth		(30~50) mm	$U_{\text{rel}}=2.0\%$		
		Volume		Tidal Volum: (200~1200) ml	$U_{\text{rel}}=1.8\%$		
21	*Medical Suction Equipment	Pressure	Calibration Specification for Medical Suction Equipment JJF 1810	(-0.1~-0.004)MPa	$U_{\text{rel}}=0.5\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Multifunction Patient Monitoring Instruments Cardiac Monitor	Heart Rate	V.R. of Multifunction Patient Monitoring Instruments Cardiac Monitor JJG 1163	(30~200) min ⁻¹	U _{rel} =3.2%		
		Voltage		Voltage Measurement: (0.5~2)mV, 2Hz	U _{rel} =1.6%		
				Amplitude-Frequency Characteristics: 1mV, (1~25)Hz	U _{rel} =3.2%		
		Scanning Speed		25mm/s, 50mm/s	U _{rel} =0.1%		
		Blood Pressure		(6~40)kPa	U=0.26kPa		
		SpO ₂		70%~100%	U=2.0%		
		Pulse Rate		(30~200)min ⁻¹	U _{rel} =2.4%		
		Ventilation Frequency		(3~60)min ⁻¹	U=1min ⁻¹		
CO ₂ Concentration	5%	U _{rel} =0.2%					
23	*Pulmonary Function Measuring Instrument	Volume	Calibration Specification for the Pulmonary Function Measuring Instrument JJF 1213	VC:(1~8)L	U _{rel} =2%		
				FVC:(1~8)L	U _{rel} =2.1%		
		Flow		PEF:(4~11)L/s	U _{rel} =3.4%		
				MVV:(240~660)L/min	U _{rel} =2.8%		
IX Time and frequency measurement equipment							
1	Universal Counters	Frequency	V.R. of Universal Counters JJG349	1MHz	U _{rel} =2.0×10 ⁻¹⁰		
				5MHz	U _{rel} =1.4×10 ⁻¹⁰		
				10MHz	U _{rel} =1.3×10 ⁻¹⁰		



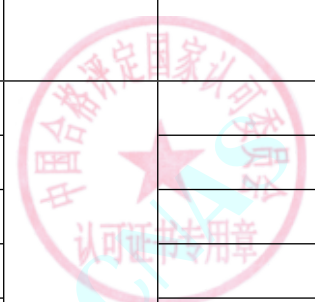
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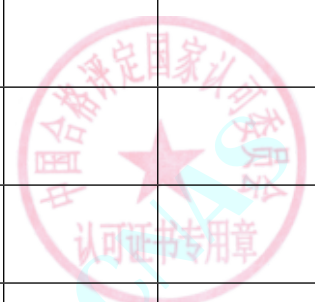
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency Error		1Hz~100MHz	$U_{rel}=3.7 \times 10^{-10}$		
				100MHz~1GHz	$U_{rel}=4.8 \times 10^{-10}$		
		Period Error		10 μs~10s	$U_{rel}=3.7 \times 10^{-10}$		
		Time Interval		0.2 μs~10s	$U=0.04 \mu s$		
2	*Stopwatch	Time Slot	V.R. of Stopwatches JJG237	Mechanical stop watch: 1s~900s	$U=0.06s$		
				Mechanical stop watch: 900s~3600s	$U=0.10s$		
				Electronic Stop watch: 1s~3600s	$U=0.01s$		
				Electronic Stop watch: 1d	$U=0.07s$		
3	*Electronic timer relay	time	C.S. for Electronic timer relay JJF1282	0.01s~99.99s	$U=0.01s$		
				100s~99min99s	$U=0.2s \sim 3.6s$		
4	Crystal Oscillator inside the Electrical Measurement Instrument	Frequency	V.R. of Crystal Oscillator inside the Electrical Measurement Instrument JJG180	1MHz, 5MHz, 10MHz	$U_{rel}=2.0 \times 10^{-10} \sim 1.3 \times 10^{-10}$		
5	Time Interval Generators	Time Interval	Calibration Specification for Time Interval Generators JJF1902	1ns~1×10 ⁵ s	$U=1ns$		
		Pulse rise time		1ns~10ns	$U=0.3ns$		
		Bias voltage		-10V~+10V	$U=0.02V$		
		Time Interval		1ns~1×10 ⁵ s	$U=1ns$		
		Frequency		1MHz	$U_{rel}=2.0 \times 10^{-10}$		

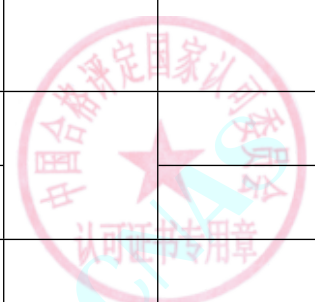


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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				5MHz	$U_{rel}=1.4 \times 10^{-10}$		
				10MHz	$U_{rel}=1.3 \times 10^{-10}$		
6	Time Interval Generator	Time	V.R. of Time Interval Generator JIG 601	$1 \mu s \sim 1 \times 10^5 s$	$U_{rel}=1 \times 10^{-9}$		
		Frequency		1MHz	$U_{rel}=2.0 \times 10^{-10}$		
				5MHz	$U_{rel}=1.4 \times 10^{-10}$		
				10MHz	$U_{rel}=1.3 \times 10^{-10}$		
7	*Frequencymeters	Frequency	V.R. of Frequency Meters JIG603	10Hz~10kHz	$U_{rel}=0.1\%$		
X Ionizing radiation measurement equipment							
1	*Medical Diagnostic X-Ray Radiation Source	Airkermarate	V.R. of Medical Diagnostic X-ray Radiation Source JJG744	$(6 \times 10^{-5} \sim 1) \text{ Gy/min}$	$U_{rel}=5.0\%$		
2	*Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography	Airkermarate	V.R. of Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography JJG1067	$(6 \times 10^{-5} \sim 1) \text{ Gy/min}$	$U_{rel}=5.0\%$		
3	*Medical Electron Accelerator Radiation Source	AbsorbedDose	V.R. of Medical Electron Accelerator Radiation Source JJG589	$(0.01 \sim 10) \text{ Gy}$	$U_{rel}=3.4\%$		
4	*Medical Radiation Source for 60Co Teletherapy	AbsorbedDose	V.R. of Medical Radiation Source for 60Co Teletherapy JJG1027	$(0.01 \sim 10) \text{ Gy}$	$U_{rel}=3.4\%$		
5	*Radioactivity Meters	Radioactivity	Verification Regulation of Radioactivity Meters JJG377	$(3.7 \times 10^5 \sim 3.7 \times 10^{10}) \text{ Bq}$	$U_{rel}=5.0\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	α, β Surface Contamination Monitors	Surface emissivity Response	Verification Regulation for α, β Surface Contamination Monitors JJG478	$\alpha: (10^3 \sim 10^5) / (\text{min} \cdot 2 \pi \text{ sr})$	$U_{\text{rel}}=4.0\%$		
				$\beta: (10^4 \sim 10^6) / (\text{min} \cdot 2 \pi \text{ sr})$	$U_{\text{rel}}=4.0\%$		
7	*Radiation Source used in 60kV~300kV X-ray Radiotherapy	Absorbed Dose	V.R. of Radiation Source used in 60kV~300kV X-ray Radiotherapy JJG1053	(0.01~10) Gy	$U_{\text{rel}}=3.4\%$		
8	*Medical X-ray Radiation Sources for Mammographic Equipment	Absorbed Dose	Medical X-ray Radiation Sources for Mammographic Equipment JJG1145	(0.01mGy~1Gy)	$U_{\text{rel}}=5.1\%$		
		Voltage		(20~50)KV	$U_{\text{rel}}=2.4\%$		
9	*X, gamma-ray Densitometry for Bone Mineral Density	Absorbed Dose	X, gamma-ray Densitometry for Bone Mineral Density JJG1050	(10^{-9} ~0.6) Gy/h	$U_{\text{rel}}=12\%$		
10	*Medical Diagnostic X-ray Source for Dental Panorama	Air kerma rate	Medical Diagnostic X-ray Source for Dental Panorama JJG1101	(6×10^{-5} ~1) Gy/min	$U_{\text{rel}}=5.7\%$		
		Voltage		(20~50)KV	$U_{\text{rel}}=4.5\%$		
11	* γ Ray Spectrometers	radioactivity	C.S of γ Ray Spectrometers of Scintillation Detectors JJF1744	(2×10^2 ~ 9×10^3) Bq	$U_{\text{rel}}=10\%$		
12	*Low Background Alpha/Beta Measuring Instruments	detection efficiency	V.R. of Low Background Alpha/Beta Measuring Instruments JJG853	$\alpha, (2 \times 10^4 \sim 1.2 \times 10^4) (\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}}=4\%$		
				$\beta, \alpha, (2 \times 10^4 \sim 1.2 \times 10^4) (\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}}=4\%$		
13	*X-ray Security Inspection Equipment	Leakage radiation	Calibration Specification for X-ray Security Inspection Equipment JJF1275	(1×10^{-6} ~ 5×10^{-5}) Gy/h	$U_{\text{rel}}=10\%$		
		differentiation		(0.2~34)mm	$U=0.2\text{mm}$		



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14	*X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System	Airkerma	V.R. of X-ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG1078	(0.01~100) mGy	$U_{rel}=5.0\%$		
15	*X-Ray Flaw Detectors	Airkerma rate	V.R. of X-Ray Flaw Detectors JJG40	(0.01~1999.9) cGy/min	$U_{rel}=10\%$		
Special category measurement equipment							
1	*Filter-Type Smoke Meters	FNS	V.R. of Filter-Type Smoke Meters JJG847	(1.0~9.5)BSU	0.21BSU		
2	Electrostatic Discharge Generator	Output Voltage	C.S. for Electrostatic Discharge simulator JJF1397	100V~15kV	$U_{rel}=3\%$		
		Contact Discharge Current		0.1A~30A	$U_{rel}=5\%$		
		risetime		600ps~1.0ns	$U_{rel}=6\%$		
		30ns and 60ns current		0.1A~30A	$U_{rel}=5\%$		
3	*Surge Generator	Open-circuit Voltage Peak Value	C.S. for Surge Simulator JJF1741-2019	100V~4.4kV	$U_{rel}=4\%$		
		Open circuit voltage front time		0.8 μs~1.6 μs	$U_{rel}=7\%$		
		Open circuit voltage duration		16 μs~60 μs	$U_{rel}=5\%$		
		Open circuit voltage under shoot		30V~1.4kV	$U_{rel}=6\%$		



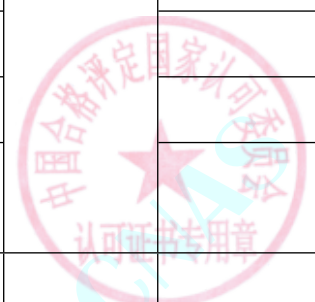
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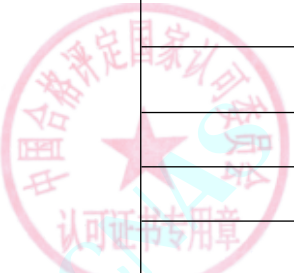
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Peak short-circuit current		100A~4kA	$U_{rel}=4\%$		
		Short circuit current waveform time		1 μs~30 μs	$U_{rel}=7\%$		
		Short circuit current duration		1 μs~50 μs	$U_{rel}=5\%$		
		Short circuit current under shoot		30V~1.4kV	$U_{rel}=6\%$		
4	*Oscillatory Waves Generator	Pulse Voltage	calibration method of signal generator for oscillatory waves immunity test Z/JF-NXX-001	100V~4kV	$U_{rel}=4\%$		
		Risetime		60ns~90ns	$U_{rel}=3\%$		
		Oscillatory Frequency		90kHz~110kHz, 900kHz~1.1MHz	$U_{rel}=2\%$		
		Short-circuit Current		0.1A~400A	$U_{rel}=3\%$		
5	*Pulse magnetic field immunity test equipment	peak current	Calibration method of pulsed magnetic field test equipment Z/JF-HYX-003	1A~2kA	$U_{rel}=3\%$		
		Output current risetime		4.4 μs~8.4 μs	$U_{rel}=3\%$		
		Duration of output current		1 μs~21 μs	$U_{rel}=3\%$		
		magnetic density		0.01V/m~100kV/m(电场) 0.01nT~100mT(磁场)	$U_{rel}=5\%$		
6	*Seawater pH Analyzers	pH Value	Calibration Specification for Seawater pH Analyzers JJF 1792	The instrument: pH,(1~14)	$U=0.02$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		temperature		(5~40) °C	U=0.1°C		
7	*EFT/Burst Generator	Pulse voltage peak	C.S. for Electrical Fast Transient/Burst simulator JJF1672	100V~4.6kV	U _{rel} =4%		
		Pulse rise time		3.5ns~6.5ns	U _{rel} =9%		
		Pulse duration		35ns~150ns	U _{rel} =7%		
		Pulse repetition frequency		1kHz~120kHz	U _{rel} =2%		
		Burst duration		0.6ms~18ms	U _{rel} =2%		
		Burst period		240ms~360ms	U _{rel} =2%		
8	*Voltage Dips, Short Interruptions and Voltage Variations Test Generators	Output Voltage	C.S. for Voltage dips short interruptions and voltage variations Test Generator JJF1673	1V~500V	U _{rel} =2%		
		Load adjustment rate		0.01%~5%	U _{rel} =5%		
		voltage rise time		1 μs~50 μs	U _{rel} =7%		
		voltage drop time		1 μs~50 μs	U _{rel} =7%		
		Voltage overshoot		0.1%~10%	U _{rel} =9%		
		Voltage undershoot		0.1%~10%	U _{rel} =9%		
		duration time		1ms~60s	U _{rel} =5%		
		phase angle		0.1°~360°	U _{rel} =4%		
Interval time	1ms~60s	U _{rel} =5%					

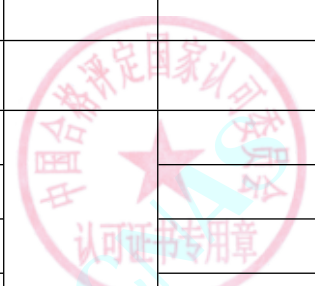


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		Peak impulse current		250A~1000A(Rated current \leq 16A),500A~1000A(Rated current 16A~50A)	$U_{rel}=5\%$		
9	*Blood Cell Analyzers	count	V.R. of Blood Cell Analyzers JJG714	RBC:(2.27~5.23) \times 10 ¹² peace/L	$U_{rel}=3\%$		
				WBC:(3.25~18.0) \times 10 ⁹ peace/L	$U_{rel}=3\%$		
				HGB:(70~166) g/L	$U_{rel}=3\%$		
				PLT:(69.0~470.0) \times 10 ⁹ peace/L	$U_{rel}=4\%$		
10	Battery Internal Resistance Testers	Resistance	C.S. for Battery Internal Resistance Testers JJF1620	1m Ω ~ 10m Ω	$U_{rel}=12\%$		
				1m Ω ~ 10m Ω	$U_{rel}=1.2\%$		
				0.1 Ω ~ 1 Ω	$U_{rel}=0.6\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.12\%$		
				10 Ω ~ 3k Ω	$U_{rel}=0.06\%$		
		DC Voltage		100mV~800V	$U_{rel}=0.002\%$		
11	Leakage Tracking Tester	DC Voltage	C.S. for Proof Tracking Index Testers JJF(Zhe) 1087	100mV~600V	$U_{rel}=0.032\%$		
12	DC electronic load	Voltage	C.S. for DC Electronic Loads JJF1462	0.1V~1000V	$U_{rel}=0.002\%$		
		Current		1mA~10A	$U_{rel}=0.002\%$		
				(10~100) A	$U_{rel}=0.002\%$		
				(100~1000) A	$U_{rel}=0.006\%$		



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		Resistance		0.1 Ω ~ 100k Ω	$U_{rel}=0.006\%$		
XI Radio measurement equipment							
1	*Analogue Oscilloscope	Voltage	V.R. of Analogue Oscilloscope JJG262	5mV~20V (50 Ω)	$U_{rel}=0.16\%$		
		Time		5mV~200V (1M Ω)			
		Bandwidth		20MHz~300MHz	$U_{rel}=2.5\%$		
				300MHz~550MHz	$U_{rel}=3.6\%$		
				550MHz~1GHz	$U_{rel}=4.7\%$		
Rise time	350ps~17.5ns	$U_{rel}=3\%$					
2	*Distortion Meter Calibrator	Distortion	Calibration Specification for Distortion Meters JJF 1852	0.3%~100%	$U_{rel}=1.2\%$		
				0.1%~0.3%	$U_{rel}=5.8\%$		
		Voltage		1mV~100V(1kHz)	$U_{rel}=0.6\%$		
		Frequency Response		1V (10Hz~1MHz)	$U_{rel}=0.7\%$		
3	*Digital Storage Oscilloscope	Voltage	C.S. of Digital Storage Oscilloscope JJF1057	5mV~20V (50 Ω)	$U_{rel}=0.16\%$		
		Time		5mV~200V (1M Ω)			
		Bandwidth		20MHz~300MHz	$U_{rel}=2.5\%$		
				300MHz~550MHz	$U_{rel}=3.6\%$		
				550MHz~1GHz	$U_{rel}=4.7\%$		
Rise time	350ps~17.5ns	$U_{rel}=3\%$					



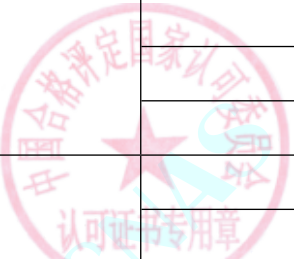
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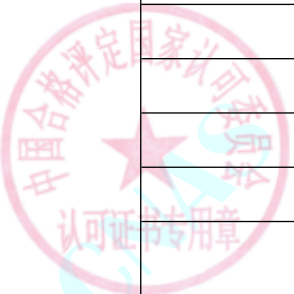
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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	Function Generators	Frequency	V.R. of Function Generators JJG840	10Hz~250MHz	$U_{rel}=1.3 \times 10^{-7}$		
		Amplitude		5mV~100V(10Hz~100kHz)	$U_{rel}=1.2 \times 10^{-3}$		
		DC Voltage		20mV~1000V	$U_{rel}=0.001\%$		
		Sine Wave Total Distortion Factor		0.01%~30%(20Hz~2kHz)	$U_{rel}=5\%$		
5	Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	Dielectric Loss Ffactor	C.S. for Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers JJF1618	0.001%~0.01%	$U_{rel}=12\%$		
				0.01%~0.1%	$U_{rel}=1.2\%$		
				0.1%~10%	$U_{rel}=0.6\%$		
		Capacitance		25pF,50pF,100pF,200pF	$U_{rel}=0.06\%$		
		Volume Resistivity		2MΩ.m~20MΩ.m	$U_{rel}=0.24\%$		
				20MΩ.m~200MΩ.m	$U_{rel}=0.6\%$		
				200MΩ.m~2GΩ.m	$U_{rel}=1.2\%$		
				2GΩ.m~400GΩ.m	$U_{rel}=2.4\%$		
AC and DC Voltage	10V~5kV(45Hz~65Hz)	$U_{rel}=0.36\%$					
	10V~1kV	$U_{rel}=0.012\%$					
6	High Voltage Dielectric Loss Tester	Dielectric Loss Ffactor	V.R. of High Voltage Dielectric Loss Tester JJG1126	0.001%~0.01%	$U_{rel}=12\%$		
				0.01%~0.1%	$U_{rel}=1.2\%$		
				0.1%~10%	$U_{rel}=0.6\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Capacitance		100pF~500nF	$U_{rel}=0.06\%$		
7	Winding Deformation Tester	Frequency	Function Generators Z/JF-D CD-002	1kHz~2MHz	$U_{rel}=1.2 \times 10^{-7}$		
8	AC resistance box	Resistance	C.S. for A.C.Rwsitance Boxes JJF1636	1mΩ~100mΩ (50Hz~10kHz)	$U_{rel}=1.3\%$		
				100mΩ~1Ω (50Hz~10kHz)	$U_{rel}=0.13\%$		
				1Ω~100kΩ (50Hz~10kHz)	$U_{rel}=0.025\%$		
9	Capacitor(box)	Capactiance	V.R. of Standard Capacitors JJG183	10nF~10pF(1kHz),10pF~1mF(120Hz~1kHz)	$U_{rel}=0.025\%$		
10	Inductor(box)	Inductance	V.R. of Standard Inductors JJG726	100 μ H~1H(1kHz)	$U_{rel}=0.025\%$		
11	LCR tester	Inductance	C.S. of Digital LCR Measuring Instrument JJF(Ji)159	1 μ H~10 μ H(1kHz)	$U_{rel}=6.5\%$		
				10 μ H~100 μ H(1kHz)	$U_{rel}=0.65\%$		
				100 μ H~1mH(1kHz)	$U_{rel}=0.12\%$		
				1mH~1H(1kHz)	$U_{rel}=0.06\%$		
		Capactiance		1pF~10pF(1kHz)	$U_{rel}=6\%$		
				10pF~100pF(1kHz)	$U_{rel}=0.65\%$		
				100pF~1 μ F(1kHz)	$U_{rel}=0.12\%$		
				1 μ F~1F(100Hz,120Hz,1kHz)	$U_{rel}=0.025\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Resistance	C.S. for Capacitive Current Meters JJF (Zhe) 1137	1m Ω ~ 100m Ω (50Hz~10kHz)	$U_{rel}=1.2\%$		
				100m Ω ~ 1 Ω (50Hz~10kHz)	$U_{rel}=0.6\%$		
				1 Ω ~ 10 Ω (50Hz~10kHz)	$U_{rel}=0.13\%$		
				10 Ω ~ 100 Ω (50Hz~10kHz)	$U_{rel}=0.06\%$		
				100 Ω ~ 100k Ω (50Hz~10kHz)	$U_{rel}=0.013\%$		
12	Capacitance current tester	Capactiance	C.S. for Capacitive Current Meters JJF (Zhe) 1137	100pF ~ 250 μ F(45Hz~65Hz)	$U_{rel}=0.05\%$		



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