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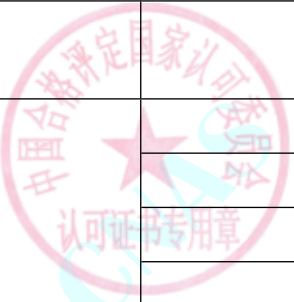
Registration No. CNAS L6215

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

Effective Date: 2022-11-07 Expiry Date: 2028-05-22

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
Geometric Sense							
1	*Extensometer	Length	V.R.for Extensometer JJG762	(0~0.3)mm	$U=0.6 \mu m$		
				(>0.3~25)mm	$U_{rel}=0.5\%$		
2	Level Rules	Angle	C.S.for Level Rules JJF1085	(0.5~10)mm/m	$U_{rel}=6.8\%$		
3	Roughness Comparison Specimens	Roughness	C.S.of Roughness Comparison Specimens JJF1099	$Ra:(0.1\sim10.0) \mu m$	$U_{rel}=7\%$		
4	Standard Ring Gauge	Length	V.R.of Standard Ring Gauge JJG894	$D:(3\sim10)mm$	$U=0.8 \mu m$		
				$D:(>10\sim50)mm$	$U=0.9 \mu m$		
				$D:(>50\sim100)mm$	$U=1.0 \mu m$		
				$D:(>100\sim200)mm$	$U=1.6 \mu m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
5	Wedge-Shape Filler Gauges	Length	C.S.for Wedge-Shape Filler Gauges JJF1548	Model II:(0~15)mm	$U=14\text{ }\mu\text{m}$		
				Model I:(0~60)mm	$U=11\text{ }\mu\text{m}$		
6	*Biological Microscopes	Length	C.S.for Biological Microscopes JJF1402	(0~1)mm	$U=2\text{ }\mu\text{m}$		
				Objective:(5~100)×	$U_{\text{rel}}=0.8\%$		
7	Tape for Measuring Circumference and Diameter of Flexible Part	Length	V.R.of Tape for Measuring Circumference and Diameter of Flexible Part JJG670	(0~1000)mm	$U=0.1\text{mm}$		
				(>1000~2000)mm	$U=0.2\text{mm}$		
8	Dial Test Indicator	Length	V.R.of Dial Test Indicator JJG35	Graduation value/Resolution 0.001mm:(0~0.14)mm	$U=0.7\text{ }\mu\text{m}$		
				Graduation value/Resolution 0.002mm:(0~0.4)mm	$U=1.3\text{ }\mu\text{m}$		
				Resolution 0.01mm:(0~1)mm	$U=10\text{ }\mu\text{m}$		
				Graduation value 0.01mm:(0~1)mm	$U=4\text{ }\mu\text{m}$		
9	Screw Templates	Length	V.R.of Screw Templates JJG60	$P:(0.4\sim 10)\text{mm}$	$U=2.5\mu\text{m}$		
		Angle		$(55\sim 60)^{\circ}$	$U=4'$		
10	Comparators of Machine Type	Length	V.R.of Comparators of Machine Type JJG39	Graduation value $0.5\text{ }\mu\text{m}:(-25\sim +25)\text{ }\mu\text{m}$	$U=0.1\text{ }\mu\text{m}$		
				Graduation value $1\text{ }\mu\text{m}:(-100\sim +100)\text{ }\mu\text{m}$	$U=0.3\text{ }\mu\text{m}$		
				Graduation value $10\text{ }\mu\text{m}:(-500\sim +500)\text{ }\mu\text{m}$	$U=2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
11	Microcator	Length	V.R.of Microcator JJG118	Graduation value $0.5 \mu\text{m}$: $(-30 \sim +30) \mu\text{m}$	$U=0.06 \mu\text{m}$		
				Graduation value $1 \mu\text{m}$: $(-100 \sim +100) \mu\text{m}$	$U=0.11 \mu\text{m}$		
				Graduation value $2 \mu\text{m}$: $(-100 \sim +100) \mu\text{m}$	$U=0.3 \mu\text{m}$		
				Graduation value $5 \mu\text{m}$: $(-150 \sim +150) \mu\text{m}$	$U=0.6 \mu\text{m}$		
12	*Current Calipers	Length	V.R.of Current Calipers JJG30	$(0 \sim 500)\text{mm}$	$U=0.01\text{mm}$		
				$(> 500 \sim 1000)\text{mm}$	$U=0.02\text{mm}$		
				$(> 1000 \sim 2000)\text{mm}$	$U=0.03\text{mm}$		
13	*height caliper	Length	V.R.of Height Caliper JJG31	$(0 \sim 300)\text{mm}$	$U=0.01\text{mm}$		
				$(> 300 \sim 1000)\text{mm}$	$U=0.02\text{mm}$		
				$(> 1000 \sim 2000)\text{mm}$	$U=0.04\text{mm}$		
14	*micrometer	Length	V.R.of Micrometer JJG21	Outside Micrometer: $(0 \sim 50)\text{mm}$	$U=0.7 \mu\text{m}$		
				Outside Micrometer: $(50 \sim 100)\text{mm}$	$U=1 \mu\text{m}$		
				Outside Micrometer: $(100 \sim 500)\text{mm}$	$U=2 \mu\text{m}$		
				Check Quantity Rods: $(25 \sim 475)\text{mm}$	$U=0.5 \mu\text{m} + 2 \times 10^{-6}L$		



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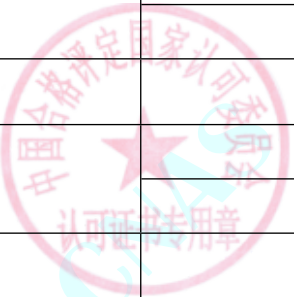
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Wall Thickness or Plate Thickness Micrometer:(0~25)mm	$U=2 \mu m$		
15	Depth micrometer	Length	V.R.of Depth Micrometers JJG24	(0~100)mm	$U=1.3 \mu m$		
				(> 100~300)mm	$U=1.7 \mu m$		
16	Micrometers with Dial Comparator and Indication Snap Gauge	Length	V.R.of Micrometers with Dial Comparator and Indication Snap Gauge JJG26	Micrometers with Dial Comparator:(0~50)mm	$U=0.6 \mu m$		
				Micrometers with Dial Comparator:(50~100)mm	$U=0.9 \mu m$		
				Micrometers with Snap Gauge :(0~100)mm	$U=0.6 \mu m$		
17	Internal measuring micrometer	Length	C.S.for Micrometers of Measuring Inside Dimension JJF1411	Internal Measuring Micrometer:(5~50)mm	$U=2 \mu m$		
				Internal Measuring Micrometer:(50~100)mm	$U=3 \mu m$		
				Internal Measuring Micrometer:(100~200)mm	$U=4 \mu m$		
				Three-Point Inside Micrometer:(3~100)mm	$U=1 \mu m$		
				Three-Point Inside Micrometer:(100~200)mm	$U=2 \mu m$		
				Three-Point Inside Micrometer:(200~300)mm	$U=3 \mu m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
18	*Common Normal Micrometer	Length	V.R.of Common Normal Micrometer JJG82	(0~50)mm	$U=1\text{ }\mu\text{m}$		
				(50~200)mm	$U=2\text{ }\mu\text{m}$		
19	*Micrometers with Gauge	Length	V.R.of Micrometers with Gauge JJG427	(0~100)mm	$U=1\text{ }\mu\text{m}$		
20	Screw Thread Micrometers	Length	V.R.of Screw Thread Micrometers JJG25	(0~50)mm	$U=4\text{ }\mu\text{m}$		
21	Micrometers with Prismatically Arranged Measuring Faces	Length	V.R.of Micrometers with Prismatically Arranged Measuring Faces JJG182	(1~80)mm	$U=1.3\text{ }\mu\text{m}$		
22	*Large Dimension Outside Micrometers	Length	C.S.for Large Dimension Outside Micrometers JJF1088	(500~2000)mm	$U=1\text{ }\mu\text{m}+5\times 10^{-6}L$		
				Check Quantity Rods:(525~2000)mm	$U=0.5\text{ }\mu\text{m}+2\times 10^{-6}L$		
23	Wooden Rule(Wooden Folded Rule)	Length	V.R.of Wooden Rule(Wooden Folded Rule) JJG2	(0~3000)mm	$U=0.2\text{mm}$		
24	Steel Rule	Length	V.R.of Steel Rule JJG1	(0~1000)mm	$U=0.05\text{mm}$		
				(>1000~1500)mm	$U=0.08\text{mm}$		
				(>1500~2000)mm	$U=0.10\text{mm}$		
25	Steel Measuring Tape	Length	V.R.of Steel Measuring Tape JJG4	(0~100)m	$U=0.1\text{mm}+2\times 10^{-4}L$		
26	Feeler Gauges	Length	V.R.of Feeler Gauges JJG62	(0.02~0.3)mm	$U=2\text{ }\mu\text{m}$		
				(>0.3~3)mm	$U=3\text{ }\mu\text{m}$		
27	Gear Tooth Calipers	Length	C.S.for Gear Tooth Calipers JJF1072	$M\cdot$:(1~50)mm	$U=0.01\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
28	Straight Edges	Length	C.S.for Straight Edges JJF1097	(300~6300)mm	$U=0.3 \mu m+10^{-6}L$		
29	Pi Tapes	Length	C.S.for Pi Tapes JJF1423	D:9mm~16m	$U=0.01mm+2 \times 10^{-5}D$		
30	Fiber Tapes And Measuring Ropes	Length	V.R.of Fiber Tapes And Measuring Ropes JJG5	(0~200)m	$U=0.2mm+1.3 \times 10^{-4}L$		
31	General Bevel Protractors	Angle	C.S.for General Bevel Protractors JJF1959	Graduation Value2 ' : (0~320) ⁶	$U=2'$		
				Graduation Value5 ' : (0~360) ⁶	$U=5'$		
32	square	Verticality	V.R.of Squares JJG7	Cylindrical squareH:(0~600)mm	$U=0.8 \mu m+4 \times 10^{-6}H$		
				Knife edge SquareH:(0~200)mm	$U=0.8 \mu m+10^{-6}H$		
				Rectangular squareH:(0~200)mm	$U=0.5 \mu m+10^{-6}H$		
				Wide-Seated squareH:(0~600)mm	$U=0.8 \mu m+4 \times 10^{-6}H$		
				Triangular squareH:(0~600)mm	$U=0.8 \mu m+4 \times 10^{-6}H$		
				Linear squareH:(0~600)mm	$U=0.05mm$		
		Length		Linear square:(0~600)mm	$U=0.10mm$		
33	Square Gauge	Perpendicularity	V.R.of Square Gauge JJG1046	H:(100~630)mm	$U=0.8 \mu m+4 \times 10^{-6}H$		
34	*Box Plate	Parallelism	V.R.of Box Plate JJG194	H:(100~400)mm	$U=2 \mu m$		
35	Straight Edge	straightness	V.R.of Straight Edge JJG63	(75~300)mm	$U=0.5 \mu m+2 \times 10^{-6}L$		
36	Callipers for Welding	Angle	V.R.of Callipers for Welding Inspection JJG704	(0~90) ⁶	$U=8'$		

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	Inspection	Length		(0~60)mm	$U=0.03\text{mm}$		
37	Dial Gauges(dial and digital)	Length	V.R.of Dial Gauges(dial and digital) JJG34	Graduation value0.01mm:(0~5)mm	$U=4\text{ }\mu\text{m}$		
				Graduation value0.01mm:(0~10)mm	$U=5\text{ }\mu\text{m}$		
				Resolution 0.01mm:(0~ 10)mm	$U=10\text{ }\mu\text{m}$		
				Graduation value0.001mm:(0~5)mm	$U=2\text{ }\mu\text{m}$		
				Resolution 0.001mm:(0~ 5)mm	$U=2\text{ }\mu\text{m}$		
				Resolution 0.001mm:(0~ 10)mm	$U=3\text{ }\mu\text{m}$		
38	Wide Range Dial Gauges	Length	V.R.of Wide Range Dagues Reading in 0.01mm JJG379	Graduation value0.01mm:(0~30)mm	$U=7\text{ }\mu\text{m}$		
				Graduation value0.01mm:(0~50)mm	$U=10\text{ }\mu\text{m}$		
				Resolution 0.01mm:(0~ 100)mm	$U=10\text{ }\mu\text{m}$		
39	*Thickness Gauge	Length	C.S.for Thickness Gauges JJF1255	Graduation value0.1mm:(0~30)mm	$U=0.02\text{mm}$		
				Graduation value0.01mm:(0~30)mm	$U=6\text{ }\mu\text{m}$		
				Graduation value0.002mm:(0~ 10)mm	$U=3\text{ }\mu\text{m}$		
				Graduation value0.001mm:(0~1)mm	$U=2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Resolution 0.01mm:(0~30)mm	$U=10 \mu m$		
				Resolution 0.001mm:(0~30)mm	$U=3 \mu m$		
40	Depth Dial Gauge	Length	V.R.of Depth Gauge Reading in 0.01mm JJG830	Graduation value0.001mm:(0~30)mm	$U=2.3 \mu m$		
				Graduation value0.01mm:(0~100)mm	$U=6 \mu m$		
				Resolution 0.001mm:(0~50)mm	$U=2 \mu m$		
				Resolution 0.01mm:(0~100)mm	$U=0.01mm$		
41	Bore Dial Indicator	Length	C.S.for Bore Dial Indicators JJF1102	Graduation value0.01mm:(2~18)mm	$U=4 \mu m$		
				Graduation value0.01mm:(18~50)mm	$U=6 \mu m$		
				Graduation value0.01mm:(50~450)mm	$U=8 \mu m$		
				Graduation value0.001mm:(10~400)mm	$U=2 \mu m$		
42	*Snap Gauge Reading in 0.01mm	Length	V.R.of Snap Gauges Reading in 0.01mm JJG109	(0~100)mm	$U=3 \mu m$		
				(> 100~200)mm	$U=4 \mu m$		
43	Dial Snap Gauges	Length	C.S.for Dial Snap Gauges JJF1253	Span:(5~100)mm	$U=5 \mu m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
44	Radius Gauge	Length	V.R.of Radius Gauges JJG58	R:(1~10)mm	U=4μm		
				R:(>10~25)mm	U=8μm		
45	Cylindrical thread Gauges	Length	C.S.for Cylindrical Thread Gauges JJF1345	Plug Gauge :M(1~300)mm	U=3.0 μ m		
				Ring Gauge :M(2.5~300)mm	U=4.0 μ m		
				Pitch:(0.2~6.35)mm	U=1.5 μ m		
		Angle		Lateral angle of tooth:(0~30)°	U=2.2'		
46	Gauge Blocks	Length	V.R.of Gauge Blocks JJG146	(0.5~100)mm	U=0.15 μ m +1.5×10 ⁻⁶ l _n		
				(>100~500)mm	U=0.38 μ m +3.8×10 ⁻⁶ l _n		
47	Plain Limit Gauges	Length	V.R.of Plain Limit Gauges JJG343	External Dimension: (1~100)mm	U=1.0 μ m		
				External Dimension:(>100~260)mm	U=1.2 μ m		
				Inside Dimension :(3~50)mm	U=1.0 μ m		
				inside dimension :(>50~150)mm	U=1.3 μ m		
				inside dimension: (>150~200)mm	U=1.5 μ m		
48	Cylindrical Measuring Pin	Length	C.S.for Cylindrical Measuring Pin JJF1207	three-wire Set: Φ(0.118~6.585)mm	U=0.3 μ m		
				Pin Gage: Φ(0.1~25)mm	U=0.5 μ m		
49	*Height Measuring Instrument with	Length	C.S.for Height Measuring Instrument with Digital	(0~400)mm	U=1.0 μ m		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Digital Display		Display JJF1254	(>400~600)mm	$U=1.2 \mu m$		
				(>600~1000)mm	$U=1.8 \mu m$		
50	*Coordinate Measuring Machines	Length	C.S.for Coordinate Measuring Machines JJF1064	(0~1500)mm	$U=0.8 \mu m + 2.2 \times 10^{-6}L$		
				(>1.5~8)m	$U=2 \mu m + 1 \times 10^{-6}L$		
				Detection error: $\phi 25mm$	$U=0.2 \mu m$		
51	*Imaging Probe Measuring Machines	Length	C.S.for Imaging Probe Measuring Machines JJF1318	X、Y Axis:(0~500)mm	$U=1.2\mu m + 1.8 \times 10^{-6}l_n$		
				X、Y Axis: (>500~1000)mm	$U=0.5\mu m + 2.8 \times 10^{-6}l_n$		
				Z Axis: (0~200)mm	$U=1.8\mu m$		
52	*Contact(Stylus) Instruments of Surface Roughness Measurement	Roughness	C.S.for Contact(Stylus) Instruments of Surface Roughness Measurement by Profile Method JJF1105	$Ra:(0.02 \sim 10) \mu m$	$U_{rel}=7\%$		
53	*Surface Plates	Length	V.R.of Surface Plates JJG117	(100×100~400×400)mm	$U=1.0\mu m$		
				(>400×400~800×600)mm	$U=1.7\mu m$		
				(>800×600~1600×1000)mm	$U=2.5\mu m$		
				(>1600×1000~2500×1600)mm	$U=4.5\mu m$		
				(>2500×1600~5000×3000)mm	$U=13\mu m$		
54	*Projectors	Length	C.S.for Projectors JJF1093	(0~500)mm	$U=1.2\mu m + 1.8 \times 10^{-6}L$		
		Angle		(0~360)°	$U=2'$		



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55	*Toolmaker's Microscope	Length	V.R.of Toolmaker's Microscope JJG56	(0~200)mm	$U=1.0\mu\text{m}$		
56	*Measuring Microscope	Length	V.R.of Reading Microscope and Measuring Microscope JJG571	Graduation value 0.01mm: (0~50)mm	$U=3\mu\text{m}$		
				Graduation value 0.001mm: (0~50)mm	$U=1.6\mu\text{m}$		
57	*Metallographic Microscope	Length	C.S for Metallurgical Microscopes JJF1914	(0~1)mm	$U=1.2\mu\text{m}$		
		Zoom time		Objective: (5~100)×	$U_{\text{rel}}=4\%$		
58	*Length Measuring Instrument	Length	C.S.for Length Measuring Instrument JJF1189	(0~100)mm	$U=0.2\mu\text{m}+2\times 10^{-6}l_n$		
				(>100~400)mm	$U=0.6\mu\text{m}+3\times 10^{-6}l_n$		
59	*Optimeter	Length	V.R.of Optimeter JJG45	(-100~+100) μm	$U=0.07\mu\text{m}$		
60	Frame Levels and Shaft Levels	Angle	C.S.for Frame Levels and Shaft Levels JJF1084	Graduation value: (0.02~0.10)mm/m	$U_{\text{rel}}=6.8\%$		
61	Fineness of Grind Gage	Length	V.R.of Fineness of Grind Gage JJG905	(0~150) μm	$U=0.5\mu\text{m}$		
62	*Measurement Standard Instrument of Roundness and Cylindricity	Roundness	V.R.of Measurement Standard Instrument of Roundness and Cylindricity JJG429	Roundness Measuring Instrument: (1.40~18.22) μm	$U_{\text{rel}}=6\%$		
				Cylindricity Meter: ($\phi 75 \times 300$)mm	$U_{\text{rel}}=6\%$		
63	*Laser Diameter Measuring Gauges	Length	C.S.for Laser Diameter Measuring Gauges JJF1250	(0~30)mm	$U=1.5\mu\text{m}$		
64	*X-Ray Fluorescence Coating Thickness Instruments	Length	C.S.for X-Ray Fluorescence Coating Thickness Instruments JJF1306	(0~20) μm	$U_{\text{rel}}=7\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
65	*Articulated Arm Coordinate Measuring Machines	Length	C.S.for Articulated Arm Coordinate Measuring Machines JJF1408	(0~3)m	$U=5\text{ }\mu\text{m}+5\times 10^{-6}L$		
66	*Contact(Stylus) Surface Contour Tester	Length	C.S.for Contact(Stylus) Surface Contour Tester JJF(Min)1043	(0~50)mm (>50~100)mm	$U=1.7\mu\text{m}$ $U=1.8\mu\text{m}$		
67	*Elongation tester	Length	Verification procedure for test equipment of enamelled winding wire Part3:Elongation tester JB/T4279.3	(0.1~60)%	$U_{\text{rel}}=0.3\%$		
68	*Alterable Compression Thickness Tester	Length	V.R.of Alterable Compression Thickness Tester JJG(LI)50.3	(0~3)mm	$U=4\text{ }\mu\text{m}$		
69	Tester for Dial Indicator Gauges	Length	V.R.of Tester for Dial Indicator Gauges JJG201	(0~50)mm	$U=0.6\mu\text{m}$		
70	*Cable Length Meter	Length	V.R.of Cable Length Meter JJG987	(0.1~10000)m	$U_{\text{rel}}=0.15\%$		
71	Test Sieves	Length	C.S.for Test Sieves JJF1175	(0.02~5)mm (>5~125)mm	$U=5\text{ }\mu\text{m}$ $U=0.03\text{mm}$		
72	*Ultrasonic Thickness Instrument	Length	C.S.for Ultrasonic Thickness Instrument JJF1126	$H:(0.5\sim 200)\text{mm}$	$U=0.02\text{mm}+1\times 10^{-3}H$		
73	*Pneumatic Measuring Instrument for micrometers	Length	V.R.of Pneumatic Measuring Instrument for micrometers JJG356	$(-80\sim +80)\text{ }\mu\text{m}$	$U=0.4\text{ }\mu\text{m}$		
74	*Concentricity Testers	Length	C.S.for Concentricity Testers JJF1109	(0~1000)mm	$U=1.7\text{ }\mu\text{m}$		



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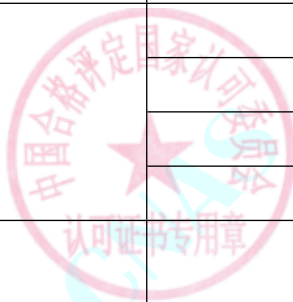
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
75	*Thickness gauge	Length	V.R.of Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG818	$H:(10.1 \sim 2000) \mu m$	$U=0.3 \mu m + 6 \times 10^{-3}H$	No Detect : A class	
				Film Thickness $H:(0 \sim 50) \mu m$	$U=0.5 \mu m$		
				Film Thickness $H:(>50 \sim 20000) \mu m$	$U_{rel}=1\%$		
76	*Drop test machine for cement sacks	Length	V.R.of Drop test machine for Packages JJG(yue)045	(0~2000)mm	$U=0.7mm$		
77	*Digital Step Gauge	Length	C.S.for Digital Step Gauge JJF(Zhe)1130	(-50~+50)mm	$U=0.01mm$		
78	Paint film scribe	Length	C.S.for Paint film scribe JJF(Wan)53	Blade Spacing:(1~3)mm	$U=3 \mu m$		
79	*Solder Ppaste Thickness Gauge	Length	C.S.for Solder Ppaste Thickness Gauge JJF(Su)191	(20~400) μm	$U_{rel}=4.2\%$		
80	*Stereomicroscope	Length	C.S.for Stereomicroscope JJF(Min)1063	Objective:(0.5~8)x	$U_{rel}=1.5\%$		
81	Internal Micrometers	Length	V.R. of Internal Micrometers JJG22	(50~2000)mm	$U=2.0 \mu m + 5 \times 10^{-6}L$		
82	*Linear Displacement Sensors	Length	C.S.for Linear Displacement Sensors JJF1305	Inductance Type:(0.5~600)mm	$U_{rel}=0.1\%$	Accredited only for Inductance Type、Stayguy (Guyrope) Type	
				Stayguy (Guyrope) Type:(20~500)mm	$U_{rel}=0.15\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
83	Gauges for Measuring Distance between Inside Rim Faces of Wheels of Railway Locomotives and Vehicles	Length	V.R. of Gauges for Measuring Distance between Inside Rim Faces of Wheels of Railway Locomotives and Vehicles JJG1153	(1345~1365)mm	$U=0.05\text{mm}$		
84	Wet Film Thickness Gauges	Length	C.S.for Wet Film Thickness Gauges JJF1484	Comb Gauge:(5~100) μm	$U=1.2\ \mu\text{m}$		
				Comb Gauge:(>100~3000) μm	$U_{\text{rel}}=1.7\%$		
				Wheel Gauge:(0~50) μm	$U=1\ \mu\text{m}$		
				Wheel Gauge:(>50~125) μm	$U=2\ \mu\text{m}$		
				Wheel Gauge:(>125~250) μm	$U=3\ \mu\text{m}$		
				Wheel Gauge:(>250~1500) μm	$U=6\ \mu\text{m}$		
85	*Projectors for Detecting The Notch of Test Sample	Radius	C.S.for Projectors for Detecting The Notch of Test Sample JJF(Zhe)1133	(0~15)mm	$U=5\ \mu\text{m}$		
		Angle		(0~90)°	$U=2'$		
		Magnification		Objective:(1~60)X	$U_{\text{rel}}=0.34\%$		
		Length		(0~50)mm	$U=1.0\ \mu\text{m} + 5 \times 10^{-6}L$		
86	*Tool Presetting and Measuring Instruments	Length	V.R. of Tool Presetting and Measuring Instruments JJG938	(0~1000)mm	$U=5\ \mu\text{m} + 2.2 \times 10^{-5}L$		



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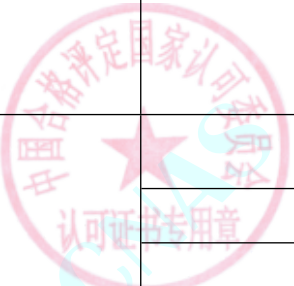
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
87	Wedge-feet Calibrator for Micrometers	Length	V.R. of Wedge-feet Calibrator for Micrometers JJG 525	Graduation value $1 \mu\text{m}$ $\text{m}:(0 \sim 400) \mu\text{m}$	$U=0.3 \mu\text{m}$		
88	Coating Flexibility Testers	Length	C.S. for Coating Flexibility Testers	Diameter: $(4 \sim 15)\text{mm}$	$U=8 \mu\text{m}$		
		Length	JJF(Petrochemical)006	Thickness: $(1 \sim 3)\text{mm}$	$U=0.04\text{mm}$		
89	Digital Display Wide Range Dauges Reading in 0.001mm	Length	V.R. of Digital Display Wide Range Dauges Reading in 0.001mm JJG(JI)135	Resolution $0.001\text{mm}:(0 \sim 50)\text{mm}$	$U=2 \mu\text{m}$		
				Resolution $0.005\text{mm}:(0 \sim 50)\text{mm}$	$U=4 \mu\text{m}$		
90	Combined Type Angle Rules	Length	C.S. for Combined Type Angle Rules JJF1132	$(0 \sim 300)\text{mm}$	$U=0.05\text{mm}$		
		Angle		$(0 \sim 180)^\circ$	$U=4'$		
91	Straight Cylindrical Involute Spline Gauges	Length	C.S. for Straight Cylindrical Involute Spline Gauges JJF1557	Plug Gauge Tooth Thickness: $(10 \sim 180)\text{mm}$	$U=0.6 \mu\text{m}+5 \times 10^{-6}L$	Accredited only for plug guage tooth thickness, major diameter	
92	*Point Outside Micrometer	Length	C.S. for Point Outside Micrometers JJF(zhe)1045	$(0 \sim 150)\text{mm}$	$U=1 \mu\text{m}+4 \times 10^{-6}L$		
93	*Blade Micrometer	Length	C.S. for Blade Micrometer JJF(zhe)1090	$(0 \sim 200)\text{mm}$	$U=1 \mu\text{m}+4 \times 10^{-6}L$		
94	*Surface Profile Gauge	Length	C.S. for Surface Profile Gauges JJF 1476	$(0 \sim 6.5)\text{mm}$	$U=1.7 \mu\text{m}$		
95	Hand-held Laser Distance Meter	Length	V.R. of Hand-held Laser Distance Meters JJG 966	$D:(0 \sim 50)\text{m}$	$U=1.7\text{mm}+1.7 \times 10^{-5}D$		
96	Terrstrial Laser Scanner	Length	C.S. for Terrstrial Laser Scanners JJF 1406	$(0 \sim 800)\text{mm}$	$U=0.01\text{mm}$		
97	Conductor Percentage	Length	V.R. of Conductor Percentage Elongation Instruments	$(1 \sim 300)\text{mm}$	$U_{\text{rel}}=0.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Elongation Instrument	Speed	JJG(yue)005	(0~7)mm/s	$U=0.2\text{mm/s}$		
		Elongation		(0.1~100)%	$U=0.5\%$		
98	*Instrument for measuring contact angel with image method	Angle	C.S.for Instrument for measuring contact angel with image methods JJF(su)219	(6~180)°	$U=0.3^\circ$		
99	*Center Distance Calipers	Length	C.S.for Center Distance Calipers JJF(ji)180	(0~500)mm	$U=0.02\text{mm}$		
				(> 500~1000)mm	$U=0.05\text{mm}$		
				(> 1000~2000)mm	$U=0.06\text{mm}$		
100	Blocks used in Ultrasonic Testing	Length	C.S.for Blocks used in Ultrasonic Testing JJF 1487	(0~500)mm	$U=10\text{ }\mu\text{m}$		
		Form and position error		(0~500)mm	$U=10\text{ }\mu\text{m}$		
101	*Mould	Length	C. S. for Moulds JJF 1307	(0~500)mm	$U=0.05\text{mm}$		
102	Instruments of Thread Inspection of Casing, Tubing, Line Pipe and New Rotary Shouldered Connection	Length	C.S. for Instruments of Thread Inspection of Casing, Tubing, Line Pipe and New Rotary Shouldered Connection JJF 1063	(0~150)mm	$U=5\text{ }\mu\text{m}$		
103	*Length Measuring Machine	Length	Calibration Specification for Length Measuring Maching JJF 1066	Micron Scale:(-100~+100) μm	$U=0.1\text{ }\mu\text{m}$		
				MM scale:(0~100)mm	$U=1.0\text{ }\mu\text{m}$		
				Decimeter Scale:(0~3000)mm	$U=0.5\text{ }\mu\text{m}+2\times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
104	Track Gages for Standard Gauge Railway	Length	V.R of Track Gage for Standard Gauge Railway JJG 219	Gauge Gauge:(1410~1470)mm	$U=0.1\text{mm}$		
				Check Interval:(1381~1401)mm	$U=0.1\text{mm}$		
				Backrest Distance:(1338~1358)mm	$U=0.1\text{mm}$		
105	Measuring Instrument for Wheel-Diameter of Railway Locomotives and Vehicles.Part 2:Measuring Tools for Wheel-Diameter	Length	V.R of Measuring Instrument for Wheel-Diameter of Railway Locomotives and Vehicles.Part 2:Measuring Tools for Wheel-Diameter JJG 1081.2	(760~860)mm	$U=0.15\text{mm}$		
106	*Railway Switch Offset Rules	Length	V.R of Railway Switch Offset Rules JJG 1108	(100~1290)mm	$U=0.15\text{mm}$		
107	*Wear Tools for Rail	Length	V.R of Wear Tools for Rail JJG 1127	(0~25)mm	$U=0.06\text{mm}$		
108	*Wheel-Checker for Railway Locomotives and Vehicles	Length	V.R of Wheel-Checker for Railway Locomotives and Vehicles JJG 1080	Measuring Ruler for Flange Thickness:(20~35)mm	$U=0.06\text{mm}$		
				Measuring Ruler for Flange Height:(24~38)mm	$U=0.06\text{mm}$		
109	*Calibrators of Wheel-Checkers for Railway Locomotives and Vehicles	Length	V.R of Calibrators of Wheel-Checkers for Railway Locomotives and Vehicles JJG 1155	(10~95)mm	$U=6\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
110	Standard Ball Bars	Length	C.S for Standard Ball Bars JJF 1859	(0~800)mm	$U=2.6 \mu m$		
111	*Rubber and Plastic Film Gage	Length	C.S.for rubber and plastic film gage JJF1488	(0~30)mm	$U=5 \mu m$		
112	*Optical 3D Measuring Systems Based on Structured Light Scanning	Length	C.S.for Optical 3D Measuring Systems Based on Structured Light Scanning JJF1951	Ball Shape Detection Error and Dimensional Error: $\phi 38mm$	$U=7 \mu m$	Only Calibration: Multi-View System	
		Length		Ball Center Distance:(26~800)mm	$U=0.020mm$		
113	*Chain Length Measuring Machine	Length	C.S.for Chain Length Measuring Machine JJF(zhe)1136	(0~6000)mm	$U=6 \mu m+3 \times 10^{-3}L$		
114	Inductive Micrometers	Length	C.S for Inductive Micrometers JJF 1331	Resolution $0.01 \mu m$:(-10~+10) μm	$U=0.03 \mu m$		
				Resolution $0.1 \mu m$:(-100~+100) μm	$U=0.1 \mu m$		
				Resolution $1 \mu m$:(-1000~+1000) μm	$U=1 \mu m$		
115	Clinometers	Angle	C.S for Clinometers JJF 1915	Digital inclinometer:(-90~+90)°	$U=0.01^\circ$	只校:Digital inclinometer	
116	*Electrolytic (Coulometric) Coating Thickness Instruments	Thickness	C.S.for Electrolytic (Coulometric) Coating Thickness Instruments JJF1707	(0.2~15) μm	$U_{rel}=5.5\%$		
Mechanics							
1	*Pressure Transmitters	Pressure	V. R. of Pressure Transmitters JJG 882	(-0.1~250)MPa	$U=0.08\%FS$		
2	*Pressure Controllers	Pressure	V. R. of Pressure Controllers JJG 544	(-0.1~60)MPa	$U=0.08\%FS$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
3	Hydraulic Jacks	Force value	V. R. of Hydraulic Jacks JJG 621	(1~3000)kN	$U_{rel}=1.2\%$		
4	*Constant Acceleration Centrifugal Test Machines	Rotating velocity	V. R. of Constant Acceleration Centrifugal Test Machines JJG 972	(50~30000)r/min	$U_{rel}=0.5\%$		
5	*Plastic Rock Well Hardness Testing Machine	Hardness	V. R. of Plastic Rock Well Hardness Testing Machine JJG 884	(70~94)HRE	$U=0.8HRE$		
				(100~120)HRL	$U=0.8HRL$		
				(114~125)HRR	$U=0.6HRR$		
6	*Electronic Balance	Mass	V. R. of Electronic Balance JJG 1036, C. S. for Electronic Balances JJF 1847	1mg~10g	$U=(0.004\sim0.03)mg$		
				(10~500)g	$U=(0.03\sim0.3)mg$		
				(>0.5~6)kg	$U=(1.1\sim12)mg$		
				(6~80)kg	$U=12mg\sim0.5g$		
				(80~2000)kg	$U=(0.5\sim65)g$		
7	Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	C. S. for Pressure Regulators with Bourdon Tube Pressure Gauge JJF 1328	(0.1~60)MPa	$U=0.93\%FS$		
8	*Electronic Universal Testing Machine	Force value	V. R. of Electronic Universal Testing Machine JJG 475	1N~100kN	$U_{rel}=0.2\%$		
				(>100~1000)kN	$U_{rel}=0.4\%$		
		Displacement		(1~1000)mm	$U_{rel}=0.2\%$		
		Speed		(0.1~500)mm/min	$U_{rel}=0.2\%$		
		Coaxiality		0~30%	$U=2\%$		



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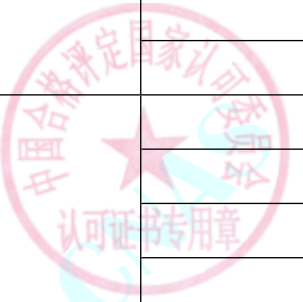
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
9	*Working Dynamometers	Force value	V. R. of Working Dynamometers JJG 455	0.1N~600kN	$U_{\text{rel}}=0.4\%$		
				(>600~2000)kN	$U_{\text{rel}}=0.7\%$		
10	Calibration Instrument for Torque Wrenches	Torque	V. R. of Calibration Instrument for Torque Wrenches JJG 797	(0.1~3000)Nm	$U_{\text{rel}}=0.2\%$		
11	Weights	Mass	V. R. of Weights JJG 99	(1~500)mg	$U=(0.007\sim0.028)\text{mg}$		
				(0.5~500)g	$U=(0.028\sim0.8)\text{mg}$		
				(0.5~5)kg	$U=(0.8\sim8)\text{mg}$		
				(5~30)kg	$U=(0.008\sim0.15)\text{g}$		
12	*Wheel Dynamic Balancers	Mass	C. S. for Wheel Dynamic Balancers JJF 1151	(5~120)g	$U=3.5\text{g}$		
				(0~360)°	$U=3^\circ$		
13	*Table Balances	Mass	V. R. of Table Balances JJG 156	1mg~500g	$U=0.08\text{g}$		
				>0.5kg~2kg	$U=0.3\text{g}$		
				>2kg~5kg	$U=0.8\text{g}$		
14	*Mechanical Balance	Mass	V. R. of Mechanical Balance JJG 98	1mg~200g	$U=0.003\text{mg}$		
				>200g~30kg	$U=0.03\text{mg}$		
15	*Analogue Indicating Weighing Instruments	Mass	V. R. of Analogue Indicating Weighing Instruments JJG 13	100g~20kg	$U=(1.6\sim36)\text{g}$		
				(20~500)kg	$U=(0.036\sim0.7)\text{kg}$		
				(500~1000)kg	$U=(0.7\sim1.6)\text{kg}$		
				(1000~3000)kg	$U=(1.6\sim6.9)\text{kg}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
16	*Non-self-indicating Weighing Instruments	Mass	V. R. of Non-self-indicating Weighing Instruments JJG 14	(0.4~100)kg	$U=(6\sim20)\text{g}$		
				(100~500)kg	$U=(0.02\sim0.06)\text{kg}$		
				(500~3000)kg	$U=(0.06\sim0.3)\text{kg}$		
17	*Digital Indicating Weighing Instruments	Mass	V. R. of Digital Indicating Weighing Instruments JJG 539	2g~30kg	$U=(0.03\sim1.5)\text{g}$		
				(30~1000)kg	$U=(1.5\sim65)\text{g}$		
				(1000~20000)kg	$U=(0.065\sim1.5)\text{kg}$		
18	Elastic Element Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use	Pressure	V. R. of Elastic Element Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for general Use JJG 52	(-0.1~250)MPa	$U=0.3\%\text{FS}$		
19	Elastic Element Precise Pressure Gauges and Vacuum Gauges	Pressure	V. R. of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG 49	(-0.1~60)MPa	$U=0.08\%\text{FS}$		
20	Digital Pressure Gauges	Pressure	V. R. of Digital Pressure Gauges JJG 875	(-0.1~2)MPa	$U=0.025\%\text{FS}$		
				(>2~250)MPa	$U=0.06\%\text{FS}$		
21	*Tension, Compression and Universal Testing Machines	Force Value	V. R. of Tension, Compression and Universal Testing Machines JJG 139	(0.01~100)kN	$U_{\text{rel}}=0.2\%$		
				(>100~3000)kN	$U_{\text{rel}}=0.4\%$		
		Displacement		(1~1000)mm	$U_{\text{rel}}=0.2\%$		
		Coaxality		0~30%	$U=2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
22	*Electro-hydraulic Servo Universal Testing Machines	Force Value	V. R. of Electro-hydraulic Servo Universal Testing Machines JJG 1063	(1~100)kN	$U_{rel}=0.2\%$		
				(> 100~3000)kN	$U_{rel}=0.4\%$		
		Coaxality		0~30%	$U=2\%$		
		Stress rate		(0.1~50)MPa/s	$U_{rel}=0.5\%$		
23	*Working Force Measuring Machines for Special Purposes	Force Value	C. S. for Working Force Measuring Machines for Special Purposes JJF 1134	1cN~500N	$U_{rel}=0.2\%$		
				> 500N~3000kN	$U_{rel}=0.4\%$		
24	Screen Tension Meters	Tension	C. S. for Screen Tension Meters JJF 1465	(7~50)N/cm	$U_{rel}=0.9\%$		
25	*Flexure Testing Machines	Force Value	V. R. of Flexure Testing Machines JJG 476	(0.2~6)kN	$U_{rel}=0.5\%$		
26	*Metallic Rockwell Hardness	Hardness	V. R. of Metallic Rockwell Hardness Testing Machines(Scales A,B,C,D,E,F,G,H,K,N,T) JJG 112	(80~88)HRA	$U=0.6HRA$		
				(85~100)HRBW	$U=0.7HRBW$		
				(20~70)HRC	$U=0.6HRC$		
				(89~91)HR15N	$U=0.9HR15N$		
				(42~80)HR30N	$U=1.3HR30N$		
				(32~61)HR45N	$U=1.2HR45N$		
				(88~93)HR15TW	$U=1.2HR15TW$		
				(70~82)HR30TW	$U=1.3HR30TW$		
27	*Metallic Brinell Hardness Testers	Hardness	V. R. of Metallic Brinell Hardness Testers JJG 150	(50~125)HBW2.5/62.5	$U_{rel}=1.2\%$		
				(50~225)HBW2.5/187.5	$U_{rel}=1.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>225~400)HBW2.5/187.5	$U_{rel}=0.9\%$		
				(50~125)HBW5/250	$U_{rel}=1.3\%$		
				(50~225)HBW5/750	$U_{rel}=1.2\%$		
				(>225~400)HBW5/750	$U_{rel}=0.8\%$		
				(50~125)HBW10/1000	$U_{rel}=1.2\%$		
				(50~225)HBW10/3000	$U_{rel}=1.4\%$		
				(>225~400)HBW10/3000	$U_{rel}=1.0\%$		
28	*Portable Brinell Hardness Testers	Hardness	C. S. for Portable Brinell Hardness Testers JJF 1595	(50~225)HBW	$U_{rel}=2\%$		
				(>225~400)HBW	$U_{rel}=1.8\%$		
				(175~225)HBS5/750	$U_{rel}=2\%$		
				(100~400)HBS10/3000	$U_{rel}=2\%$		
29	*Equotip Hardness Tester	Hardness	V. R. of Equotip Hardness Tester JJG 747	(490~830)HLD	$U=6\text{HLD}$		
				(460~630)HLG	$U=6\text{HLG}$		
30	*Metallic Vickers Hardness Testers	Hardness	V. R. of Metallic Vickers Hardness Testers JJG 151	(175~225)HV0.05	$U_{rel}=5\%$		
				(400~600)HV0.1	$U_{rel}=5\%$		
				(700~800)HV0.2	$U_{rel}=3.5\%$		
				(700~800)HV0.3	$U_{rel}=3.3\%$		
				(700~800)HV0.5	$U_{rel}=2.0\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(700~800)HV1	$U_{rel}=1.6\%$		
				(175~225)HV5	$U_{rel}=1.5\%$		
				(700~800)HV5	$U_{rel}=1.5\%$		
				(400~600)HV10	$U_{rel}=1.5\%$		
				(400~600)HV30	$U_{rel}=1.5\%$		
31	Shore A Durometers	Hardness	V. R. of Shore A Durometers JIG 304	(0~100)HA	$U=0.3HA$		
32	Shore D Durometer	Hardness	V. R. of Shore D Durometer JIG 1039	(0~100)HD	$U=0.3HD$		
33	Shore AO Durometers	Hardness	C. S. for Shore AO Durometers JJF 1312	(0~100)HAO	$U=0.3HAO$		
34	Metallic Webster Hardness Testing Machines	Hardness	V. R. of Metallic Webster Hardness Testing Machines JIG 944	(1~20)HW	$U=0.3HW$		
35	Metallic Knoop Hardness Testers	Hardness	V. R. of Metallic Knoop Hardness Testers JIG 1047	(175~225)HK0.05	$U_{rel}=7.9\%$		
				(700~800)HK0.05	$U_{rel}=3.2\%$		
				(400~600)HK0.1	$U_{rel}=4.2\%$		
				(700~800)HK0.2	$U_{rel}=3.2\%$		
				(700~800)HK0.3	$U_{rel}=3.2\%$		
36	Type A Barcol Hardness Testers	Hardness	V. R. of Type A Barcol Hardness Testers JIG 610	(42~88)HBa	$U=1.2HBa$		
37	*Shock and Bump Testing Machines	Acceleration	V. R. of Shock and Bump Testing Machines JJG 1174	(1~50000)m/s ²	$U_{rel}=5.2\%$		
38	*Hydraulic Vibration Testing	Acceleration	V. R. of Hydraulic Vibration Testing System JJG 638	(2~1200)m/s ²	$U_{rel}=3.2\%$		



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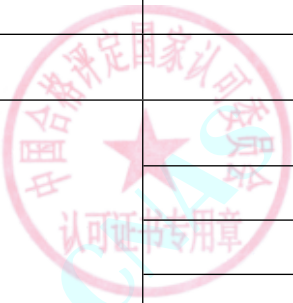
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	System	Amplitude		(0.01~10)mm	<i>U</i> _{rel} =4.5%		
		Frequency		5Hz~50Hz	<i>U</i> =1Hz		
				50Hz~3kHz	<i>U</i> _{rel} =2%		
39	*Mechanical Vibration Genetator for Testing	Acceleration	V. R. of Mechanical Vibration Genetator for Testing JJG 189	(2~1200)m/s ²	<i>U</i> _{rel} =3.6%		
		Amplitude		(0.01~10)mm	<i>U</i> _{rel} =4.6%		
		Frequency		5Hz~50Hz	<i>U</i> =1Hz		
				50Hz~3kHz	<i>U</i> _{rel} =2%		
40	*Equipment of Power Measuring	Torque	V. R. of Equipment of Power Measuring JJG 653	(0.1~3000)Nm	<i>U</i> _{rel} =0.1%		
		Rotating velocity		(100~25000)r/min	<i>U</i> _{rel} =0.2%		
41	Tachometers	Rotating velocity	V. R. of Tachometers JJG 105	(30~40000)r/min	<i>U</i> _{rel} =0.06%		
42	Working Glass Container	Capacity	V. R. of Working Glass Container JJG 196	(0.1~10)mL	<i>U</i> =0.004mL		
				(>10~100)mL	<i>U</i> =0.01mL		
				(>100~500)mL	<i>U</i> =0.05mL		
				(>500~1000)mL	<i>U</i> =0.1mL		
				(>1000~2000)mL	<i>U</i> =0.2mL		
43	Density meter	Density	V. R. of Working Glass Hydrometers JJG 42	(650~2000)kg/m ³	<i>U</i> =0.3kg/m ³		
		Alcohol content		<i>q</i> :(0~100)%	<i>U</i> =0.2%		
44	Locomotive Pipette	Capacity	V. R. of Locomotive Pipette JJG 646	(0.1~10)μL	<i>U</i> =(0.014~0.06)μL		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(10~100)μL	<i>U</i> =(0.06~0.15)μL		
				(100~1000) μL	<i>U</i> =(0.15~0.8)μL		
				(1000~10000)μL	<i>U</i> =(0.8~4)μL		
45	*Pendulum Impact Testing Machines	Energy	V. R. of Pendulum Impact Testing Machines JJG 145	Indirect measurement: (1~30)J	<i>U</i> _{rel} =2.0%		
				Indirect measurement: (>30~110)J	<i>U</i> _{rel} =1.9%		
				Indirect measurement: (>110~220)J	<i>U</i> _{rel} =1.8%		
				Indirect measurement: (>220~300)J	<i>U</i> _{rel} =1.6%		
				Direct measurement: (20~40)J	<i>U</i> =1J		
				Direct measurement: (>40~300)J	<i>U</i> _{rel} =3%		
46	*Cantilever-Beam(Izod-Type)Impact Testing Machine	Energy	V. R. of Cantilever-Beam(Izod-Type)Impact Testing Machine JJG 608	(0.1~150)J	<i>U</i> _{rel} =0.4%		
47	Spring Hammers	Energy	C. S. for Spring Hammers JJF 1475	(0.2~2)J	<i>U</i> _{rel} =1.6%		
48	*Rain Testing Equipments	Rainfall intensity	C. S. for Rain Testing Equipments JJF(MI) 17	(10~600)mm/h	<i>U</i> _{rel} =3%		
		Wind speed		(1~2)m/s	<i>U</i> =0.16m/s		
				(>2~5)m/s	<i>U</i> =0.2m/s		
				(>5~10)m/s	<i>U</i> _{rel} =4%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(>10~20)m/s	<i>U</i> _{rel} =3%		
		Length		Raindrop diameter: (1~6)mm	<i>U</i> =(0.1~0.3)mm		
49	Special Glassware	Capacity	V. R. of Special Glassware JJG 10	(0.2~1)mL (>1~10)mL (>10~100)mL	<i>U</i> =0.01mL <i>U</i> =0.02mL <i>U</i> =0.03mL		
50	*Dust and Sand Testing Equipments	Temperature	C. S. for Dust and Sand Testing Equipments JJF(MI) 18	(10~100)°C	<i>U</i> =0.2°C		
		Humidity		5%RH~30%RH	<i>U</i> =1.4%RH		
				30%RH~75%RH	<i>U</i> =1.2%RH		
		Wind speed		(1~2)m/s	<i>U</i> =0.16m/s		
				(>2~5)m/s	<i>U</i> =0.2m/s		
				(>5~10)m/s	<i>U</i> _{rel} =4%		
				(>10~20)m/s	<i>U</i> _{rel} =3%		
		Dust concentration		(0.1~20)g/m ³	<i>U</i> =(0.03~0.8)g/m ³		
Dust deposition rate	(5~7)g/(m ² ·d)	<i>U</i> =0.015g/(m ² ·d)					
51	Micro-differential Pressure Gauge	Pressure	V. R. of Micro-differential Pressure Gauge JJG(Jin) 03	(-5~5)kPa	<i>U</i> =0.6%FS		
52	*Thermogravimetric Moisture Meters	Mass	V. R. of Thermogravimetric Moisture Meters JJG 658	100mg~500g	<i>U</i> =(0.2~20)mg		
		Moisture content		94.95%~95.05%	<i>U</i> =0.06%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
53	Pencil Hardness Testers	Mass	C. S. for Pencil Hardness Testers JJF(PI) 007	(400~1100)g	$U=0.3\text{g}$		
		Angle		(40~50)°	$U=0.3^\circ$		
54	*Film Impact Testers	Length	C. S. for Film Impact Testers JJF(PI) 002	(90~510)mm	$U=0.2\text{mm}$		
		Mass		(990~1010)g	$U=0.2\text{g}$		
55	*Falling Weight Impact Testing Machines	Mass	C. S. for Falling Weight Impact Testing Machines JJF 1445	5g~5kg	$U=0.3\text{g}$	Accredited Only for Drop Hammer Weight and Drop Height	
				(>5~30)kg	$U=3\text{g}$		
		Height		(0.1~3.5)m	$U=1\text{mm}$		
56	Electric and Pneumatic Torque Wrenches	Torque	C. S. for Electric and Pneumatic Torque Wrenches JJF 1610	(0.2~7000)Nm	$U_{\text{rel}}=1.2\%$		
57	Torque Wrenches	Torque	V. R. of Torque Wrenches JJG 707	(0.1~15000)Nm	$U_{\text{rel}}=1.2\%$		
58	Hydraulic Torque Bench	torque	V. R. of Hydraulic Torque Bench JJG(xin) 16	(50~50000)Nm	$U_{\text{rel}}=1.3\%$		
59	*Torsion Testing Machines	Torque	V. R. of Torsion Testing Machines JJG 269	(20~500)Nm	$U_{\text{rel}}=0.4\%$		
		Angle		(0.5~90)°	$U_{\text{rel}}=0.5\%$		
60	*Testing Machines of Resistance to Internal Pressure of Plastics Pipe	Pressure	C. S. for Testing Machines of Resistance to Internal Pressure of Plastics Pipe JJF 1628	(1~25)MPa	$U=0.1\%\text{FS}$		
61	*Relative Density Balance for Liquid	Relative density	V. R. of Relative Density Balance for Liquid JJG 171	0.9938~1.0018	$U=0.0006$		
62	Ultrasonic Hardness Testers	Force value	C. S. for Ultrasonic Hardness Testers JJF 1436	(1~100)N	$U_{\text{rel}}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Hardness		(175~225)HV	U _{rel} =1.6%		
				(400~600)HV	U _{rel} =1.6%		
				(700~800)HV	U _{rel} =1.6%		
63	*Electrodynamic Vibration Testing Systems	Acceleration	V. R. of Electrodynamic Vibration Testing Systems JJG 948	(2~1200)m/s ²	U _{rel} =3.2%		
		Frequency		5Hz~50Hz	U=1Hz		
				>50Hz~3kHz	U _{rel} =2%		
64	Piezoelectric Accelerometer	Acceleration	V. R. of Piezoelectric Accelerometer JJG 233	Reference points: 10m/s ² ,160Hz	U _{rel} =1.1%		
				Passband: (2~ 100)m/s ² , (20~2000)Hz	U _{rel} =1.6%		
65	Cupping tester	Length	V. R. of Cupping Testing Machine JJG 583	(0~150)mm	U=30 μ m		
		Force value		(9~11)kN	U _{rel} =0.36%		
		IE		(0~20)mm	U=9.4 μ m		
66	*Wear test machine	Length	C. S. for Abrasion Resistance Instruments JJF(Zhe) 1070	(1~25)mm	U=0.01mm		
		Mass		(450~2050)g	U=0.15g		
		Rotating velocity		(90~310)r/min	U _{rel} =0.2%		
		Time		(1~50)min	U _{rel} =0.3%		
67	Reference Leaks	Leak rates	C. S. for Reference Leaks by Soap Film Flowmeter JJF 1627	1mL/min~10L/min	U _{rel} =1.8%		
68	Differential Pressure Air Leak Tester	pressure	V. R. of Differential Pressure Air Leak Tester JJG(Yue) 042	(0~700)kPa	U=0.2%FS		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Leakage rate		(0.5~10)mL/min	$U_{\text{rel}}=1.8\%$		
69	Vibration Meters	Acceleration	V. R. of Vibration Meters JJG 676	(2~100)m/s ² , (20~2000)Hz	$U_{\text{rel}}=2\%$		
		Speed		(0.25~50)cm/s, (20~2000)Hz	$U_{\text{rel}}=2\%$		
		Displacement		(0.01~2)mm, (20~2000)Hz	$U_{\text{rel}}=2\%$		
70	*Special Axle(Wheel)Load Scales for Motor Vehicle Test	Mass	V. R. of Special Axle(Wheel)Load Scales for Motor Vehicle Test JJG 1014	(0.1~20)t, ($\leq 10\%$ FS)	$U=0.05\%$ FS		
				(0.1~20)t, ($> 10\%$ FS)	$U_{\text{rel}}=0.5\%$		
71	Tighten Machine	Torque	C. S. for Tighten Machine JJF(Yu) 014	(0.2~500)Nm	$U_{\text{rel}}=1.2\%$		
				($> 500 \sim 6000$)Nm	$U_{\text{rel}}=0.5\%$		
		Angle		(1~360) $^{\circ}$	$U_{\text{rel}}=0.5\%$		
72	Pressure Regulators with Flowmeter	pressure	C. S. for Pressure Regulators with Flowmeter JJF(Ji) 177	(0~25)MPa	$U=1.0\%$ FS		
		Flow rate		(0.5~25)L/min	$U_{\text{rel}}=1.4\%$		
73	Wireless Pressure Recorder	pressure	C. S. for Wireless Pressure Recorder JJF(Ji) 179	(0~500)kPa	$U=0.1\%$ FS		
74	Torque Multiplier Special for Engine	Torque	C. S. for Torque Multiplier Special for Engine JJF(CA) 0121	Input: (4~2000)Nm	$U_{\text{rel}}=2\%$		
				Output: (50~50000)Nm	$U_{\text{rel}}=2\%$		
75	Photoelectric Belt Tension Meters	Frequency	C. S. for Photoelectric Belt Tension Meters JJF(Su) 204	(10~600)Hz	$U_{\text{rel}}=1\%$		
		Tension		(20~8000)N	$U_{\text{rel}}=1.6\%$		
76	Torsion Balance	Mass	V. R. of Torsion Balance JJG 46	(0~2.5)g	$U=(0.003 \sim 1.3)\text{mg}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
77	Calibration Device for Screen Tensiometer	Tension	Calibration Method for Calibration Device for Screen Tensiometer LECC 001	(7~70)N/cm	$U=0.4\%FS$		
78	*Working Torque-meters	Torque	V. R. of Working Torque-meters JJG 1146	(0.01~3000)Nm	$U_{rel}=(0.2\sim0.6)\%$		
79	Portable Vibration Calibrator	Acceleration	V. R. of Portable Vibration Calibrator JJG 1062	(2~100)m/s ² , (20~2000)Hz	$U_{rel}=2\%$		
		Frequency		(20~2000)Hz	$U_{rel}=0.1\%$		
80	Linear Velocity Measuring Instrument	Speed	C.S for Linear Velocity Measuring Instrument JJF 1801	(0.1~30) m/s	$U_{rel}=0.5\%$		
81	*Anchorage Testing Machines	Force	V.R.of Anchorage Testing Machines JJG 1083	(50~3000)kN	$U_{rel}=0.4\%$		
		Displacement		(5~1000)mm	$U=0.03mm$		
82	*Concrete Batching Scales	Mass	V.R.of Concrete Batching Scales JJG 1171	(1~10000)kg	$U=(0.002\sim10)kg$		
83	Micro sampling syringe	Capacity	V.R.of Micro sampling syringe JJG(ji)166	(0.1~1000) μ L	$U=(0.014\sim2.5) \mu$ L		
84	Le Chatelier Flask for Determining Density of Hydraulic Cement	Capacity	V.R.of Le Chatelier Flask for Determining Density of Hydraulic Cement JJG(jt)092	(0.1~1)mL	$U_{rel}=1.6\%$		
				(18~24)mL	$U_{rel}=1.6\%$		
85	Bottle Top Dispenser	Capacity	C.S for Bottle Top Dispenser JJF(ji)181	(0.1~200)mL	$U=(0.001\sim0.3)mL$		
86	Laboratory Oscillation-type Liquid Density meters	Density	V.R.of Laboratory Oscillation-type Liquid Density meters JJG 1058	(650~2000)kg/m ³	(0.094~0.20)kg/m ³		
87	Float Meter	Gas flow	V.R.of Float Meter JJG 257	(0.02~200)L/min	$U_{rel}=0.6\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Liquid flow		(0.04~150)m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		
88	Soap Film Flow meter	Flow	V.R.of Soap Film Flow meter JJG 586	(0.02~60)L/min	<i>U</i> _{rel} =0.6%		
		Capacity		(10~200)mL	<i>U</i> =0.20mL		
				(>200~1000)mL	<i>U</i> =0.24mL		
				(>1000~4000)mL	<i>U</i> =0.36mL		
				(>4000~6000)mL	<i>U</i> =0.64mL		
89	Thermal Mass Gas Flowmeters	Flow	V.R.of Thermal Mass Gas Flowmeters JJG 1132	(0.1~200)L/min	<i>U</i> _{rel} =0.6%		
90	Turbine Flowmeter	Gas flow	V.R.of Turbine Flowmeter JJG 1037	(0.02~100)L/min	<i>U</i> _{rel} =0.6%		
		Liquid flow		(0.04~150) m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		
91	*Online Electromagnetic Flowmeters	Flow	C.S for Online Electromagnetic Flowmeters JJF(su)228	(1.6~1000)m ³ /h, DN(25~300)	<i>U</i> _{rel} =0.6%		
92	Ultrasonic Flowmeters	Liquid flow	V.R.of Ultrasonic Flowmeters JJG 1030	(0.04~150) m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		
93	Electromagnetic Flowmeters	Flow	V.R.of Electromagnetic Flowmeters JJG 1033	(0.04~150) m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		
94	Goriolis Mass Flow Meters	Liquid flow	V.R.of Goriolis Mass Flow Meters JJG 1038	(40~150000)kg/h, DN(15~100)	<i>U</i> _{rel} =0.4%		
95	Vortex-shedding Flowmeter	Liquid flow	V.R.of Vortex-shedding Flowmeter JJG 1029	(0.04~150) m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		
96	Liquid Positive Displacement Flowmeter	Flow	V.R.of Liquid Positive Displacement Flowmeter JJG 667	(0.04~150) m ³ /h, DN(15~100)	<i>U</i> _{rel} =0.4%		



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97	*Open Channel Flowmeter	Flux	The Online Calibration Specification of Open Channel Flowmeter JJF (Zhe) 1080	$(1\sim 250)\text{m}^3/\text{h}$	$U_{\text{rel}}=3\%$		
98	Differential Pressure Flowmeters	Flux	V.R.of Differential Pressure Flowmeters JJG 640	$(0.5\sim 150)\text{m}^3/\text{h}$	$U_{\text{rel}}=0.4\%$		
99	*Working Thermal Conductivity Vacuum Gauge	pressure	Calibration Specification of Working Thermal Conductivity Vacuum Gauge JJF 1050	$(8\times 10^{-1}\sim 1\times 10^5)\text{Pa}$	$U_{\text{rel}}=(12\sim 15)\%$		
100	*Ionization Vacuum Gauge	pressure	Calibration Specification of Ionization Vacuum Gauge JJF 1062	$(8\times 10^{-1}\sim 1\times 10^5)\text{Pa}$	$U_{\text{rel}}=(6.2\sim 13)\%$		
		Emission current		$(0.01\sim 55)\text{mA}$	$U_{\text{rel}}=1\%$		
		potential		$(0.1\sim 300)\text{V}$	$U_{\text{rel}}=1\%$		
101	*Capacitance Diaphragm Vacuum Gauges	pressure	Calibration Specification for Capacitance Diaphragm Vacuum Gauges JJF 1503	$(3.2\sim 1\times 10^5)\text{Pa}$	$U_{\text{rel}}=1.0\%$		
102	*Piezoresistive Vacuum Gauge	pressure	Verification Regulation of Piezoresistive Vacuum Gauge JJG 932	$(1\times 10^2\sim 1\times 10^5)\text{Pa}$	$U_{\text{rel}}=6.8\%$		
103	*Refrigerant Leak Detector	Leakage rate	Calibration Specification for Refrigerant Leak Detector JJF(QG)125	$(0.3\sim 1.5)\times 10^{-5}\text{Pa}\cdot\text{m}^3/\text{s}$	$U_{\text{rel}}=(12\sim 15)\%$		
		Time		$(0\sim 10)\text{s}$	$U=0.52\text{s}$		
104	*Helium Mass Spectrometer Leak Detector	Leakage rate	Calibration Specification for Helium Mass Spectrometer Leak Detector JJF(MI)186	$(4.34\times 10^{-8}\sim 1.87\times 10^{-6})\text{Pa}\cdot\text{m}^3/\text{s}$	$U_{\text{rel}}=11\%$		
105	*Transmissible Pressure Gauge	Pressure	Calibration Specification for Transmissible Pressure Gauge	$(-0.1\sim 250)\text{MPa}$	$U=0.3\%\text{FS}$		



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		Resistance	JJF(JI)157	(1~500) Ω	$U_{rel}=0.3\%$		
106	*Medical Centrifuge	Rotate speed	for Medical Centrifuge JJF(Zhe)1117	(100~9999)r/min	$U_{rel}=0.3\%$		
				(10000~30000)r/min	$U_{rel}=0.1\%$		
107	*Portable Rockwell Hardness Testers	Hardness	C.S for Portable Rockwell Hardness Testers JJF 1594	(80~88)HRA	$U=1.0HRA$		
				(85~100)HRBW	$U=1.0HRBW$		
				(20~70)HRC	$U=(0.9\sim 1.0)HRC$		
				(89~91)HR15N	$U=0.9HR15N$		
				(42~80)HR30N	$U=1.0HR30N$		
				(32~61)HR45N	$U=0.8HR45N$		
				(88~93)HR15TW	$U=1.2HR15TW$		
				(70~82)HR30TW	$U=0.9HR30TW$		
108	*Hydraulic stretchers	Force	C.S for hydraulic stretchers JJF(Xin)15	(50~3000)kN	$U_{rel}=0.6\%\sim 1.0\%$		
109	*Oil Consumption Meters of Mass Method	Mass	C.S for Oil Consumption Meters of Mass Method JJF 1670	(20~2000)g	$U_{rel}=0.02\%$		
110	*Quantitative Filling Machine for Liquid Material	Mass	V.R of Quantitative Filling Machine for Liquid Material JJG 687	(0.1~30) kg	$U_{rel}=(0.5\sim 0.02)\%$		
				(>30~60)kg	$U_{rel}=0.26\%$		
		Capacity		(5~2000)mL	$U_{rel}=(2.4\sim 1.2)\%$		
111	*Liquid Level Measuring Devices	Length	V.R of Liquid Level Measuring Devices JJG 971	(0.01~40)m	$U=0.07\%FS$	Only Pressure are recognized	



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Thermology							
1	Digital Thermometer	Temperature	C.S.for Digital Thermometer JJF(Su)95	(-60~300)°C	U=0.1°C		
				(300~1000)°C	U=0.6°C		
2	*Temperature and Pressure of Steam Sterilizer	Temperature	C.S.for Temperature and Pressure of Steam Sterilizer JJF(Su)96	40~150)°C	U=0.2°C		
		Pressure		(0~400)kPa	U=1.3kPa		
3	Calibration Specification of Thermistor	Temperature	C.S.of Thermistor Thermometers JJF1379	(-50~200)°C	U=0.03°C		
4	Filled System Thermogravimetric	Temperature	C.S for Filled System Thermometers JJF1909	(-80~300)°C	U=0.3°C		
				(300~600)°C	U=0.7°C		
5	Working Copper/Copper-Nickel Thermocouple	Temperature	V.R.of the Working Copper/Copper-Nickel Thermocouple JJG368	(-80~350)°C	U=0.3°C		
6	Temperature Indicators	Temperature	C.S.for Temperature Indicators JJF1664	With thermocouple: (-200~1600)°C	U=(0.3~1.2)°C		
				With thermal resistance: (-200~800)°C	U=(0.3~0.8)°C		
7	*Electrically-heatedThermostatic Water bath	Temperature	C.S.of Electrically-heatedThermostatic Water bath JJF(Liao)118	(0~100)°C	U=0.2°C		
8	*Temrmometers of ClinicAutoclave	Temperature	C.S.for Temrmometers of ClinicAutoclave JJF1308	(0~150)°C	U=0.4°C		
9	*Temperature Transmitter	Temperature	C.S.of the Temperature Transmitter JJF1183	Equipped with a sensor: (-80~300)°C	U=0.3°C		



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				No sensor available: (-100~500) °C	$U=0.4^{\circ}\text{C}$		
10	*Glow-wire Apparatus	Temperature	C.S. of Glow-wire Apparatus JJF(Zhe)1050	(0~1100)°C	$U=1.8^{\circ}\text{C}$		
		Time		(0~60)min	$U=0.02\text{s}$		
		Length		(0~100)mm	$U=0.004\text{mm}$		
		Pressure		(0~10)N	$U=0.1\text{N}$		
11	Temperature Itinerant Detecting Instrument	Temperature	C.S. for Temperature Itinerant Detecting Instrument JJF1171	(-80~300)°C	$U=0.11^{\circ}\text{C}$		
12	Temperature Data Acquisition Instruments	Temperature	C.S. of Temperature Data Acquisition Instruments JJF1366	(80~0)°C	$U=0.12^{\circ}\text{C}$		
				(0~300)°C	$U=0.11^{\circ}\text{C}$		
				(300~500)°C	$U=0.15^{\circ}\text{C}$		
13	Bimetallic Thermometers	Temperature	C.S. for Bimetallic Thermometers JJF1908	(-80~300)°C	$U=0.3^{\circ}\text{C}$		
14	Liquid-in-Glass Thermometers for Workin	Temperature	V.R. of Liquid-in-Glass Thermometers for Working JJG130	(-80~300)°C	$U=0.02^{\circ}\text{C}$		
15	*Equipment of the Environmental Testing for Temperature and Humidity	Temperature	C.S. of Environmental Testing Equipment for Temperature and Humidity Parameters JJF1101	(-80~300)°C	$U=0.3^{\circ}\text{C}$	合格评定国家认可委员会 认可证书专用章	
		Humidity		10%RH~100%RH	$U=1.2\%\text{RH}$		
16	Industry Platinum and Copper Resistance Thermometers	Temperature	V.R. of Industry Platinum and Copper Resistance Thermometers JJG229	(-80~300)°C	$U=0.05^{\circ}\text{C}$		



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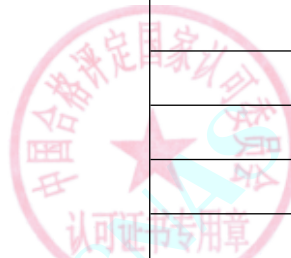
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
17	Working Radiation Thermometers	Temperature	V.R. of Radiation Thermometers JJG856	(5~550)°C	$U=1.0^{\circ}\text{C}$		
				(550~1000)°C	$U=2.5^{\circ}\text{C}$		
				(1000~1200)°C	$U=3.2^{\circ}\text{C}$		
18	*Open/Closed Cup Flash Point /Testers	Temperature	C.S. for Open/Closed Cup Flash Point Testers JJF1384	close: (70~220)°C	$U=5.3^{\circ}\text{C}$		
				open: (70~220)°C	$U=7.4^{\circ}\text{C}$		
19	*Digital Temperature Indicators and Controllers	Temperature	V.R. of Digital Temperature Indicators and Controllers JJG617	With thermocouple: (-200~1600)°C	$U=(0.2\sim 1.0)^{\circ}\text{C}$		
				With thermal resistance: (-200~800)°C	$U=(0.2\sim 0.7)^{\circ}\text{C}$		
20	*Analogue Temperature Indicators and Controllers	Temperature	V.R. of Analogue Temperature Indicators and Controllers JJG951	With thermocouple: (-100~1600)°C	$U=(0.7\sim 1.2)^{\circ}\text{C}$		
				With thermal resistance: (-200~800)°C	$U=(0.4\sim 1.1)^{\circ}\text{C}$		
21	Mechanical Thermo-hygrometers	Temperature	V.R. of Mechanical Thermo-hygrometers JJG205	(5~50)°C	$U=0.3^{\circ}\text{C}$		
				30%RH~90%RH	$U=1.5\%\text{RH}$		
22	Temperature Indicators and Simulators by Electrical Simulation and Measurement	Temperature	C.S. of Temperature Indicators and Simulators by Electrical Simulation and Measurement JJF1309	Output resistor: (-200~800)°C	$U=0.02^{\circ}\text{C}$		
				Output thermocouple: (0~1200)°C	$U=0.07^{\circ}\text{C}$		
				Output thermocouple: (1200~1600)°C	$U=0.5^{\circ}\text{C}$		
				Measure resistor: (-200~800)°C	$U=0.02^{\circ}\text{C}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Measure thermocouple:(-200~0)℃	U=0.3℃		
				Measure thermocouple:(0~1200)℃	U=0.06℃		
				Measure thermocouple:(1200~1600)℃	U=0.5℃		
23	Recorders for Industrial-Process Measurement	Temperature	V.R.of the Recorders for Industrial-Process Measurement JJG74	With thermocouple: (-200~1600)℃	U=0.3℃		
				With thermal resistance: (-200~850)℃	U=0.2℃		
24	Standard Mercury-in-Glass Thermometers	Temperature	V.R.of Standard Mercury-in-Glass Thermometers JJG161	(-60~0)℃	U=0.02℃		
				(0~300)℃	U=0.04℃		
25	*salt mist testing chambers	Temperature	C.S.for salt mist testing chambers JJF(Zhe)1125	(0~100)℃	U=0.4℃		
		Salt spray sedimentation rate		(1.0~2.0)(mL/h • 80cm²)	U=0.3(mL/h • 80cm²)		
26	*Extrusion Plastometer	Temperature	V.R.for Extrusion Plastometer JJG878	(20~400)℃	U=0.2℃		
		MFR		(0~25)g/10min	U=0.5g/10min		
		Quality		5mg~100g	U=0.1mg		
				100g~30kg	U=1g		
		Time		(0~60)min	U=0.2s		
27	*Thermostatic	Temperature	Measurement and Test Norm of Thermostatic Bath’ s	volatility: (-60~300)℃	U=0.007℃		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Metrological Characteristics		Metrological Characteristics JJF1030	homogeneity: (-60~300)°C	U=0.005°C		
28	*Box-type Resistance Furnace	Temperature	C.S.for Box-type Resistance Furnace JJF1376	(30~1200)°C	U=1.3°C		
29	Base Metal Thermocouple	Temperature	C.S.for Base Metal Thermocouples JJF1637	(-60~300)°C	U=0.3°C		
				(300~1200)°C	U=(0.3~1.0)°C		
30	sheathed Thermocouples	Temperature	C.S.for Sheathed Thermocouples JJF1262	(-60~300)°C	U=0.4°C		
				(300~1300)°C	U=(0.4~1.0)°C		
31	Working Noble Metal Thermocouples	Temperature	V.R.of Working Noble Metal Thermocouples JJG141	(0~1300)°C	U=(0.4~1.0)°C		
				(1300~1600)°C	U=2.0°C		
32	*Working Noble Metal Thermocouples	Temperature	C.G.of the Temperature Block Calibrators JJF1257	(-80~400)°C	U=0.3°C		
				(400~1200)°C	U=1.3°C		
33	*Melting-point Measurement Instrument	Temperature	V.R.of Melting-point Measurement Instruments JJG701	(30~300)°C (0.2°C/min)	U=0.2°C		
				(30~300)°C (1.0°C/min)	U=0.3°C		
34	*Heat Distortion and Vicat Softening Temperature Apparatus	Temperature	C.S.for Heat Distortion and Vicat Softening Temperature Apparatus JJF(Zhe)1051	(30~300)°C	U=0.4°C		
		Heating rate		(40~120)°C/h	U=0.3°C/h		
		Deformation amount		(0.5~50)mm	U=3 μm		
		Quality		(1~5000)g	U=0.3g		
35	Electric Contact Mercury-in-Glass Thermometers	Temperature	V.R.of the Electric Contact Mercury-in-Glass Thermometers JJG131	(-30~100)°C	U=0.10°C		
				(100~200)°C	U=0.3°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(200～300)℃	<i>U</i> =0.6℃		
36	Thermal Imagers	Temperature	C.S.for Thermal Imagers JJF1187	(50～500)℃	<i>U</i> =1.2℃		
				(500～1200)℃	<i>U</i> =(1.2～3.1)℃		
37	Surface Thermometers	Temperature	C.S.for the Surface Thermometers JJF1409	(50～400)℃	<i>U</i> =(0.6～1.6)℃		
38	Surface Platinum Resistance Thermometer	Temperature	V.R. of Surface Platinum Resistance Thermometer JJG684	(50～400)℃	<i>U</i> =(0.6～1.6)℃		
39	*Temperature / Humidity / Vibration Combined Environmental Testing System	Noise	C.S. for Temperature / Humidity / Vibration Combined Environmental Testing System JJF1270	(0～100)dB	<i>U</i> =1dB		
		Temperature		(-80～300)℃	<i>U</i> =0.4℃		
		Humidity		(5～100)%RH	<i>U</i> =1.2%RH		
		Temperature change rate		(0.6～60)℃/min	<i>U</i> =0.1℃/min		
		Wind speed		(0.2～5)m/s	<i>U</i> =(0.2～0.5)m/s		
				(5～20)m/s	<i>U</i> _{rel} =4%		
		Indicative error of vibration acceleration amplitude		(2～1200)m/s ²	<i>U</i> _{rel} =3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Acceleration Response Characteristics and Acceleration Uniformity of Additional Table of Shaking Table		(2~1200)m/s ²	$U_{rel}=3\%$		
40	Digital Temperature - hygrometers	Humidity		5%RH~95%RH	$U=1.0\%RH$		
		Temperature		(0~50)°C	$U=0.2^{\circ}C$		
41	Temperature and humidity transmitter	Temperature	C.S.for Temperature and humidity transmitter JJF(Zhe)1035	(0~50)°C	$U=0.4^{\circ}C$		
		humidity		5%RH~95%RH	$U=1.1\%RH$		
42	Temperature Parameters of Temperature Switches	Temperature	C.S.for Temperature Parameters of Temperature Switches JJF1632	(-30~300)°C	$U=0.5^{\circ}C$		
43	Xenon arc weather - ometer	Temperature	V.R. of Xenon arc weather - ometer JJG (Elec) 31501	(40~120)°C	$U=0.4^{\circ}C$		
		Humidity		(10~98)%RH	$U=1.1\%RH$		
		UV Irradiance		(0.1~1200)W/m ²	$U_{rel}=15\%$		
44	*VacuumDrying Chamber	Temperature	C.S. for Temperature and Pressure of Vacuum Drying Chamber JJF(Su) 177	(0~140) °C			
		Pressure		(0~101)kPa	$U=0.7kPa$		
		Time		(0~150)min	$U=0.2s$		



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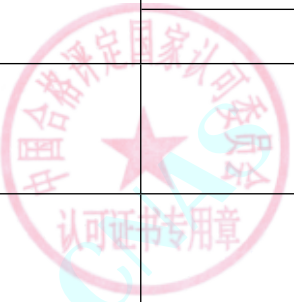
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
45	Precision Platinum Resistance Digital Thermomete	Temperature	C.S. for Precision Platinum Resistance Digital Thermometer JJF(JI)103	(-60~300)℃	U=0.07℃		
46	*Temperature Uniformity in Thermocouple Calibration Furnaces	Temperature	T.S. of Temperature Uniformity in Thermocouple Calibration Furnaces JJF 1184	(300~1300)℃	U=0.24℃		
47	*Dry Bath Incubator for biological experiments	Temperature	C.S. for Dry Bath Incubator for biological experiments JJF(Zhe)1149	deviatio: (-10~150)℃	U=0.13℃		
				uniformity: (-10~150)℃	U=0.07℃		
				fluctuation: (-10~150)℃	U=0.10℃		
48	*Apparatus for Softening Point of Bitumen	Temperature	V.R. of Apparatus for Softening Point of Bitumen JJG(Communications) 057	(0~200)℃	U=0.1℃		
		Heating rate		(0~5)℃/min	U=0.2℃/min		
		Length		(0~25)mm	U=0.002mm		
				(>25~200)mm	U=0.02mm		
		Capacity		(1~1000)mL	U=6mL		
		Mass		(1~200)g	U=0.003g		
49	*Differential Scanning Calorimeters	Temperature	V.R. of the Differential Scanning Calorimeters JJG936	In: (130~200)℃	U=0.4℃		
				Sn: (200~290)℃	U=0.3℃		
				Pb: (290~380)℃	U=0.6℃		
				Zn: (380~500)℃	U=0.7℃		



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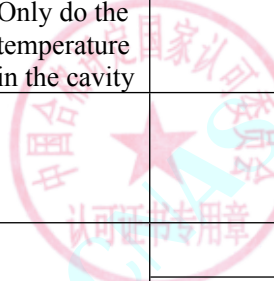
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Heat	V.R. for Thermogravimetric Analyzers JJG1135	KN03: (130~200)°C	$U=0.5^{\circ}\text{C}$		
				SiO2: (570~600)°C	$U=1.0^{\circ}\text{C}$		
				In: (25~30)J/g	$U=0.5\text{J/g}$		
				Sn: (28~61)J/g	$U=0.4\text{J/g}$		
				Pb: (23~30)J/g			
				Zn: (30~110)J/g	$U=1.4\text{J/g}$		
50	*Thermogravimetric Analyzers	Temperature	V.R. for Thermogravimetric Analyzers JJG1135	In: (130~200)°C	$U=0.4^{\circ}\text{C}$		
				Sn: (200~290)°C	$U=0.3^{\circ}\text{C}$		
				Pb: (290~380)°C	$U=0.6^{\circ}\text{C}$		
				Zn: (380~500)°C	$U=0.7^{\circ}\text{C}$		
				Alumel: 153.8°C	$U=0.9^{\circ}\text{C}$		
				Ni: 358.6°C	$U=1.0^{\circ}\text{C}$		
				Fe: 772.0°C	$U=1.8^{\circ}\text{C}$		
		Heat		(0~20)mg	$U=0.03\text{mg}$		
51	*Thermal Conductivity Tester of guarded hot plate	Thermal conductivity	C.S. for Thermal Conductivity Tester of guarded hot plate JJF(Zhe)1141	(0.01~1) W/(m • K)	$U_{\text{rel}}=1\%$		
52	*Temperature Parameter of Passive Medical Cold Boxes	Temperature	C.S. for Temperature Parameter of Passive Medical Cold Boxes JJF 1676	(-20~20)°C	$U=0.14^{\circ}\text{C}$		



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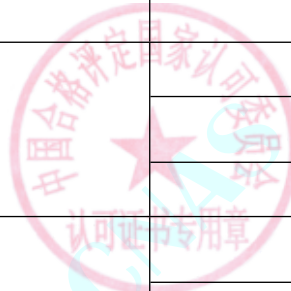
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
53	*Temperature and Humidity Standard Chambers	Temperature	C.S. for Temperature and Humidity Standard Chambers JJF 1564	Temperature fluctuation: (5~50)℃	<i>U</i> =0.02℃				
				Temperature Change Rate: (5~50)℃	<i>U</i> =0.03℃/min				
				Temperature Uniformity: (5~50)℃	<i>U</i> =0.05℃				
		Humidity		Humidity Fluctuation: 5%~95%	<i>U</i> =0.2%RH				
				Humidity Change Rate:5%~95%（5~50）℃	<i>U</i> =0.2%RH/min				
				humidity uniformity: 5%~95%	<i>U</i> =0.5%RH				
54	Thermometers of WBGT-index Meters	Temperature	C.S. for Thermometers of WBGT-index Meters JJF 1407	(5~120)℃	<i>U</i> =0.3℃				
55	Dual-rail Thermometer	Temperature	V. R Thermometers-part1: Bimetallic Rail Thermometers JJG 1158.1-2018	(-40~70)℃	<i>U</i> =0.18℃				
56	Rubber Disc Oscillating Vulcanizer	Temperature	V.R. of Rubber Disc Oscillating Vulcanizer JJG (Chemical Industry)101	(100~200)℃	<i>U</i> =0.4℃	Only do the temperature in the cavity			
57	*Constant Temperature Heating Platform	Temperature	C.S. for Constant Temperature Heating Platform JJF(Weapon Industry) 256	(50~400)℃	<i>U</i> =(1.0~1.8)℃				
58	*Air Thermal Aging Test Oven	Temperature	T.S for air Thermal Aging Test Oven JJF(Jin)24	(0~500)℃	<i>U</i> =0.4℃				
		Ventilation Rate		(1~20)p/h	<i>U</i> _{rel} =0.4%				



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
59	*Equipment of Biological Artificial Climate	Temperature	C.S. for Equipment of Biological Artificial Climate JJF(Zhe)1102	(5~50)℃	U=0.11℃			
		Humidity		(50~90)%RH	U=1.3%RH			
60	*Experimental Daylight Presses	Temperature	C.S. for Experimental	(30~300)℃	U=0.3℃			
		Parallelism	Daylight Presses JJF(Petrochemical Industry) 015	(0.01~0.25)mm/m	U=0.05mm/m			
		Tt		(1s~2h)	U=0.5s			
61	Digital Rail Thermometer	Temperature	V. R Thermometers-part2: Digital Rail Thermometers JJG 1158.2-2018	(-40~70)℃	U=0.13℃			
Electromagnetism								
1	*High-voltage Withstanding Voltage Tester	Voltage	V.R.of High-voltage Withstanding Voltage Tester JJG(MI)18	AC: (0.1~100)kV (50Hz)	U _{rel} =1.2%			
				DC: (0.1~100)kV	U _{rel} =0.6%			
		Electric current		AC: (0.5~200)mA (50Hz)	U _{rel} =1.8%			
				DC: (0.5~200)mA	U _{rel} =1.2%			
		Time		(1-9999)s	U _{rel} =1.2%			
2	*Proof Tracking Index Testers	Voltage	C.S.for Proof Tracking Index Testers JJF(Zhe)1087	10V~750V	U _{rel} =0.5%			
		Electric current		(0.01~3)A	U _{rel} =0.6%			
		Time		1s~999.9s	U=0.26s			
3	*Process Calibrators	Input dc resistance	C.S.for Process Calibrators JJF1472	0.1 Ω ~1M Ω	U _{rel} =2×10 ⁻⁵			
		Input current		10 μ A~1A	U _{rel} =0.07%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Input dc voltage	ilac-MEAS CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	1mV~110V	$U_{rel}=1.6 \times 10^{-4}$		
		Output dc resistance		0.1 Ω ~ 1M Ω	$U_{rel}=0.06\%$		
		Output current		10 μ A ~ 1A	$U_{rel}=0.07\%$		
		Output dc voltage		1mV~110V	$U_{rel}=6 \times 10^{-5}$		
		Thermal resistance measurement		(-200~850)°C	$U= (0.10 \sim 0.18) ^\circ\text{C}$		
		Thermocouple measurement		(-200~1600)°C	$U= (0.20 \sim 0.57) ^\circ\text{C}$		
		Temperature Thermal resistance output		(-200~850)°C	$U=0.10^\circ\text{C}$		
		Thermocouple output		(-200~1600)°C	$U=0.20^\circ\text{C}$		
4	*Online Testers of Winding Temperature Rise	Dc resistance	C.S.for Online Testers of Winding Temperature Rise JJF1540	0.1 Ω ~ 10k Ω	$U_{rel}=0.05\%$		
5	*Battery Internal Resistance Testers	Resistance	C.S.for Battery Internal Resistance Testers JJF1620	0.1m Ω ~ 2m Ω	$U_{rel}=0.12\%$	合格评定国家认可委员会 国家认证认可监督管理委员会 认可证书专用章	
				2m Ω ~ 20m Ω	$U_{rel}=0.025\%$		
				20m Ω ~ 3k Ω	$U_{rel}=0.015\%$		
		Dc voltage		(0.1~800)V	$U_{rel}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
6	Contactless Electrostatic Voltage Measuring Instruments	Voltage	C.S.for Contactless Electrostatic Voltage Measuring Instruments JJF1517	(0.01~20)kV	$U_{rel}=2.3\%$		
7	*Alibration specification of Winding Interturn Impulse Voltage Tester	Peak voltage	C.S.for Impulse Voltage Tester for Winding Interturn Insulation JJF1691	(0.01~15) kV	$U_{rel}=2.3\%$		
		Rise time		0.2 μ s or 1.2 μ s	$U_{rel}=2.5\%$		
8	*Surface Resistance Tester	Resistance	C.S.for Surface Resistance Tester JJF1285	($10^3 \sim 10^{12}$) Ω	$U_{rel}=1.5\%$		
		Voltage		(1~300)V	$U_{rel}=0.4\%$		
9	*D.C .R esistors	Resistance	V.R.of D.C .R esistors JJG166	(0.1~10) Ω	$U=0.42m \Omega$		
				(10~100) Ω	$U=4m \Omega$		
				(0.1~1)k Ω	$U=0.013 \Omega$		
				(1~10)k Ω	$U=0.13 \Omega$		
				(10~100)k Ω	$U=1.3 \Omega$		
				(0.1~1)M Ω	$U=0.021k \Omega$		
				(1~10)M Ω	$U=0.84k \Omega$		
				(10~100)M Ω	$U=61k \Omega$		
				(0.1~1)G Ω	$U=6M \Omega$		
10	*Multimeters	DC Voltage	C.S.for Multimeters JJF1587	1mV~330mV	$U=2 \times 10^{-5} V_x + 1 \mu V$		
				330mV~3.3V	$U=1.1 \times 10^{-5} V_x + 2 \mu V$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				3.3V~33V	$U=1.2 \times 10^{-5} V_x + 15 \mu V$		
				33V~330V	$U=1.8 \times 10^{-5} V_x + 0.15mV$		
				330V~1000V	$U=1.8 \times 10^{-5} V_x + 1.5mV$		
				1mV~33mV (10Hz~45Hz)	$U=8 \times 10^{-4} V_x + 6 \mu V$		
				1mV~33mV (45Hz~10kHz)	$U=1.5 \times 10^{-4} V_x + 6 \mu V$		
				1mV~33mV (10kHz~20kHz)	$U=2 \times 10^{-4} V_x + 6 \mu V$		
				1mV~33mV (20kHz~50kHz)	$U=1 \times 10^{-3} V_x + 6 \mu V$		
				1mV~33mV (50kHz~100kHz)	$U=3.5 \times 10^{-3} V_x + 12 \mu V$		
				33mV~330mV (10Hz~45Hz)	$U=3 \times 10^{-4} V_x + 8 \mu V$		
				33mV~330mV (45Hz~10kHz)	$U=1.3 \times 10^{-4} V_x + 8 \mu V$		
				33mV~330mV (10kHz~20kHz)	$U=1.5 \times 10^{-4} V_x + 8 \mu V$		
				33mV~330mV (20kHz~50kHz)	$U=3.5 \times 10^{-4} V_x + 8 \mu V$		
				33mV~330mV (50kHz~100kHz)	$U=8 \times 10^{-4} V_x + 32 \mu V$		
				0.33V~3.3V (10Hz~45Hz)	$U=3 \times 10^{-4} V_x + 50 \mu V$		
				0.33V~3.3V (45Hz~10kHz)	$U=1.2 \times 10^{-4} V_x + 25 \mu V$		
		AC Current					



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.33V~3.3V (10kHz~20kHz)	$U=1.9 \times 10^{-4} V_x + 50 \mu V$		
				0.33V~3.3V (20kHz~50kHz)	$U=3 \times 10^{-4} V_x + 50 \mu V$		
				0.33V~3.3V (50kHz~100kHz)	$U=7 \times 10^{-4} V_x + 0.13mV$		
				3.3V~33V (10Hz~45Hz)	$U=3 \times 10^{-4} V_x + 0.7mV$		
				3.3V~33V (45Hz~10kHz)	$U=1.2 \times 10^{-4} V_x + 25 \mu V$		
				3.3V~33V (10kHz~20kHz)	$U=2.4 \times 10^{-4} V_x + 0.6mV$		
				3.3V~33V (20kHz~50kHz)	$U=3.5 \times 10^{-4} V_x + 0.6mV$		
				3.3V~33V (50kHz~100kHz)	$U=9 \times 10^{-4} V_x + 1.6mV$		
				33V~330V (45Hz~1kHz)	$U=1.9 \times 10^{-4} V_x + 2mV$		
				33V~330V (1kHz~10kHz)	$U=2 \times 10^{-4} V_x + 6mV$		
				33V~330V (10kHz~20kHz)	$U=2.5 \times 10^{-4} V_x + 6mV$		
				33V~330V (20kHz~50kHz)	$U=3 \times 10^{-4} V_x + 6mV$		
				33V~330V (50kHz~100kHz)	$U=2 \times 10^{-3} V_x + 50mV$		
				330V~1000V (45Hz~1kHz)	$U=3 \times 10^{-4} V_x + 10mV$		
				330V~1000V (1kHz~5kHz)	$U=2.5 \times 10^{-4} V_x + 10mV$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		DC Current	ilac-M	330V~1000V (5kHz~10kHz)	$U=3\times10^{-4}V_x+10\text{mV}$		
				1 μ A~330 μ A	$U=1.5\times10^{-4}I_x+0.02\text{ μ A}$		
				330 μ A~3.3mA	$U=1\times10^{-4}I_x+0.03\text{ μ A}$		
				3.3mA~33mA	$U=1\times10^{-4}I_x+0.2\text{ μ A}$		
				33mA~330mA	$U=1\times10^{-4}I_x+2\text{ μ A}$		
				330mA~1.1A	$U=2\times10^{-4}I_x+40\text{ μ A}$		
				1.1A~3A	$U=3.8\times10^{-4}I_x+40\text{ μ A}$		
				3A~11A	$U=5\times10^{-4}I_x+0.33\text{mA}$		
				11A~20A	$U=1\times10^{-3}I_x+0.75\text{mA}$		
		AC Current		29 μ A~330 μ A (10Hz~20Hz)	$U=0.2\%I_x+1\text{ μ A}$		
				29 μ A~330 μ A (20Hz~1kHz)	$U=0.15\%I_x+0.1\text{ μ A}$		
				29 μ A~330 μ A (1kHz~5kHz)	$U=0.3\%I_x+0.15\text{ μ A}$		
				29 μ A~330 μ A (5kHz~30kHz)	$U=0.8\%I_x+0.2\text{ μ A}$		
				0.33mA~3.3mA (10Hz~20Hz)	$U=0.2\%I_x+15\text{ μ A}$		
				0.33mA~3.3mA (20Hz~1kHz)	$U=0.13\%I_x+0.15\text{ μ A}$		
				0.33mA~3.3mA (1kHz~5kHz)	$U=0.2\%I_x+0.2\text{ μ A}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.33mA~3.3mA (5kHz~10kHz)	$U=0.5\%I_x+0.3\mu A$		
				0.33mA~3.3mA (10kHz~30kHz)	$U=1\%I_x+0.6\mu A$		
				3.3mA~33mA (10Hz~45Hz)	$U=0.18\%I_x+2\mu A$		
				3.3mA~33mA (45Hz~1kHz)	$U=0.4\%I_x+2\mu A$		
				3.3mA~33mA (1kHz~5kHz)	$U=0.1\%I_x+2\mu A$		
				3.3mA~33mA (5kHz~10kHz)	$U=0.2\%I_x+3\mu A$		
				3.3mA~33mA (10kHz~30kHz)	$U=0.4\%I_x+4\mu A$		
				33mA~330mA (10Hz~45Hz)	$U=0.18\%I_x+20\mu A$		
				33mA~330mA (45Hz~1kHz)	$U=0.4\%I_x+20\mu A$		
				33mA~330mA (1kHz~5kHz)	$U=0.1\%I_x+50\mu A$		
				33mA~330mA (5kHz~10kHz)	$U=0.2\%I_x+0.1mA$		
				33mA~330mA (10kHz~30kHz)	$U=0.4\%I_x+0.2mA$		
				0.33A~3A (10Hz~45Hz)	$U=0.18\%I_x+0.1mA$		
				0.33A~3A (45Hz~1kHz)	$U=0.05\%I_x+0.1mA$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.33A~3A (1kHz~5kHz)	$U=0.6\%I_x+0.1\text{mA}$		
				0.33A~3A (5kHz~10kHz)	$U=2.5\%I_x+5\text{mA}$		
				3A~11A (10Hz~45Hz)	$U=0.06\%I_x+2\text{mA}$		
				3A~11A (45Hz~1kHz)	$U=0.1\%I_x+0.2\text{mA}$		
				3A~11A (1kHz~5kHz)	$U=3\%I_x+2\text{mA}$		
				11A~20A (10Hz~45Hz)	$U=0.12\%I_x+5\text{mA}$		
				11A~20A (45Hz~1kHz)	$U=0.15\%I_x+5\text{mA}$		
				11A~20A (1kHz~5kHz)	$U=3\%I_x+5\text{mA}$		
		Resistance		1 Ω ~ 11 Ω	$U=4 \times 10^{-5}R_x$		
				11 Ω ~ 33 Ω	$U=3 \times 10^{-5}R_x$		
				33 Ω ~ 110k Ω	$U=2.8 \times 10^{-5}R_x$		
				110k Ω ~ 1.1M Ω	$U=3.2 \times 10^{-5}R_x$		
				1.1M Ω ~ 3.3M Ω	$U=6 \times 10^{-5}R_x$		
				3.3M Ω ~ 11M Ω	$U=1.3 \times 10^{-4}R_x$		
				11M Ω ~ 33M Ω	$U=2.5 \times 10^{-4}R_x$		
				33M Ω ~ 110M Ω	$U=5 \times 10^{-4}R_x$		
				110M Ω ~ 330M Ω	$U=3 \times 10^{-3}R_x$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				330M Ω ~ 1G Ω	$U=1.5 \times 10^{-2}R_x$		
11	*Voltmeters、 Amperemeters、 Analog resistance 、 Wattmeters	DC Voltage	V.R.of Amperemeters,Voltmeters,W attmeters and Ohmmeters JJG124	0.1mV~1mV	$U=0.003\text{mV}$		
				1mV~10mV	$U=0.02\text{mV}$		
				10mV~100mV	$U=0.12\text{mV}$		
				0.1V~1V	$U=1.2\text{mV}$		
				1V~10V	$U=0.012\text{V}$		
				10V~100V	$U=0.12\text{V}$		
				100V~1000V	$U=1.2\text{V}$		
				0.1mV~10mV (45Hz~10kHz)	$U=0.02\text{mV}$		
		10mV~100mV (40Hz~10kHz)		$U=0.12\text{mV}$			
		0.1V~1V (40Hz~10kHz)		$U=1.2\text{mV}$			
		1V~10V (40Hz~10kHz)		$U=0.012\text{V}$			
		10V~100V (40Hz~10kHz)		$U=0.12\text{V}$			
		100V~1000V (40Hz~10kHz)		$U=1.2\text{V}$			
		DC Current		1 μ A~10 μ A	$U=0.03 \mu \text{ A}$		
				10 μ A~100 μ A	$U=0.13 \mu \text{ A}$		
				0.1mA~1mA	$U=0.011\text{mA}$		



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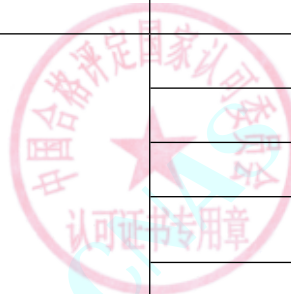
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC Current		1mA~10mA	$U=0.016\text{mA}$		
				10mA~100mA	$U=0.12\text{mA}$		
				100mA~1A	$U=1.2\text{mA}$		
				1A~10A	$U=0.012\text{A}$		
				10A~20A	$U=0.12\text{A}$		
				100 μA ~1mA(45Hz~1kHz)	$U=0.003\text{mA}$		
				100 μA ~1mA(1kHz~10kHz)	$U=0.007\text{mA}$		
				1mA~10mA(45Hz~1kHz)	$U=0.05\text{mA}$		
				1mA~10mA(1kHz~10kHz)	$U=0.03\text{mA}$		
				10mA~100mA (40Hz~10kHz)	$U=0.12\text{mA}$		
		resistance		100mA~1A (40Hz~10kHz)	$U=1.2\text{mA}$		
				1A~10A (40Hz~10kHz)	$U=0.012\text{A}$		
		DC Power		10A~20A (40Hz~10kHz)	$U=0.12\text{A}$		
				1 Ω ~20M Ω	$U_{\text{rel}}=0.3\%$		
				(0.1~1000)W	$U=1.2\text{W}$		
				(1000~3000)W	$U=4\text{W}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		AC power		(3000~10000)W	<i>U</i> =15W		
				(10000~20000)W	<i>U</i> =34W		
				(0.1~1000)W (45Hz~65Hz)	<i>U</i> =1.4W		
				(1000~3000)W (45Hz~65Hz)	<i>U</i> =5W		
				(3000~10000)W (45Hz~65Hz)	<i>U</i> =19W		
				(10000~20000)W (45Hz~65Hz)	<i>U</i> =48W		
12	*VDR DC Parameter Testers	DC reference current	C.S.for VDR DC Parameter Testers JJF(Zhe)1088	(0~100) μ A	<i>U</i> =0.06% <i>I</i> _x +0.03 μ A		
				(0~1)mA	<i>U</i> =0.06% <i>I</i> _x +0.0003mA		
		Varistor voltage		(0~1000)V	<i>U</i> =0.6V		
				(1000~1600)V	<i>U</i> _{rel} =0.06%		
		Leakage current		(1~100) μ A	<i>U</i> =0.04% <i>I</i> _x +0.07 μ A		
				(0.1~1)mA	<i>U</i> =0.04% <i>I</i> _x +0.0007mA		
13	*DC Stabilized Power Supplies	DC Voltage	C.S.for DC Stabilized Power Supplies JJF1597	100mV~1000V	<i>U</i> _{rel} =0.02%		
		DC Current		20mA~20A	<i>U</i> _{rel} =0.01%		
				20A~1000A	<i>U</i> _{rel} =0.03%		
		Load regulation		0.01%~1%	<i>U</i> =0.03%		
		Source regulation		0.01%~1%	<i>U</i> =0.03%		



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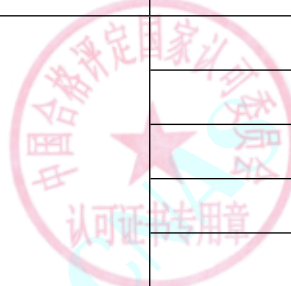
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Ripple voltage		1mV~1V	$U_{rel}=0.8\%$		
14	*Ac stabilized power supply (frequency conversion power supply)	AC Voltage	V.R. of AC Standard Current Sources JJG(MI)70, V.R. of AC Standard Voltage Source JJG(MI)71, C.S for Stable Character of AC Voltage Stable Source JJF(MI) 85	10V~120V (40Hz~1kHz)	$U_{rel}=0.03\%$		
				120V~1000V (40Hz~1kHz)	$U_{rel}=0.06\%$		
		AC Current		0.2A~2A (50Hz~400Hz)	$U_{rel}=0.14\%$		
				2A~20A (50Hz~400Hz)	$U_{rel}=0.14\%$		
		Frequency		50Hz~400Hz	$U_{rel}=0.03\%$		
				400Hz~10kHz	$U_{rel}=0.03\%$		
		Load regulation		0.1%~5%(50Hz~400Hz)	$U=0.3\%$		
		Source regulation		0.1%~5% (50Hz~400Hz)	$U=0.5\%$		
15	*D.C. Low Resistance Meter	Resistance	V.R. of D.C. Low Resistance Meter JJG837	1m Ω ~10m Ω	$U_{rel}=0.2\%$		
				10m Ω ~100m Ω	$U_{rel}=0.1\%$		
				100m Ω ~1 Ω	$U_{rel}=0.1\%$		
				1 Ω ~10 Ω	$U_{rel}=0.02\%$		
				20 Ω ~200 Ω	$U=0.020\%R_x+0.011\Omega$		
				0.2k Ω ~2k Ω	$U=0.020\%R_x+0.11\Omega$		
				2k Ω ~20k Ω	$U=0.020\%R_x+1.1\Omega$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				20k Ω ~ 200k Ω	<i>U</i> =0.020% <i>R</i> _x +11 Ω		
				0.2M Ω ~ <1.1M Ω	<i>U</i> =0.020% <i>R</i> _x +30 Ω		
16	*D.C.Resistance Box	Resistance	V.R.of D.C.Resistance Box JJG982	(0.1~10) Ω	<i>U</i> =0.42m Ω		
				(10~100) Ω	<i>U</i> =4.2m Ω		
				(0.1~1)k Ω	<i>U</i> =0.013 Ω		
				(1~10)k Ω	<i>U</i> =0.13 Ω		
				(10~100)k Ω	<i>U</i> =1.3 Ω		
				(0.1~1)M Ω	<i>U</i> =0.021k Ω		
				(1~10)M Ω	<i>U</i> =0.84k Ω		
		Resistance		(0.1~1000)m Ω	<i>U</i> =0.13m Ω		
17	*Earth Resistance Meter	Resistance	V.R.of Earth Resistance Meter JJG366	1 Ω ~ 1000 Ω	<i>U</i> _{rel} =0.6%		
18	*Earth-Continuity Testers	Resistance	V.R.of Earth-Continuity Testers JJG984	10m Ω ~ 600m Ω	<i>U</i> _{rel} =0.3%		
		Current		1A ~ 50A	<i>U</i> _{rel} =0.4%		
19	*Electrolytic Capacitor Leakage Current Tester	DC Current	V.R.of Electrolytic Capacitor Leakage Current Tester JJG(Elec)306003	100 μ A ~ 200 μ A	<i>U</i> _{rel} =0.06%		
				200 μ A ~ 2mA	<i>U</i> _{rel} =0.04%		
				2mA ~ 100mA	<i>U</i> _{rel} =0.03%		
		DC Voltage		10V ~ 100V	<i>U</i> _{rel} =0.06%		
				100V ~ 1000V	<i>U</i> _{rel} =0.1%		
20	*Withstanding Voltage Tester	High Voltage	V.R.of Withstanding Voltage Tester JJG795	DC: 0.5kV ~ 15kV	<i>U</i> _{rel} =0.4%		

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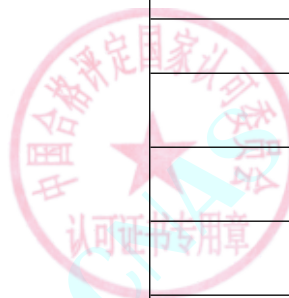
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				AC: 0.5kV~15kV	<i>U</i> _{rel} =0.7%			
		Current		DC: 0.5mA~200mA	<i>U</i> _{rel} =0.5%			
		Current		AC: 0.5mA~200mA	<i>U</i> _{rel} =0.6%			
		Time		1s~20s	<i>U</i> =0.1s			
				20s~999s	<i>U</i> _{rel} =0.5%			
21	*Cable Testers	On Resistance	C.S.for Cable Testers JJF1457	1 Ω ~ 50k Ω	<i>U</i> _{rel} =1.3%			
		Insulation Resistance		100k Ω ~ 500M Ω	<i>U</i> _{rel} =1.8%			
		DC Voltage		10V~1500V	<i>U</i> _{rel} =0.22%			
		AC Voltage		10V~1500V (45Hz~65Hz)	<i>U</i> _{rel} =0.5%			
					<i>U</i> _{rel} =0.2%			
22	*Digital AC Electrical Parameters Meter	AC Power	Verification Regulation of AC Digital Powermeter JJG780,Calibration Specification for Multimeters JJF 1587	1W~3.3W (45Hz~ 1kHz)	<i>U</i> _{rel} =0.16%			
				3.3W~33W(45Hz~ 1kHz)	<i>U</i> _{rel} =0.13%			
				33W~330W(45Hz~ 1kHz)	<i>U</i> _{rel} =0.13%			
				330W~3kW(45Hz~ 1kHz)	<i>U</i> _{rel} =0.08%			
				3kW~11kW(45Hz~ 1kHz)	<i>U</i> _{rel} =0.13%			
				11kW~20kW(45Hz~ 1kHz)	<i>U</i> _{rel} =0.21%			



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N ₂	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Voltage	ilac-M	3.3V~33V(45Hz~1kHz)	$U_{rel}=0.02\%$		
				33V~330V(45Hz~1kHz)	$U_{rel}=0.03\%$		
				330V~1020V(45Hz~1kHz)	$U_{rel}=0.04\%$		
		AC Current		1mA~3.3mA(45Hz~1kHz)	$U_{rel}=0.14\%$		
				3.3mA~33mA(45Hz~1kHz)	$U_{rel}=0.15\%$		
				33mA~330mA(45Hz~1kHz)	$U_{rel}=0.15\%$		
				0.33A~3A(45Hz~1kHz)	$U_{rel}=0.08\%$		
				3A~11A(45Hz~1kHz)	$U_{rel}=0.12\%$		
				11A~20A(45Hz~1kHz)	$U_{rel}=0.2\%$		
23	*Leakage Current Instrument and Meter	DC Voltage	V.R.of Leakage Current Instrument and Meter JJG843	10V~1000V	$U_{rel}=0.05\%$		
		DC Current		0.1mA~1mA	$U_{rel}=0.07\%$		
				1mA~100mA	$U_{rel}=0.05\%$		
		AC Voltage		10V~1000V (45Hz~65Hz)	$U_{rel}=0.12\%$		
		AC Current		0.1mA~1mA (45Hz~65Hz)	$U_{rel}=0.4\%$		
				1mA~100mA (45Hz~65Hz)	$U_{rel}=0.3\%$		
		Input Resistance		200Ω~2.5kΩ	$U_{rel}=0.12\%$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
24	*Clamp Ammeters	DC Current	C.S.for Clamp Ammeters JJF1075	1A~1000A	<i>U</i> _{rel} =0.4%		
		AC Current		1A~1000A (45Hz~65Hz)	<i>U</i> _{rel} =0.5%		
25	*DC Electronic Load	Current	C.S.for DC Electronic Load JJF1462	220mA~2.2A	<i>U</i> _{rel} =0.03%	The constant voltage is only 60V	
				2.2A~20A	<i>U</i> _{rel} =0.03%		
				20A~300A	<i>U</i> _{rel} =0.11%		
		Voltage		20mV~220mV	<i>U</i> _{rel} =0.04%		
				220mV~1000V	<i>U</i> _{rel} =0.03%		
				Power	0.1W~1kW		
		Resistance		(0.1~100) Ω	<i>U</i> _{rel} =0.06%		
				(0.1~100)k Ω	<i>U</i> _{rel} =0.02%		
26	*DC Potentiometers	DC Voltage	V.R.of DC Potentiometers JJG123	1 μ V~2.1111V	<i>U</i> _{rel} =0.01%		
27	*Insulation Resistance Meter	Resistance	V.R.of Insulation Resistance Meter JJG622	100 Ω ~11M Ω	<i>U</i> _{rel} =0.5%		
				11M Ω ~110M Ω	<i>U</i> _{rel} =1%		
				110M Ω ~1100M Ω	<i>U</i> _{rel} =2%		
				1.1G Ω ~11G Ω	<i>U</i> _{rel} =5%		
				11G Ω ~200G Ω	<i>U</i> _{rel} =7%		
		Voltage		10V~5000V	<i>U</i> _{rel} =0.4%		
28	*DC Bridges	Resistance	V.R.of DC Bridges JJG125	1 Ω ~100k Ω	<i>U</i> _{rel} =0.04%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
				100k Ω ~ 1M Ω	U _{rel} =0.1%			
29	*Electronic Insulating Resistance Meters	Resistance	V.R.of Electronic Insulating Resistance Meters JJG1005	100 Ω ~ 11M Ω	U _{rel} =0.3%			
				11M Ω ~ 110M Ω	U _{rel} =0.6%			
				110M Ω ~ 1100M Ω	U _{rel} =1.2%			
				1.1G Ω ~ 11G Ω	U _{rel} =2.2%			
				11G Ω ~ 200G Ω	U _{rel} =7%			
		Voltage	10V~5000V	U _{rel} =0.4%				
30	*Safety Pameter Tester	Voltage (withstand voltage)	C.S for safety Pameter tester JJF(JJF (Elec) 0004)0004	DC: 0.5kV~10kV	U _{rel} =0.4%			
				AC: 0.5kV~10kV	U _{rel} =0.7%			
		Current (withstand voltage)		DC: 0.5mA~200mA	U _{rel} =0.5%			
				AC: 0.5mA~200mA	U _{rel} =0.6%			
		Duration of withstand voltage		1s~20s	U=0.1s			
				20s~999s	U _{rel} =0.5%			
		Insulation resistance		100 Ω ~ 11M Ω	U _{rel} =0.3%			
				11M Ω ~ 110M Ω	U _{rel} =0.6%			
				110M Ω ~ 1100M Ω	U _{rel} =1.2%			
				1.1G Ω ~ 11G Ω	U _{rel} =2.2%			
				11G Ω ~ 200G Ω	U _{rel} =7%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		VoltageInsulation test voltage		10V~5000V	<i>U</i> _{rel} =0.4%		
		Grounding on resistance		10m Ω ~ 100m Ω	<i>U</i> _{rel} =0.7%		
				100m Ω ~ 600m Ω	<i>U</i> _{rel} =0.3%		
		Ground conduction current		1A~50A	<i>U</i> _{rel} =0.4%		
		Leakage test DC Voltage		10V~1000V	<i>U</i> _{rel} =0.05%		
		AC VoltageLeakage test AC voltage		10V~1000V （45Hz~65Hz）	<i>U</i> _{rel} =0.12%		
		DC Leakage Current		0.1mA~1mA	<i>U</i> _{rel} =0.07%		
				1mA~100mA	<i>U</i> _{rel} =0.05%		
		AC Leakage Current		0.1mA~1mA （45Hz~65Hz）	<i>U</i> _{rel} =0.4%		
				1mA~100mA（45Hz~65Hz）	<i>U</i> _{rel} =0.3%		
31	*High Insulation Resistance meters	Resistance	V.R.of High Insulation Resistance meters JJG690	1.0G Ω ~ 11G Ω	<i>U</i> _{rel} =2.2%		
				11G Ω ~ 200G Ω	<i>U</i> _{rel} =7%		
		Voltage		10V~5000V	<i>U</i> _{rel} =0.7%		
32	*Wire Spark Tester	Voltage	V.R.of wire Spark Tester JJG(Su)74	DC(1~50)kV	<i>U</i> _{rel} =0.7%		
				AC(1~50)kV	<i>U</i> _{rel} =1.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Electrode Length		(0~150)mm	<i>U</i> =0.020mm		
33	*Static voltage meter	DC Voltage	V.R. for Static voltage meter JJG494	(1~50)kV	<i>U</i> _{rel} =0.35%		
		AC Voltage		1kV~50kV (50Hz~60Hz)	<i>U</i> _{rel} =0.5%		
34	*Loop Resistance Tester	Resistance	V.R. of Loop Resistance Tester and DC Resistance Meters JJG1052	0.01mΩ~0.1mΩ	<i>U</i> _{rel} =0.5%		
				0.1mΩ~20mΩ	<i>U</i> _{rel} =0.05%		
		Current		50A~100A	<i>U</i> _{rel} =0.60%		
35	*Digital AC Electircal Parameters Meter	AC Current	C.S. for Digital AC Electircal Parameters Meter JJF1491	3.3mA~330mA (45Hz~65Hz)	<i>U</i> _{rel} =0.15%		
				0.33A~3A (45Hz~65Hz)	<i>U</i> _{rel} =0.09%		
				3A~11A (45Hz~65Hz)	<i>U</i> _{rel} =0.13%		
				11A~20A (45Hz~65Hz)	<i>U</i> _{rel} =0.2%		
		AC Voltage		30V~480V (45Hz~65Hz)	<i>U</i> _{rel} =0.05%		
		Phase		-180°~180°	<i>U</i> =0.5°		
		Frequency		(45~60)Hz	<i>U</i> _{rel} =1.5×10 ⁻⁴		
		Power		0.1W~3.3W (45Hz~65Hz)	<i>U</i> _{rel} =0.16%		
3.3W~11kW (45Hz~65Hz)	<i>U</i> _{rel} =0.13%						



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				11kW~22kW（45Hz~65Hz）	<i>U</i> _{rel} =0.22%		
36	*Number of turns instrument	Turns	C.S.for Coil Number Testing Instructing JJF(Zhe)1065	(0~11110)匝	<i>U</i> =1T		
37	*Clamp Earth Resistance Meters	Resistance	V.R.of Clamp Earth Resistance Meters JJG1054	(0.1~1) Ω	<i>U</i> _{rel} =2.3%		
				(1~10) Ω	<i>U</i> _{rel} =0.72%		
				(10~100) Ω	<i>U</i> _{rel} =0.26%		
				(100~1000) Ω	<i>U</i> _{rel} =0.21%		
38	*Magnetic Particle Flaw Detectors	DC Current	C.S.for Magnetic Particle Flaw Detectors JJF1273	(0.1~10000)A	<i>U</i> _{rel} =2.0%		
		AC Current		(1~10000)A ， (45Hz~65Hz)	<i>U</i> _{rel} =5%		
39	*Magnetic Yoke Detectors	Current	C.S for Magnetic Yoke Detectors JJF1458	(0.1~50)A	<i>U</i> _{rel} =4.0%		
		Force		(5~300)N	<i>U</i> _{rel} =1.2%		
40	*Multi-function calibrator	DC Voltage	V.R.of DC Standard Voltage Source JJF 1638,Calibration specification of calibrators for electrical meters JJF1284	20mV~200mV	<i>U</i> _{rel} =0.0009%		
				200mV~1000V	<i>U</i> _{rel} =0.001%		
		DC Current		20 μ A~200 μ A	<i>U</i> _{rel} =0.008%		
				200 μ A~200mA	<i>U</i> _{rel} =0.008%		
				200mA~1A	<i>U</i> _{rel} =0.03%		
				AC Voltage	60mV~200mV（10Hz~40Hz）		
		200mV~2V（10Hz~40Hz）			<i>U</i> =0.012% <i>V</i> _x +20 μ V		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				2V~20V (10Hz~40Hz)	$U=0.012\%V_x+0.2\text{mV}$		
				20V~200V (10Hz~40Hz)	$U=0.012\%V_x+2\text{mV}$		
				200V~1000V (10Hz~40Hz)	$U=0.012\%V_x+20\text{mV}$		
				60mV~200mV (40Hz~100Hz)	$U=0.015\%V_x+4\text{ }\mu\text{V}$		
				200mV~2V (40Hz~100Hz)	$U=0.010\%V_x+20\text{ }\mu\text{V}$		
				2V~20V (40Hz~100Hz)	$U=0.030\%V_x+0.2\text{mV}$		
				20V~200V (40Hz~100Hz)	$U=0.06\%V_x+2\text{mV}$		
				200V~1000V (40Hz~100Hz)	$U=0.080V_x\%+20\text{mV}$		
				60mV~200mV (100Hz~2kHz)	$U=0.05\%V_x+2\text{ }\mu\text{V}$		
				200mV~2V (100Hz~2kHz)	$U=0.03\%V_x+20\text{ }\mu\text{V}$		
				2V~20V (100Hz~2kHz)	$U=0.04\%V_x+0.2\text{mV}$		
				20V~200V (100Hz~2kHz)	$U=0.08\%V_x+2\text{mV}$		
				200V~1000V (100Hz~2kHz)	$U=1.0\%V_x+20\text{mV}$		
				60mV~200mV (2kHz~10kHz)	$U=0.05\%V_x+4\text{ }\mu\text{V}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				200mV~2V (2kHz~10kHz)	$U=0.03\%V_x + 20 \mu V$		
				2V~20V (2kHz~10kHz)	$U=0.05\%V_x + 0.2mV$		
				20V~200V (2kHz~10kHz)	$U=0.08\%V_x + 2mV$		
				200V~1000V (2kHz~10kHz)	$U=1.0\%V_x + 20mV$		
				60mV~200mV (10kHz~30kHz)	$U=0.2\%V_x + 8 \mu V$		
				200mV~2V (10kHz~30kHz)	$U=0.05\%V_x + 40 \mu V$		
				2V~20V (10kHz~30kHz)	$U=0.06\%V_x + 0.4mV$		
				20V~200V (10kHz~30kHz)	$U=0.20\%V_x + 4mV$		
				200V~1000V (10kHz~30kHz)	$U=0.3\%V_x + 40mV$		
				60mV~200mV (30kHz~100kHz)	$U=0.09\%V_x + 20 \mu V$		
				200mV~2V (30kHz~100kHz)	$U=0.10\%V_x + 0.2mV$		
				2V~20V (30kHz~100kHz)	$U=0.20\%V_x + 2mV$		
				20V~200V (30kHz~100kHz)	$U=0.30\%V_x + 20mV$		
				200V~1000V (30kHz~100kHz)	$U=0.40\%V_x + 0.2V$		



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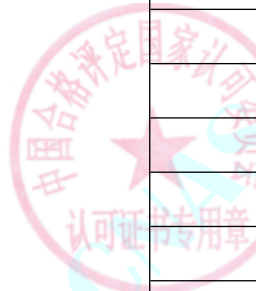
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC Current		200mV~2V (100kHz~300kHz)	$U=0.4\%V_x + 2\text{mV}$		
				2V~20V (100kHz~300kHz)	$U=0.5\%V_x + 20\text{mV}$		
				200mV~2V (300kHz~1MHz)	$U=1.2\%V_x + 20\text{mV}$		
				2V~20V (300kHz~1MHz)	$U=2.0\%V_x + 0.2\text{V}$		
				20 μA ~200 μA (20Hz~100Hz)	$U=0.07\%I_x + 0.02 \mu\text{A}$		
				200 μA ~2mA (20Hz~100Hz)	$U=0.03\%I_x + 0.2 \mu\text{A}$		
				2mA~20mA (20Hz~100Hz)	$U=0.03\%I_x + 2 \mu\text{A}$		
				20mA~<200mA (20Hz~100Hz)	$U=0.03\%I_x + 20 \mu\text{A}$		
				200mA~1A (20Hz~100Hz)	$U=0.07\%I_x + 0.2\text{mA}$		
				20 μA ~200 μA (100Hz~5kHz)	$U=0.08\%I_x + 0.02 \mu\text{A}$		
				200 μA ~2mA (100Hz~5kHz)	$U=0.04\%I_x + 0.2 \mu\text{A}$		
				2mA~20mA (100Hz~5kHz)	$U=0.04\%I_x + 2 \mu\text{A}$		
				20mA~200mA (100Hz~5kHz)	$U=0.04\%I_x + 20 \mu\text{A}$		
				200mA~1A (100Hz~5kHz)	$U=0.08\%I_x + 0.2\text{mA}$		



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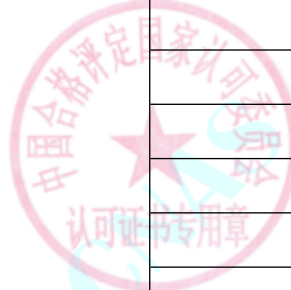
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Resistance	C.S. for Charge & Discharge of Battery Tester JJF(MI)108	1 Ω ~ 2 Ω	U=0.003%Rx+0.004m Ω		
				2 Ω ~ 10 Ω	U=0.002%Rx+0.014m Ω		
				10 Ω ~ 100 Ω	U=0.002%Rx+0.05m Ω		
				100 Ω ~ 1k Ω	U=0.0012%Rx+0.5m Ω		
				1k Ω ~ 10k Ω	U=0.0014%Rx+5m Ω		
				10k Ω ~ 100k Ω	U=0.0016%Rx+50m Ω		
				100k Ω ~ 1M Ω	U=0.0020%Rx+1 Ω		
				1M Ω ~ 10M Ω	U=0.008%Rx+10 Ω		
				10M Ω ~ 100M Ω	U=0.08%Rx+ 1k Ω		
				200M Ω ~ 1G Ω	U=0.8%Rx+ 100k Ω		
		Frequency		1Hz~50Hz	U _{rel} =0.07%		
				50Hz~1MHz	U _{rel} =0.02%		
41	*Charge & Discharge of Battery Tester	Voltage	(1~10)V	U=0.0012V			
			(10~1000)V	U=0.014V			
		Current	(10~100)mA	U=0.051mA			
			(100~1000)mA	U=0.50mA			
			(1~2)A	U _{rel} =0.04%			
			(2~20)A	U _{rel} =0.02%			
			(20~200)A	U _{rel} =0.03%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Resistance	C.S.for Wrist Strap and Footwear Tester JJF(Elec)31502	(200～1000)A	<i>U</i> _{rel} =0.06%		
				100m Ω ～10 Ω	<i>U</i> _{rel} = 0.07%		
				10 Ω ～1k Ω	<i>U</i> _{rel} =0.19%		
		Power		(0.01～1)W	<i>U</i> _{rel} =0.13%		
				(1～1000)W	<i>U</i> _{rel} =0.024%		
				(1～10)kW	<i>U</i> _{rel} =0.035%		
		Discharge capacity		0.1Ah～1Ah	<i>U</i> =0.0012Ah		
				1Ah～10Ah	<i>U</i> =0.0031Ah		
				10Ah～1kAh	<i>U</i> _{rel} =0.03%		
		Rise time		10 μ s～10ms	<i>U</i> _{rel} =0.24%		
42	*Wrist Strap and Footwear Tester	Resistance	C.S.for Wrist Strap and Footwear Tester JJF(Elec)31502	100k Ω ～500M Ω	<i>U</i> _{rel} =1.5%		
43	*Testers for Relaying Protection	DC Voltage	V.R.of Testers for Relaying Protection JJG1112	(0.2～20)V	<i>U</i> _{rel} =0.024%		
				(20～200)V	<i>U</i> _{rel} =0.01%		
				(200～1000)V	<i>U</i> _{rel} =0.007%		
		DC Current		(10～200)mA	<i>U</i> _{rel} =0.023%		
				(200～2000)mA	<i>U</i> _{rel} =0.07%		
				(2～20)A	<i>U</i> _{rel} =0.07%		
				(20～200)A	<i>U</i> _{rel} =0.081%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
		AC Voltage		(200~1000)A	<i>U</i> _{rel} =0.06%				
				(0.2~20) V (45Hz~65Hz)	<i>U</i> _{rel} =0.25%				
				(20~200) V (45Hz~65Hz)	<i>U</i> _{rel} =0.25%				
				(200~500) V (45Hz~65Hz)	<i>U</i> _{rel} =0.14%				
		AC Current		(10mA~10A) (45Hz~65Hz)	<i>U</i> _{rel} =0.5%				
				(10~200) A (45Hz~65Hz)	<i>U</i> _{rel} =1.7%				
				(200~1000) A (45Hz~65Hz)	<i>U</i> _{rel} =1.2%				
44	*Resistivity Measuring Instruments with Four — Probe Array Method	Resistivity	C.S.of Resistivity Measuring Instruments with Four — Probe Array Method JJG 508	(0.01~180) Ω •cm	<i>U</i> _{rel} =1.5%				
45	*DC Resistance Meters	Resistance	V.R.of Loop Resistance Tester and DC Resistance Meters JJG1052	(2~20)m Ω	<i>U</i> _{rel} =0.08%				
				(0.02~20) Ω	<i>U</i> _{rel} =0.02%				
				(0.02~20)k Ω	<i>U</i> _{rel} =0.02%				
		Current		(0.001~50)A	<i>U</i> _{rel} =0.02%				
46	*Current transformer	Ratio difference	V.R.of Instrument Current Transformers JJG313	(5~1000)A/5A 50Hz/60Hz	<i>U</i> _{rel} =0.03%				
		Phase difference		(0~500.0)′ 50Hz/60Hz	<i>U</i> =1.6′				



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47	*Voltage transformer	Ratio difference	V.R.of Instrument Voltage Transformers JJG314,V.R.of	(10kV/100V) 50Hz/60Hz	$U_{rel}=0.03\%$		
		Phase difference	Instrument Transformers in Power System JJG1021	(0~500.0)' 50Hz/60Hz	$U=1.4'$		
48	*Burden Box of Instrument Transformers	Admittance	C.S.for Burden Box of Instrument Transformers	(0.0001~20.0)mS	$U_{rel}=2.4\%$		
		Impedance	JJF1264	(0.0001~20.0) Ω	$U_{rel}=2.4\%$		
49	Ultrasonic Flaw Detector	attenuation	V.R.of Ultrasonic Flaw Detector JJG746	(0~80)dB	$U=0.4dB$		
		Vertical Linearity		0.1%~100%,(2.5~10)MHz	$U_{rel}=6.8\%$		
		Horizontal Linear		0.1%~100%,(2.5~10)MHz	$U_{rel}=0.8\%$		
		Maximum Sensitivity		(300~450) μV	$U_{rel}=2.3\%$		
50	*X-ray Flaw Detectors	Kerna Rate	V.R.of X-ray Flaw Detectors JJG 40	(1.0~1000)cGy/min	$U_{rel}=5\%$		
		Time		(1~3600)s	$U=0.04s$		
		Radiation Angle		1° ~90°	$U=0.5^\circ$		
51	*Eddy Current Flaw Detector	Frequency	V.R.of Eddy Current Flaw Detector JJG(MH) 0061	10Hz~10MHz	$U_{rel}=0.3\%$		
		Voltage		10mV~10V	$U_{rel}=0.6\%$		
52	*Enthalpy Potential Testing Apparatus	AC voltage	C.S for Enthalpy Potential Testing Apparatus JJF(JX)1005	(50~450)V (45Hz~65Hz)	$U_{rel}=0.15\%$		
		AC current		(0.5~100)A (45Hz~65Hz)	$U_{rel}=0.15\%$		
		AC power		(0.01~20)kW (45~65)Hz	$U_{rel}=0.15\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(20~60)kW (45Hz~65Hz)	$U_{rel}=0.23\%$		
		Frequency		(45~65)Hz	$U_{rel}=0.03\%$		
		electric energy		0.001kWh~45 kWh (45Hz~65Hz)	$U_{rel}=0.23\%$		
		Distortion		(0.1~3)%	$U_{rel}=0.04\%$		
		Power factor		(0~1.0)	$U=0.0013$		
		Platinum resistance temperature		(-40~150)°C	$U=0.04^{\circ}\text{C}$		
		Thermocouple temperature		(-40~300)°C	$U=0.2^{\circ}\text{C}$		
		relative humidity		(10~95)%RH	$U=1.5\%\text{RH}$		
		Pressure		(-0.1~15)MPa	$U=0.1\%\text{FS}$		
		水压差 水压差 Water pressure difference		(0.1~400)kPa	$U=0.1\%\text{FS}$		
		Atmospheric pressure		(800~1100)hPa	$U=0.3\text{ hPa}$		
		wind speed		(5~10)m/s	$U_{rel}=3.2\%$		
		Micro differential pressure		(1~2000)Pa	$U=2.0\text{Pa}$		
		speed		(30~20000) r/min	$U_{rel}=0.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		mass flow		(0.1～40)t/h	<i>U</i> _{rel} =0.4%		
		Volume flow		(0.1～40)m ³ /h	<i>U</i> _{rel} =0.4%		
		Working condition temperature		(-40～100)℃	<i>U</i> =0.4℃		
		Working condition relative humidity		(20～95)%RH	<i>U</i> =1.8%RH		
		Nozzle size		(5～300)mm	<i>U</i> =0.018mm		
53	*Commercial Food Freezers Testing Apparatus	AC voltage	C.S for Commercial Food Freezers Testing Apparatus JJF(JX)1021	(50～450)V (45Hz～65Hz)	<i>U</i> _{rel} =0.15%		
		AC current		(0.1～20)A (45Hz～65Hz)	<i>U</i> _{rel} =0.23%		
		AC power		(0.01～20)kW (45Hz～65Hz)	<i>U</i> _{rel} =0.15%		
				(20～40)kW (45Hz～65Hz)	<i>U</i> _{rel} =0.13%		
		Frequency		(45～65)Hz	<i>U</i> _{rel} =0.03%		
		electric energy		0.01kWh～8 kWh (45Hz～65Hz)	<i>U</i> _{rel} =0.23%		
		Distortion		(0.1～10)%	<i>U</i> _{rel} =0.04%		
		power factor		(0～1.0)	<i>U</i> =0.0013		
		Platinum resistance temperature		(-40～150)℃	<i>U</i> =0.04℃		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Thermocouple resistance temperature system		(-40~300)℃	U=0.2℃		
		Relative humidity sensor		(10~90)%RH	U=1.5%RH		
		Pressure		(-0.1~6)MPa	U=0.1%FS		
		wind speed		(1~10)m/s	U _{rel} =3.2%		
		Illuminance		(20~3000)lx	U _{rel} =5%		
		Working condition temperature		(-40~100)℃	U=0.3℃		
		Working condition relative humidity		(20~95)%RH	U=1.8%		
		54		*Motor comprehensive performance tester	High Voltage		C.S for Motor Comprehensive Performance Tester JJF(Zhe)1184
Current (withstand voltage)	AC:0.5mA~200mA		U _{rel} =0.6%				
Duration of withstand voltage	1s~20s		U=0.1s				
	20s~999s		U _{rel} =0.5%				
Insulation resistance	1MΩ~11MΩ		U _{rel} =0.3%				
	11MΩ~110MΩ		U _{rel} =0.6%				
	110MΩ~1100MΩ		U _{rel} =1.2%				

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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Voltage		10V~5000V	$U_{rel}=0.4\%$		
		Insulation test voltage					
		AC Power		1W~3.3W (45Hz~65Hz)	$U_{rel}=0.16\%$		
				3.3W~33W (45Hz~65Hz)	$U_{rel}=0.13\%$		
				33W~330W (45Hz~65Hz)	$U_{rel}=0.13\%$		
				330W~3kW (45Hz~65Hz)	$U_{rel}=0.08\%$		
				3kW~11kW (45Hz~65Hz)	$U_{rel}=0.13\%$		
				11kW~20kW (45Hz~65Hz)	$U_{rel}=0.21\%$		
		AC voltage		3.3V~33V (45Hz~65Hz)	$U_{rel}=0.02\%$		
				33V~330V (45Hz~65Hz)	$U_{rel}=0.03\%$		
				330V~750V (45Hz~65Hz)	$U_{rel}=0.04\%$		
		AC current		0.33A~3A (45Hz~65Hz)	$U_{rel}=0.08\%$		
				3A~11A (45Hz~65Hz)	$U_{rel}=0.12\%$		
				11A~20A (45Hz~65Hz)	$U_{rel}=0.2\%$		
		Peak voltage		(0.01~5)kV	$U_{rel}=2.3\%$		
		Resistance		10m Ω ~ 100m Ω	$U_{rel}=0.1\%$		



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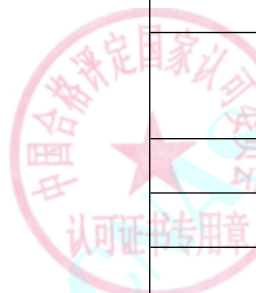
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				100m Ω ~ 1 Ω	U _{rel} =0.05%		
				1 Ω ~ 2k Ω	U _{rel} =0.03%		
55	*Spark tester for wire and cable	Voltage	C.S for spark tester for wire and cable JJF(Mec)1047	(1~15)kV (500Hz~300kHz)	U _{rel} =3%		
		Frequency		500Hz~300kHz	U _{rel} =0.2%		
Radio							
1	Oscilloscope Calibrator	Voltage	V.R.of Oscilloscope Calibrator JJG278	1mV~200V	U _{rel} =0.21%		
		Time scale		0.5ns~10s	U _{rel} =1×10 ⁻⁹		
		Rising Time		210ps~50ns	U _{rel} =7%		
		sinusoidal wave amplitude		5mV~5.5V(Peak-Peak)	U _{rel} =0.3%		
		sinusoidal wave frequency		0.1Hz~3.2GHz	U _{rel} =1.2×10 ⁻⁷		
2	High Volitage Probes of Oscilloscope	Voltage Damping ratio	C.S.for High Volitage Probes of Oscilloscope JJF(Elec)30304	DC:1~1000 (1V~20kV)	U _{rel} =0.6%		
				AC:1~1000 (50V~5kV)	U _{rel} =0.6%		
3	Power indicator	Power	C.S of Power Meters JJF 1757	3 μ W~100mW(-25dBm~+20dBm)	U _{rel} =0.32%		
4	*Passive Intermodulation Analyzers	Output frequency	C.S.for Passive Intermodulation Analyzers JJF1463	10Hz~6GHz	U _{rel} =2×10 ⁻⁷		
		Output power		(0~50)dBm (150kHz~6GHz)	U=0.6dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Passive intermodulation		(-50~-140)dBm	<i>U</i> =0.3dB		
5	*Digital Storage Oscilloscope	Bandwidth	C.S.of Digital Storage Oscilloscope JJF1057,Verification Regulation for digital oscilloscope GJB7691	10MHz~3000MHz	<i>U</i> _{rel} =1.7%		
		Time		1ns~10s	<i>U</i> _{rel} =0.5%		
		Voltage		1mV~2V	<i>U</i> _{rel} =0.6%		
				2V~100V	<i>U</i> _{rel} =0.5%		
		Rise time		0.25ns~1s	<i>U</i> _{rel} =6.9%		
6	*Network Analyzers	Frequency	C.S.for Vector Network Analyzers JJF1495	10Hz~20GHz	<i>U</i> _{rel} =3.5×10 ⁻⁷		
		Power level		-70dBm~+20dBm(150kHz~18GHz)	<i>U</i> =0.6dB		
		Attenuation		20dB（50MHz~18GHz）	<i>U</i> =0.02dB		
		VSWR		2.0(925MHz~960MHz)	<i>U</i> _{rel} =5%		
7	*Bluetooth Test Set	Output frequency	C.S.for Bluetooth Test Set JJF1278	2.402GHz~2.480GHz	<i>U</i> _{rel} =3.5×10 ⁻⁷		
		Output level		-90dBm~0dBm(2.402GHz~2.480GHz)	<i>U</i> =0.57dB		
				2th:（0~80）dBc	<i>U</i> =2.5dB		
		Harmonic		3th:（0~80）dBc	<i>U</i> =2.5dB		
		Phase noise		-142dBc/Hz~-70dBc/Hz	<i>U</i> =2.5dB		



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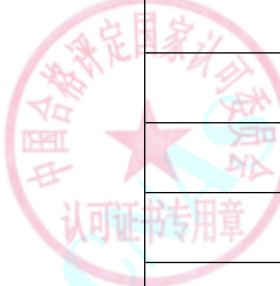
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Power measurement		-70dBm~22dBm	U=0.40dB		
		Frequency measurement		2.402GHz~2.480GHz	U _{rel} =3.5×10 ⁻⁷		
8	*Semiconductor Device Curve Tracer	X axis voltage	C.S.for Semiconductor Device Curve Tracer JJF1236	10mV~1000V	U _{rel} =0.5%		
		Y axis current		1 μ A~50A	U _{rel} =0.5%		
		X-step voltage		50mV~50V	U _{rel} =2.5%		
		Y step current		0.2 μ A~2A	U _{rel} =2.5%		
9	*LF Electronic Voltmeter	Voltage(base error)	V.R.of LF Electronic Voltmeter JJG782	10mV~300V (1kHz)	U _{rel} =0.6%		
		Voltage(frequency additional error)		1V (20Hz~450kHz)	U _{rel} =0.6%		
10	*RLC meter	Resistance	V.R.for wide range digital RLC meter GJB8817	1 Ω ~ 100 Ω , (1kHz)	U _{rel} =0.14%	resistance,in ductance,capacitanc only at 1kHz frequency	
				100 Ω ~ 1M Ω , (1kHz)	U _{rel} =0.04%		
		Inductance		1 μ H~100mH, (1kHz)	U _{rel} =0.13%		
				100pF~1 μ F, (1kHz)	U _{rel} =0.13%		
		Capacitor		1 μ F~100 μ F, (1kHz)	U _{rel} =0.06%		
				Frequency	100Hz~1MHz		
11	*Component automatic analyzer	Resistance	V.R.for wide range digital RLC meter GJB8817	1 Ω ~ 100k Ω	U _{rel} =0.1%		
				100k Ω ~ 1M Ω	U _{rel} =0.04%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		Inductance		1 μ H~100mH (1kHz)	<i>U</i> _{rel} =0.13%			
		Capacitor		100pF~1 μ F (1kHz)	<i>U</i> _{rel} =0.13%			
				1 μ F~100 μ F (1kHz)	<i>U</i> _{rel} =0.06%			
				Frequency	100Hz~1MHz			<i>U</i> _{rel} =0.002%
12	*Standard Capacitors	Capacitor	V.R.of Standard Capacitors JJG183	1pF~100 μ F (100Hz~1MHz)	<i>U</i> _{rel} =0.15%			
				100 μ F~100mF (100Hz~1MHz)	<i>U</i> _{rel} =0.11%			
13	*Standard Inductors	Inductance	V.R.of Standard Inductors JJG726	10 μ H~100H(100Hz~1MHz)	<i>U</i> _{rel} =0.1%			
14	*Analogue Oscilloscope	Bandwidth	V.R.of Analogue Oscilloscope JJG262	10Hz~300MHz	<i>U</i> _{rel} =2.3%			
		Time		2ns~10s	<i>U</i> _{rel} =0.4%			
		Voltage		2mV~200V	<i>U</i> _{rel} =1.2%			
		Risetime		5.4ns~100ns	<i>U</i> =0.35ns			
15	*Low frequency signal generator	Frequency	V.R.of Low frequency signal generator JJG602	10Hz~1MHz	<i>U</i> _{rel} =3.5×10 ⁻⁷			
		Voltage		10mV~300V (10Hz~50kHz)	<i>U</i> _{rel} =0.75%			
				10mV~300V (50kHz~100kHz)	<i>U</i> _{rel} =1.6%			
		Attenuation		0dB~60dB (10Hz~100kHz)	<i>U</i> =0.06dB			
		Distortion		0.001%~30% (10Hz~20kHz)	<i>U</i> _{rel} =6.7%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				0.001%~30% (20kHz~100kHz)	<i>U</i> _{rel} =9.4%		
16	*Function Generators	Frequency	V.R.of Function Generators JJG 840	10Hz~100MHz	<i>U</i> _{rel} =3.5×10 ⁻⁷		
		Voltage		10mV~10V (10Hz~100MHz)	<i>U</i> _{rel} =0.3%		
		Rising Time		210ps~50ns	<i>U</i> _{rel} =7%		
17	*Signal Generator	Frequency	V.R.of Signal Generator JJG173	0.15MHz~18GHz	<i>U</i> _{rel} =2×10 ⁻⁷		
		Level		13dBm~-127dBm (150kHz~1.3GHz)	<i>U</i> =0.50dB		
				(-70~20)dBm (1.3~18)GHz	<i>U</i> =0.60dB		
		Modulation		AM: (10%~<40%) (fc: 150kHz~<10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =2.4%		
				AM: (10%~<40%) (fc: 10MHz~1.3GHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.2%		
				AM: (40~99)% (fc: 150kHz~<10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.2%		
AM: (40~99)% (fc: 10MHz~1.3GHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.3%						



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		Frequency Offset	ilac-MAS CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF APPROVED CERTIFICATE	Δ f: (5~400)kHz (fc: 250kHz~ <10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =2.4%			
				Δ f: (5~400)kHz (fc: 10MHz~1.3GHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.4%			
		Phase modulation phase deviation		1rad~ 40rad(fc:0.25MHz~ 10MHz;fm:200Hz~ 10kHz)	<i>U</i> _{rel} =4.6%			
				1rad~40rad(fc:10MHz~ 1.3GHz;fm:200Hz~ 20kHz)	<i>U</i> _{rel} =3.5%			
18	Telephone Analyzer	Feed-Voltage	C.S for Telephone Analyzer JJF(Elec)30702	(10~100)V	<i>U</i> _{rel} =0.08%			
		Feeding current		(10~150)mA	<i>U</i> _{rel} =0.20%			
		Ringing voltage		(10~150)V	<i>U</i> _{rel} =0.20%			
		Level		(-50~0)dBm	<i>U</i> =0.20dB			
		Signal Frequency		1Hz~20kHz	<i>U</i> _{rel} =0.35%			
19	*Low frequency impedance analysis instrument	Frequency	V.R.of HP4192A low frequency impedance analysis instrument JJG(Elec)05007	1Hz~10MHz	<i>U</i> _{rel} =0.10%			
		Impedance		100 Ω ~100k Ω	<i>U</i> _{rel} =0.50%			
20	*Noise signal generator	Frequency	V.R.of Audio-frequency Signal Generators JJG607	20Hz~20kHz	<i>U</i> _{rel} =3.5×10 ⁻⁷			
		Voltage		0.1V~30V (20Hz~20kHz)	<i>U</i> _{rel} =0.10%			



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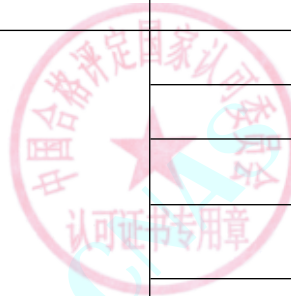
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
21	Pulse power meter	Power	V.R.of Pulse power meter JJG1024	10 μ W~200mW (0.1MHz~18GHz)	<i>U</i> _{rel} =2.3%		
		VSWR		1~∞ (100kHz~8.5GHz)	<i>U</i> _{rel} =5.0%		
		linearity		(0~70)dB (0.1MHz~18GHz)	<i>U</i> =0.26dB		
		Rise time		5.4ns~100ns	<i>U</i> =0.35ns		
22	Power sensor	Calibration Factor	V.R.of Small power seat GJB/J3598	-20dBm~10dBm (10MHz~18GHz)	<i>U</i> _{rel} =2.0%		
		VSWR		1~∞ (100kHz~8.5GHz)	<i>U</i> _{rel} =5.0%		
23	Attenuator	Attenuator	V.R.of Coaxial Attenuator JJG387	(0~50)dB (150kHz~1.3GHz)	<i>U</i> =0.2dB/10dB		
				(50~80)dB (150kHz~1.3GHz)	<i>U</i> =0.8dB/10dB		
				(0~50)dB (1.3GHz~20GHz)	<i>U</i> =0.3dB/10dB		
				(50~80)dB (1.3GHz~20GHz)	<i>U</i> =0.9dB/10dB		
		VSWR		1~∞ (100kHz~8.5GHz)	<i>U</i> _{rel} =5.0%		
24	*Arbitrary Waveform Generator	Frequency	C.S of Arbitrary Waveform Generator JJF1152	1Hz~1GHz	<i>U</i> _{rel} =3.5×10 ⁻⁷		
		Voltage		10mV~12mV(1Hz~1GHz)	<i>U</i> _{rel} =1.5%		
				12mV~20V (1Hz~1GHz)	<i>U</i> _{rel} =0.9%		
				Rise time	210ps~50ns		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
25	*Distortion Meter Calibrator	THD	C.S for Distortion Meters JJF 1852	0.05%~0.1%(10Hz~200kHz)	<i>U</i> _{rel} =12%		
				0.1%~0.3(10Hz~200kHz)	<i>U</i> _{rel} =5%		
				0.3%~99%(10Hz~200kHz)	<i>U</i> _{rel} =3%		
		Ac voltage		10mV~300V,(20Hz~200kHz)	<i>U</i> _{rel} =0.40%		
26	*Audio Analyzers	Source voltage (audio source)	C.S.for Audio Analyzers JJF1395	10mV~300V (10Hz~100kHz)	<i>U</i> _{rel} =1.5%		
		Voltage (analyzer)		10mV~300V (10Hz~100kHz)	<i>U</i> _{rel} =0.2%		
		Distortion degree (analyzer)		0.05%~0.1% (10Hz~100kHz)	<i>U</i> _{rel} =12%		
				0.1%~0.3% (10Hz~100kHz)	<i>U</i> _{rel} =5%		
				0.3%~99% (10Hz~100kHz)	<i>U</i> _{rel} =3%		
		Frequency (analyzer)		10Hz~200kHz	<i>U</i> _{rel} =0.02%		
27	*Spectrum Analyzers	Frequency	C.S.for Spectrum Analyzers JJF1396	9kHz~20GHz	<i>U</i> _{rel} = 4.0×10 ⁻⁶		
		Level		-110dBm~10dBm	<i>U</i> =0.48dB		
		SWEEP WIDTH		9kHz~20GHz	<i>U</i> _{rel} =1.0%		
		vertical display scale		(10~50)dB (100kHz~18GHz)	<i>U</i> =0.17dB		
				60dB (100kHz~18GHz)	<i>U</i> =0.32dB		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		frequency response resolution bandwidth	 CHINA NATIONAL ACCREDITATION SERVICE FOR COEXISTENCE ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	70dB（100kHz～18GHz）	<i>U</i> =0.43dB		
				80dB（100kHz～18GHz）	<i>U</i> =0.52dB		
				100kHz～20GHz	<i>U</i> =0.37dB		
				300Hz～2MHz	<i>U</i> _{rel} =2.3%		
28	*RF Communication Test Set	Frequency	C.S.for RF Communication Test Set JJF1065	0.15MHz～1GHz	<i>U</i> _{rel} = 6.0×10 ⁻⁷		
		Level		Output: -127dBm～13dBm(150kHz～1GHz)	<i>U</i> =0.40dB		
				Measure: -70dBm～10dBm (0.15MHz～1GHz)	<i>U</i> =0.50dB		
		AM		Output AM: (10%～40%) (fc: 150kHz～10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =2.4%		
				Output AM: (10%～40%)(fc: 10MHz～1GHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.2%		
				Output AM: (40～99)% (fc: 150kHz～10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =2.5%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Output AM: (40~99%)(fc: 10MHz~1GHz; AF: 400Hz, 1kHz)	$U_{rel}=1.3\%$		
				Measure AM: (10%~40%)(fc: 150kHz~10MHz; AF: 400Hz, 1kHz)	$U_{rel}=2.4\%$		
				Measure AM: (10%~40%)(fc: 10MHz~1000MHz; AF: 400Hz, 1kHz)	$U_{rel}=2.2\%$		
				Measure AM: (40~99%)(fc: 150kHz~10MHz; AF: 400Hz, 1kHz)	$U_{rel}=2.5\%$		
				Measure AM: (40~99%)(fc: 10MHz~1000MHz; AF: 400Hz, 1kHz)	$U_{rel}=1.3\%$		
		FM		Output Δf : (5~400)kHz(fc: 250kHz~10MHz; AF: 400Hz, 1kHz)	$U_{rel}=2.4\%$		
		Frequency Offset		Output Δf : (5~400)kHz(fc: 10MHz~1GHz; AF: 400Hz, 1kHz)	$U_{rel}=1.4\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				Measure Δ f: (5~99)kHz (fc: 250kHz~10MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =2.4%		
				Measure Δ f: (5~99)kHz (fc: 10MHz~1000MHz; AF: 400Hz, 1kHz)	<i>U</i> _{rel} =1.4%		
29	*RF Impedance/Material Analyzers	Frequency	C.S.for RF Impedance/Material Analyzers JJF1127	100kHz~3GHz	<i>U</i> _{rel} = 4.0 × 10 ⁻⁷		
		Level		0.2mV~1V (150kHz~1.3GHz)	<i>U</i> =0.5dB		
				0.2mV~1V (1.3~3) GHz	<i>U</i> =0.5dB		
		Impedance		50Ω (100kHz~3GHz)	<i>U</i> =0.2Ω		
30	*Wireless LAN tester	Output Frequency	C.S.for WLAN Test Set JJF1277	2.412GHz~5.825GHz	<i>U</i> _{rel} = 2.4 × 10 ⁻⁸		
		Output Level		-90dBm~-10dBm	<i>U</i> =(0.22~0.5)dB		
		Amplitude EVM		(0.1~10)%	<i>U</i> _{rel} =1.2%		
		Vector amplitude measurement of pilot error		(-10~-70)dB	<i>U</i> =0.16dB		
		Data error vector amplitude measurement		(-10~-70)dB	<i>U</i> =0.16dB		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Frequency error measurement		$(-1 \sim +1)$ MHz	$U=10\text{Hz}$		
		Symbol clock error measure		$(-100 \sim +100) \times 10^{-6}$	$U_{\text{rel}}=1.4 \times 10^{-7}$		
31	*Digital Radio Communication Testers	frequency	C.S.of CDMA Digital Radio Communication Testers JJF1177,C.S. for TD-SCDMA Digital Radio Communication Testers JJF1204,C.S.for WCDMA Digital Radio Communication Testers JJF1276,C.S. for TDMA(GSM) Digital Radio Communication Testers JJF1131,C.S. for LTE Digital Radio Communication Testers JJF1443	0.03GHz~4GHz	$U_{\text{rel}}=6.0 \times 10^{-8}$		
		Output signal two and three harmonics		$(0 \sim 80)\text{dBc}(150\text{kHz} \sim 6\text{GHz})$	$U=2.0\text{dB}$		
		harmonic		$(0 \sim 80)\text{dBc}(150\text{kHz} \sim 6\text{GHz})$	$U=2.0\text{dB}$		
		Non-Harmonic		$(-127 \sim 30)\text{dBm}$	$U=2.3\text{dB}$		
		Single side band phase noise		$(-127 \sim 30)\text{dBm}$	$U=2.0\text{dBc/Hz}$		
		Rho		0.9~1.0	$U=0.0010$		
		EVM		0.1%~5%	$U=2.0\%$		
		Bandwidth		$(1.23 \sim 1.28)$ MHz	$U=0.018\text{MHz}$		
		Analysis Rho		0.9~1.0	$U=0.0008$		
		Analysis EVM		1.5%~50%	$U=1.5\%$		
		Single generator Frequency error		0Hz~200kHz	$U=15\text{Hz}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Single generator Phase error		$0.6^{\circ} \sim 60^{\circ}$	$U=0.8^{\circ}$		
		CDP		$(0.1 \sim 50)\text{dB}$	$U=0.5\text{dB}$		
		analysis Frequency		$0\text{Hz} \sim 200\text{kHz}$	$U=15\text{Hz}$		
		analysis Phase		$0.6^{\circ} \sim 20^{\circ}$	$U=0.8^{\circ}$		
		ACPR		$(0 \sim 80)\text{dB}$	$U=0.7\text{dB}$		
		Audio generator Frequency		$50\text{Hz} \sim 5\text{kHz}$	$U=0.005\text{Hz}$		
		Audio generator Level		$(50 \sim 5000)\text{mV}$ (1kHz)	$U_{\text{rel}}=0.8\%$		
		Audio generator Distortion		$(0.001 \sim 100)\%$ (50Hz~ 200kHz; 50mV~ 5000mV)	$U=0.6\%$		
		audio analysis frequency		$50\text{Hz} \sim 5\text{kHz}$	$U=0.008\text{Hz}$		
		Audio generator level		$(5 \sim 5000)\text{mV}$	$U_{\text{rel}}=1.0\%$		
		Audio generator Distortion		$0.1\% \sim 50\%$ (50Hz~ 200kHz)(5~5000)mV	$U_{\text{rel}}=0.6\%$		
		Analysis Power		$(+30 \sim 0)\text{dBm}$, 150kHz~ 1.3GHz	$U=0.32\text{dB}$		
				$(0 \sim -50)\text{dBm}$, 150kHz~ 1.3GHz	$U=0.16\text{dB}+0.005\text{dB}/(10\text{dB})$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(-50~-90) dBm150kHz~1.3GHz	$U=0.22\text{dB}+0.015\text{dB}/(10\text{dB})$		
				(-90~- 120)dBm,150kHz~ 1.3GHz	$U=0.31\text{dB}+0.04\text{dB}/(10\text{dB})$		
				(+30~0)dBm(1.3~ 26.5)GHz	$U=0.32\text{dB}$		
				(0~-50)dBm(1.3~ 26.5)GHz	$U=0.28\text{dB}+0.005\text{dB}/(10\text{dB})$		
				(-50~-80) dBm(1.3~ 26.5)GHz	$U=0.32\text{dB}+0.01\text{dB}/(10\text{dB})$		
				(-80~-100)dBm(1.3~ 26.5)GHz	$U=0.44\text{dB}+0.03\text{dB}/(10\text{dB})$		
		ACPR		(0~-80) dB	$U=0.92\text{dB}$		
		Spectrum Emission Mask		frequency offset $\leq$ 4MHz, BW: 30kHz~ 1MHz	$U=1.3\text{dB}$		
		IQ Origin Offset		(-10~-70)dB	$U=1\text{dB}$		
				(+30~0)dBm150kHz~ 1.3GHz	$U=0.34\text{dB}$		
				(0~-50)dBm150kHz~ 1.3GHz	$U=0.31\text{dB}+0.005\text{dB}/(10\text{dB})$		
				(-50~-90) dBm150kHz~1.3GHz	$U=0.35\text{dB}+0.015\text{dB}/(10\text{dB})$		
				(-90~- 100)dBm150kHz~ 1.3GHz	$U=0.40\text{dB}+0.04\text{dB}/(10\text{dB})$		
		Power					



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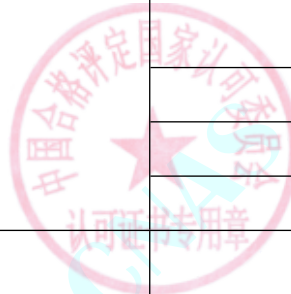
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(+30~0)dBm(1.3~26.5)GHz	<i>U</i> =0.47dB		
				(0~-50)dBm(1.3~26.5)GHz	<i>U</i> =0.45dB+0.005dB/(10dB)		
				(-50~-80) dBm(1.3~26.5)GHz	<i>U</i> =0.47dB+0.01dB/(10dB)		
				(-80~-100)dBm(1.3~26.5)GHz	<i>U</i> =0.54dB+0.02dB/(10dB)		
		SWR	1~4 (100kHz~8.5GHz)	<i>U</i> =0.04			
32	*Voltage Dips,Short Interruptions and Voltage Variations Test Generators	Voltage	C.S for Voltage Dips,Short Interruptions and Voltage Variations Test Generators JJF1673	(1~400)V	<i>U</i> _{rel} =3.6%		
		Risetime		0.7ns~1s	<i>U</i> _{rel} =6.9%		
33	*Pulse Generators	Voltage	V.R.of Pulse Generators JJG490	10mV~100mV(1kHz)	<i>U</i> _{rel} =0.095%~0.028%		
				100mV~1V(1kHz)	<i>U</i> _{rel} =0.027%		
				1V~10V(1kHz)	<i>U</i> _{rel} =0.022%		
				10V~100V(1kHz)	<i>U</i> _{rel} =0.026%		
				100V~200V(1kHz)	<i>U</i> _{rel} =0.039%		
		Frequency		20Hz~1GHz	<i>U</i> _{rel} =1.0×10 ⁻⁷		
		pulse width		0.5ns~100ns	<i>U</i> _{rel} =0.8%		
				100ns~50ms	<i>U</i> _{rel} =1.5%		
		Rising Time		210ps~50ns	<i>U</i> _{rel} =7%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
34	Dynamical Signal Analyzer	Frequency	V.R.of Dynamical Signal Analyzer JJG834	10Hz~200kHz	<i>U</i> _{rel} =4×10 ⁻⁷		
		Amplitude		(0.1~5)V(10~40)Hz	<i>U</i> _{rel} =0.02%		
				(0.1~5)V(>40~100)Hz	<i>U</i> _{rel} =0.03%		
				(0.1~5)V(>100Hz~ 2kHz)	<i>U</i> _{rel} =0.04%		
				(0.1~5)V(>2~10)kHz	<i>U</i> _{rel} =0.04%		
				(0.1~5)V(>10~30)kHz	<i>U</i> _{rel} =0.04%		
				(0.1~5)V(>30~100)kHz	<i>U</i> _{rel} =0.08%		
				(0.1~5)V(>100~ 200)kHz	<i>U</i> _{rel} =0.10%		
35	*Electrical Fast Transient/Burst Simulators	Voltage	C.S for Electrical Fast Transient/Burst Simulators JJF1672	0.1kV~4kV	<i>U</i> _{rel} =3.5%		
		Pulse Width		0.5ns~10s	<i>U</i> _{rel} =6%		
		Rise Time		0.7ns~1s	<i>U</i> _{rel} =5%		
36	*Voltage Probe for Oscilloscope	Attenuation Coefficient	C.S.for Voltage Probe for Oscilloscope JJF1437	1~1000	<i>U</i> _{rel} =0.1%		
		Frequency Response		(0~3)dB(9kHz~ 3.2GHz)	<i>U</i> =1dB		
		Risetime		0.7ns~1s	<i>U</i> _{rel} =5%		
		input resistance		(0.1~10)MΩ	<i>U</i> _{rel} =0.3%		
				(10~100)MΩ	<i>U</i> _{rel} =1.0%		
37	*Current Probes of Oscilloscope	Attenuation Coefficient	C.S.for Current Probes of Oscilloscope JJF(Elec)30305	1~1000	<i>U</i> _{rel} =2%		
		Ac current		(0.1~1000)A(1kHz)	<i>U</i> _{rel} =3.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Dc current		(0.1~1000)A	$U_{rel}=1.8\%$		
		Frequency Bandwidth		50kHz~120MHz	$U_{rel}=4.2\%$		
		Risetime		0.7ns~1s	$U_{rel}=5\%$		
38	Electrostatic Discharge Generator	Discharge voltage	C.S for Electrostatic Discharge Generator JJF1397	(0.1~15)kV	$U_{rel}=3\%$		
		Discharge current		(0.1~30)A	$U_{rel}=5\%$		
		Discharge rise time		(0.7~1)ns	$U_{rel}=10\%$		
39	*Electrical Surge Generator	Open-Circuit Voltage	V.R.of Electrical Surge Generator JJF(Elec)30803	(0.5~6)kV	$U_{rel}=4\%$		
		short-circuit current		(0.25~3)kA	$U_{rel}=4\%$		
		Time		(1.2~50)μs	$U_{rel}=5\%$		
40	*Vector Signal Generators	Crystal Oscillator	C.S.for Vector Signal Generators JJF1174	10MHz	$U_{rel}=3 \times 10^{-10}$ (Outer Ref.) 7×10^{-7} (Inner Ref.)		
		Frequency		150kHz~20GHz	$U_{rel}=3 \times 10^{-10}$ (Outer Ref.); 7×10^{-7} (Inner Ref.)		
		Out put Level		(30~>0)dBm,(150kHz~1.3GHz)	$U=0.57$ dB		
				(0~>-50)dBm,(150kHz~1.3GHz)	$U=0.16$ dB+0.005dB/(10dB)		
				(-50~>-90)dBm,(150kHz~1.3GHz)	$U=0.22$ dB+0.015dB/(10dB)		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(-90~-127)dBm,(150kHz~1.3GHz)	$U=0.31\text{dB}+0.04\text{dB}/(10\text{dB})$		
				(+30~0)dBm,($>1.3\text{GHz}\sim 26.5\text{GHz}$)	$U=0.32\text{dB}$		
				(0~ >-50)dBm,($>1.3\text{GHz}\sim 26.5\text{GHz}$)	$U=0.44\text{dB}+0.03\text{dB}/(10\text{dB})$		
				(-50~ >-80)dBm,($>1.3\text{GHz}\sim 26.5\text{GHz}$)	$U=0.32\text{dB}+0.01\text{dB}/(10\text{dB})$		
				(-80~-100)dBm,($>1.3\text{GHz}\sim 26.5\text{GHz}$)	$U=0.44\text{dB}+0.03\text{dB}/(10\text{dB})$		
		SSB Phase Noise		$\geq -150\text{dBc}/\text{Hz}$ FREQ:20Hz~50GHz,Deviation:0.01Hz~1MHz	$U=2.1\text{dB}$		
				$\geq -150\text{dBc}/\text{Hz}$ FREQ:20Hz~50GHz,Deviation:1MHz~40MHz	$U=4\text{dB}$		
		Internally modulated signal frequency		5Hz~1MHz	$U_{\text{rel}}=7\times 10^{-9}$		
		Internal modulation signal level		1mV~10mV,(40Hz~1kHz)	$U_{\text{rel}}=0.04\%$		



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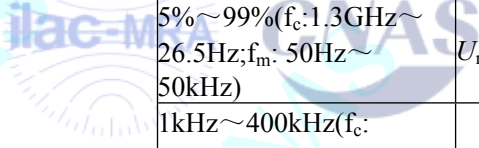
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				1mV~10mV,(>1kHz~20kHz)	$U_{rel}=0.05\%$		
				1mV~10mV,(>20kHz~50kHz)	$U_{rel}=0.14\%$		
				1mV~10mV,(>50kHz~100kHz)	$U_{rel}=0.6\%$		
				1mV~10mV,(>100kHz~300kHz)	$U_{rel}=4.7\%$		
				10mV~10V,(40Hz~1kHz)	$U_{rel}=0.02\%$		
				10mV~10V,(>1kHz~20kHz)	$U_{rel}=0.02\%$		
				10mV~10V,(>20kHz~50kHz)	$U_{rel}=0.04\%$		
				10mV~10V,(>50kHz~100kHz)	$U_{rel}=0.11\%$		
				10mV~10V,(>100kHz~300kHz)	$U_{rel}=0.36\%$		
				5%~99%(f_c :150kHz~10MHz; f_m : 50Hz~10kHz)	$U_{rel}=2.3\%$		
				5%~99%(f_c :10MHz~1.3GHz; f_m : 50Hz~50kHz)	$U_{rel}=1.2\%$		
				5%~99%(f_c :150kHz~26.5GHz; f_m : 20Hz~50Hz)	$U_{rel}=3.5\%$		
		AM					



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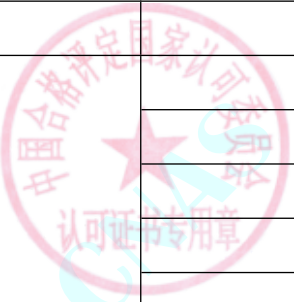
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		FM Frequency Deviation	 CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF A CALIBRATION CERTIFICATE	5%~99%(<i>f</i> _c :1.3GHz~ 26.5Hz; <i>f</i> _m : 50Hz~ 50kHz)	<i>U</i> _{rel} =1.7%		
				1kHz~400kHz(<i>f</i> _c : 0.25MHz~10MHz; <i>f</i> _m : 20Hz~10kHz)	<i>U</i> _{rel} =2.3%		
				1kHz~400kHz(<i>f</i> _c : 10MHz~26.5Hz; <i>f</i> _m : 20Hz~50Hz)	<i>U</i> _{rel} =5.8%		
				1kHz~400kHz(<i>f</i> _c : 10MHz~26.5Hz; <i>f</i> _m : 50Hz~100kHz)	<i>U</i> _{rel} =1.2%		
				1kHz~400kHz(<i>f</i> _c : 10MHz~26.5Hz; <i>f</i> _m : 100kHz~200kHz)	<i>U</i> _{rel} =5.8%		
		Phase Deviation		1rad~40rad(<i>f</i> _c : 0.25MHz~10MHz; <i>f</i> _m : 200Hz~10kHz)	<i>U</i> _{rel} =4.6%		
				1rad~40rad(<i>f</i> _c : 10MHz~ 26.5Hz; <i>f</i> _m : 200Hz~ 20kHz)	<i>U</i> _{rel} =3.5%		
		EVM		0.3%~10%	<i>U</i> _{rel} =0.58%		
		Phase Error		0.6° ~5°	<i>U</i> =0.58°		
		Rho		0~1	<i>U</i> _{rel} =0.11%		
		Frequency Error		(-1~+1) MHz	<i>U</i> =8Hz		
		FSK Error		0.01%~2%	<i>U</i> _{rel} =1.7%		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
Time and frequency							
1	Crystal Oscillators inside the Electrical Measuring Instruments	Frequency	V.R.of Crystal Oscillators inside the Electrical Measuring Instruments JJG180	1MHz、5MHz、10MHz	$U_{rel}=1.0\times 10^{-9}$		
2	Stopwatches	Time	V.R.of Stopwatches JJG237	Electronic stopwatch:0.01s~3600s	$U=0.01s$		
				Electronic stopwatch: 1h~24h	$U=0.02s$		
				Mechanical stopwatch:1s~30s	$U=0.1s$		
				Mechanical stopwatch:30s~3600s	$U=0.2s$		
3	Electronic time relay	Time	C.S.for Electronic time relay JJF1282	1ms~9999s	$U_{rel}=1.0\times 10^{-5}$		
4	*Universal Counters	Frequency	V.R.of Universal Counters JJG349	20Hz~18GHz	$U_{rel}=1.0\times 10^{-9}$		
5	*Frequency Meter	Frequency	V.R.of Frequency Meter JJG603	10Hz~20kHz	$U_{rel}=8\times 10^{-5}$		
Chemistry							
1	*Liquid Chromatographs	Minimum Detectable Concentration	V.R.of Liquid Chromatographs JJG705	VWD: $\leq 5\times 10^{-8}g/mL$	$U_{rel}=8\%$		
				DAD: $\leq 5\times 10^{-8}g/mL$	$U_{rel}=8\%$		
				FLD: $\leq 5\times 10^{-9}g/mL$	$U_{rel}=8\%$		
				RID: $\leq 5\times 10^{-6}g/mL$	$U_{rel}=10\%$		
				ELSD: $\leq 5\times 10^{-6}g/mL$	$U_{rel}=10\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Wavelength		Uv - visible detector: (235~350)nm	$U=0.3\text{nm}$		
		Temperature		(0~95)°C	$U=0.3^{\circ}\text{C}$		
		Flux		(0.1~10) mL/min	$U_{\text{rel}}=0.3\%$		
2	*Hand Saccharimeter(Content-meter) and Hand Refractometer	Sugar levels (content)	V.R.of Hand Saccharimeter(Content-meter) and Hand Refractometer JJG820	(0~99)%	$U=0.2\%$		
		Refractive index		nD: 1.3300~1.5200	$U=0.0004$		
3	*Verifying Meter for pH Meters	Voltage	V.R.of Verifying Meter for pH Meters JJG919	(-2000~2000)mV	$U=0.003\%\text{FS}$		
4	*Electrolytic Conductivity Meters	Electrical conductivity	V.R.of Electrolytic Conductivity Meters JJG376	Electric meter: (0.1~1 $\times 10^4$) $\mu\text{S/cm}$	$U_{\text{rel}}=0.3\%$		
				Instruments: (20~2000) $\mu\text{S/cm}$	$U_{\text{rel}}=0.5\%$		
5	*Laboratory pH Meters	pH	V.R.of pH(acidity) Meters JJG119	Electric Meter: (0~14)pH	$U=0.01\text{pH}$		
				Instruments: (0~14)pH	$U=0.02\text{pH}$		
		Potential		(-2000~2000)mV	$U=0.1\text{mV}$		
6	*On-line pH Meters	Acidity	C.S.for On-line pH Meters JJF1547	Electric Meter: (0~14)pH	$U=0.01\text{pH}$		
				Instruments: (0~14)pH	$U=0.02\text{pH}$		
		Potential		(-2000~2000)mV	$U=0.1\text{mV}$		
7	Dissolved Oxygen Meters	Concentration	V.R.of Dissolved Oxygen Meters JJG291	(0.1~15)mg/L	$U=0.07\text{mg/L}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
8	*Automatic Potentiometric Titrators	Potential	V.R.of Automatic Potentiometric Titrator JJG814	(-2000~2000)mV	U=0.1 mV		
		Concentration		0.1mol/L	U _{rel} =1%		
		Capacity		(1~10)mL	U=0.004mL		
				(≥10~50)mL	U=0.01mL		
9	*Instrument for KF Coulometry Titration	Moisture Content	V.R.of Instrument for KF Coulometry Titration JJG1044	(10~5000) μ g	U _{rel} =1.5%		
10	Rotational Viscometers	Viscosity	V.R.of Rotational Viscometers JJG1002	(1~1.5×10 ⁵)mPa • s	U _{rel} =2.2%		
11	Flow Cups Viscometer	Viscosity	V.R.of Flow Cups Viscometer JJG743	(7~685)mm ² /s	U _{rel} =3%		
		Time		(5~100)s	U=0.2s		
		correction factor		0.9~1.1	U _{rel} =1.0%		
12	Engler Viscosimeter	Water value	V.R.of Engler Viscosimeter JJG742	(50~52)s	U=0.2s		
13	Routine Capillary Viscometer	Viscosity	V.R.of Routine Capillary Viscometer JJG155	(1~1×10 ⁵) mm ² /s	U _{rel} =(0.32~0.86) %		
14	*Osmometers	Osmolality	V.R.of Osmometers JJG1089	(50~750)mOsmol/kg	U=(1.7~3.3) mOsmol/kg		
15	Wood Moisture Content Measuring Meters	Moisture Content	V.R.of Wood Moisture Content Measuring Meters JJG986	(6~28)%	U=0.5%		
16	*Gas Chromatorgraph	Sensitivity	V.R.of Gas Chromatorgraph JJG700	TCD: ≥ 800mV • mL/mg	U _{rel} =5%		
		Detection Limit		FID: ≤0.5 ng/s	U _{rel} =10%		
				ECD: ≤5 pg/mL	U _{rel} =10%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Velocity of flow Temperature	ilac-MAN CHINA NATIONAL ACCREDITATION SCHEDULE OF ACCREDITATION CERTIFICATE	FPD: $P \leq 0.1 \text{ ng/s}$; $S \leq 0.5 \text{ ng/s}$	$U_{\text{rel}}=10\%$		
				NPD: $N \leq 5 \text{ pg/s}$; $P \leq 10 \text{ pg/s}$	$U_{\text{rel}}=10\%$		
				$(0.1 \sim 100) \text{ mL/min}$	$U_{\text{rel}}=1.2\%$		
				$(5 \sim 300) ^\circ\text{C}$	$U=0.5 ^\circ\text{C}$		
17	*Atomic Absorption Spectrophotometers	Detection Limit	V.R.of Atomic Absorption Spectrophotometers JJG694	Cu: $\leq 0.02 \mu\text{g/mL}$	$U=0.005 \mu\text{g/mL}$		
				Cd: $\leq 4 \text{ pg}$	$U=0.3 \text{ pg}$		
18	*Ion Chromatographs	Minimum detectable concentration	V.R.of Ion Chromatographs JJG823	Conductivity Detector: $\leq 0.02 \mu\text{g/mL}$	$U_{\text{rel}}=5\%$		
19	*Gas Chromatography-Mass Spectrometries	Signal-to-noise ratio	C.S.for Gas Chromatography-Mass Spectrometries JJF1164	IT、SQ、TQ: $\geq 10:1$; TOF、EOT: $\geq 50:1$	$U_{\text{rel}}=10\%$		
20	*Liquid Chromatography - Mass Spectrometers	Signal-to-noise ratio	C.S.for Liquid Chromatography - mass Spectrometry Instrument JJF1317	Triple quadrupole (ESI+, APCI+): $\geq 30:1$, Triple quadrupole (ESI-): $\geq 10:1$, Single quadrupole, ion trap: $\geq 10:1$	$U_{\text{rel}}=11\%$	合格评定国家认可委员会 认可证书专用章	
21	Airborne Particle Counter	Particle Concentration	C.S.for Airborne Particle Counter JJF1190	$(1000 \sim 100000) \text{ count}/28.3\text{L}$	$U_{\text{rel}}=16\%$		
		Particle distribution		$(0.3 \sim 1.0) \mu\text{m}$	$U_{\text{rel}}=12\%$		



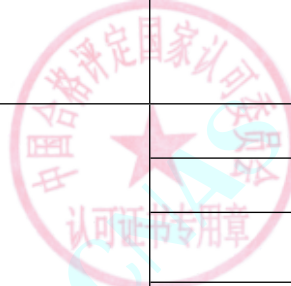
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Flow Speed		(1~30)L/min	$U_{rel}=2\%$		
		Time		(1~60) min	$U=0.3s$		
22	*Static Light Scattering Particle Size Analyzers	Particle Size	C.S for Static Light Scattering Particle Size Analyzers JJF1211	(1~5) μm	$U=0.22 \mu m$		
				(>5~20) μm	$U=0.5 \mu m$		
				(>20~100) μm	$U=0.7 \mu m$		
23	*Fourier Transform Infrared Spectrometers	Wave number	C.S.for Fourier Transform Infrared Spectrometers JJF1319	(4000~400) cm^{-1}	$U=0.7 cm^{-1}$		
24	*Fluorescence Spectrophotometer	Detection Limit	V.R.of Fluorescence spectrophotometer JJG537	A type: $\leq 5 \times 10^{-10}g/mL$	$U_{rel}=4\%$		
				B type: $1 \times 10^{-8}g/mL$	$U_{rel}=4\%$		
25	*Atomic Fluorescence Spectrophotometers	Detection Limit	V.R.of Atomic Fluorescence Spectrophotometers JJG939	As: $\leq 0.4ng$	$U=0.10ng$		
				Sb: $\leq 0.4ng$	$U=0.10ng$		
26	*Wavelength Dispersive X-ray Fluorescence Spectrometers	Count Rate	V.R.of Wavelength Dispersive X-ray Fluorescence Spectrometers JJG810	(50~100)%	$U_{rel}=5\%$		
27	*Total Organic Carbon Analyzer	Concentration	V.R.of Total Organic Carbon Analyzer JJG821	(0.1~1000) mg/L	$U_{rel}=3\%$		
28	*Polarimeter and Polarimetric Saccharimeters	Optical Activity	V.R.of Polarimeter and Polarimetric Saccharimeters JJG536	(-45~45) $^{\circ}$	$U=0.005^{\circ}$		
		Rotatory sugar content		(-20~+105) $^{\circ} Z$	$U=0.02^{\circ} Z$		
29	*Turbidimeters	Turbidity	V.R.of Turbidimeters JJG880	(0.1~400) NTU	$U_{rel}=3.6\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
30	*Eddy Current Conductivity Meters	Electroconductibility	C.S.for Eddy Current Conductivity Meters JJF1692	(0.58～59) MS/m	<i>U</i> = (0.12～0.38) MS/m		
31	*Carbon-sulfur Analyzers	Content	V.R. of Carbon-Sulfur Analyzers JJG395	C: 0.005%～0.010%	<i>U</i> =0.001%		
				C: >0.010%～0.100%	<i>U</i> =0.002%		
				C: >0.100%～1.00%	<i>U</i> =0.004%		
				C: >1.00%～4.00%	<i>U</i> =0.03%		
				S: 0.003%～0.010%	<i>U</i> =0.0006%		
				S: >0.010%～0.100%	<i>U</i> =0.002%		
				S: >0.100%～0.200%	<i>U</i> =0.004%		
32	*Quadrupole Inductively Coupled Plasma Mass Spectrometers	Detection Limit	C.S.for Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be: ≤10 μ g/L	<i>U</i> =6.0ng/L		
				In: ≤10 μ g/L	<i>U</i> =1.3ng/L		
				Bi: ≤10 μ g/L	<i>U</i> =2.2ng/L		
33	*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	<i>U</i> _{rel} =4%		
34	*Ultraviolet, Visible Spectrophotometers	Wave Length	V.R.of Ultraviolet, Visible, Near-Infrared Spectrophotometers JJG178	(195～800)nm	<i>U</i> =0.5nm		
				(900～2000)nm	<i>U</i> =0.8nm		
		Transmittance		Ultraviolet, Visible region(0～100)%	<i>U</i> =0.4%		
				Near-Infrared region(0～100)%	<i>U</i> =0.8%		



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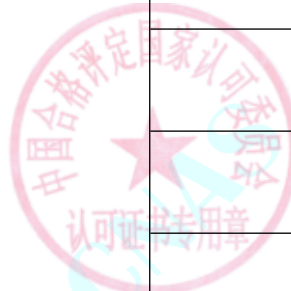
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
35	*Ionometers	Ion concentration	V.R. of Ionometers JJG757	(0~14)pX	$U=0.01\text{pX}$		
		Electric potential		(-2000~2000) mV	$U=0.1\text{ mV}$		
36	*Analyzers for Oil Content in Water	Concentration	V.R. of Analyzers for Oil Content in Water JJG950	(0~10)mg/L	$U=0.24\text{mg/L}$		
				(>10~1000)mg/L	$U_{\text{rel}}=3.8\%$		
37	*Chemical oxygen demand (COD)meters	Concentration	V.R. of Chemical Oxygen Demand (COD)Metersr JJG975	(5~1000)mg/L	$U_{\text{rel}}=4\%$		
		Temperature		(100~200)°C	$U=0.5\text{°C}$		
		Time		(5~120) min	$U=1\text{s}$		
38	*Coal ash analyzers	Temperature	C.S. for Coal Ash Analyzers JJF(Yu)204	DT: (1200~1400)°C	$U=30\text{°C}$		
				ST: (1300~1500)°C	$U=18\text{°C}$		
				HT: (1300~1500)°C	$U=23\text{°C}$		
				FT: (1400~1500)°C	$U=30\text{°C}$		
39	*Water colorimeters	Chroma	C.S. for Water Colorimeters JJF1689	(0.1~500) PCU	$U_{\text{rel}}=3.7\%$		
40	*Residual chlorine meters	Concentration	C.S. for Residual Chlorine Meters JJF1609	(0.5~50)mg/L	$U_{\text{rel}}=2.0\%$		
41	*On-line conductivity meters	Conductivity	C.S. for On-line Conductivity Meters JJF(Xin)19	Electric meter: (0.1~1 $\times 10^4$) $\mu\text{ S/cm}$	$U_{\text{rel}}=0.4\%$		
				Instrument: (20~2000) $\mu\text{ S/cm}$	$U_{\text{rel}}=0.8\%$		
42	*Capillary electrophoresis instrument	Wavelength	V.R. of Capillary Electrophoresis Instrument JJG964	(235~350)nm	$U=0.7\text{nm}$		
		Detection limit		$\leq 1 \times 10^{-6}\text{g/mL}$	$U_{\text{rel}}=7\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
43	*Emission spectrometer	Detection Limit	V.R.of Emission Spectrometer JJG768	ICP spectrometer for Zn: ≤0.01mg/L	U=0.002mg/L		
				ICP spectrometer for Ni: ≤0.03mg/L	U=0.007mg/L		
				ICP spectrometer for Mn: ≤0.005mg/L	U=0.001mg/L		
				ICP spectrometer for Cr: ≤0.02mg/L	U=0.003mg/L		
				ICP spectrometer for Cu: ≤0.02mg/L	U=0.006mg/L		
				ICP spectrometer for Ba: ≤0.005mg/L	U=0.001mg/L		
		Detection Limit		Direct-reading spectrometer for C: ≤0.02%	U=0.002%		
				Direct-reading spectrometer for Si: ≤0.02%	U=0.002%		
				Direct-reading spectrometer for Mn: ≤0.02%	U=0.0012%		
				Direct-reading spectrometer for Cr: ≤0.01%	U=0.0008%		
				Direct-reading spectrometer for Ni: ≤0.02%	U=0.0012%		
				Direct-reading spectrometer for V: ≤0.01%	U=0.0005%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Wavelength		ICP spectrometer: (190~800) nm	$U=0.01\text{nm}$		
44	*Flame photometer	Detectability	V.R.of Flame Photometer JJG630	K: $\leq 0.004\text{mmol/L}$ Na: $\leq 0.008\text{mmol/L}$	$U=0.001\text{mmol/L}$ $U=0.002\text{mmol/L}$		
45	*Energy dispersive X-ray fluorescence spectrometers	content	C.S. for Energy Dispersive X-Ray Fluorescence Spectrometers JJF(Min)1047	Cd in plastic: (5~120)mg/kg Cr in plastic: (40~1200)mg/kg Hg in plastic: (40~1200)mg/kg Pb in plastic: (40~1200)mg/kg Metal: 0.02%~100%	$U_{\text{rel}}=6\%$ $U_{\text{rel}}=6\%$ $U_{\text{rel}}=6\%$ $U_{\text{rel}}=6\%$ $U_{\text{rel}}=6\%$		
46	*Alarmer Detectors of Combustible	Gas concentration Time	V.R.of Alarmer Detectors of Combustible Gas JJG 693	(5~100)%LEL (1~60)s	$U_{\text{rel}}=1.5\%$ $U=1.2\text{s}$		
47	*Electrochemical Oxygen Meter	Gas concentration Time	V.R.of Electrochemical Oxygen Meter JJG 365	(0.1~100)% (1~120)s	$U_{\text{rel}}=0.9\%$ $U=1.2\text{s}$		
48	*Micro Oxygen Analyzers	Gas concentration Time	V.R.of Micro Oxygen Analyzers JJG 945	(100~1000) $\mu\text{mol/mol}$ (1~60)s	$U_{\text{rel}}=1.2\%$ $U=1.2\text{s}$		
49	*Oxygen Index Instrument	Gas concentration Flow Oxygen Index	V.R.of Oxygen Index Instrument JJG(war industry) 16	(20~50)% (0.01~100) L/min (10~20)%	$U_{\text{rel}}=1.6\%$ $U_{\text{rel}}=1.5\%$ $U_{\text{rel}}=2.1\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>20~35)%	$U_{rel}=3.1\%$		
				(>35~50)%	$U_{rel}=4.1\%$		
50	*Microorganism Samplers	Flow	C.S. for Air Microorganism Samplers JJF 1826	(1~200)L/min	$U_{rel}=1.2\%$		
		Time		(0.1~60)min	$U=0.2s$		
51	*Air Samplers	Flow		(0.1~6.0)L/min	$U_{rel}=1.3\%$		
		Time	V.R.of Air Samplers JJG 956	(0.01~10)h	$U=0.2s$		
		Temperature		(10~50) °C	$U=0.2$ °C		
52	*Dust Sampler	Flow		(0.1~5)L/min	$U_{rel}=1.3\%$		
			V.R.of Dust Sampler JJG 520	(>5~100)L/min	$U_{rel}=1.5\%$		
		Time		(0.1~60)min	$U=0.2s$		
53	*Flue Gas Samplers	Flow		(0.1~2)L/min	$U_{rel}=1.3\%$		
		Temperature		(10~50) °C	$U=0.2$ °C		
		Pressure	V.R.of Flue Gas Samplers JJG 1169	Atmospheric pressure: (80~106)kPa	$U=0.3kPa$		
				Pressure before gauge: (-40~0)kPa	$U=0.2kPa$		
		Time		(0.1~60)min	$U=0.2s$		
54	*Particulate Analyzer	Sample volume	C.S. for Particulate Analyzer JJF 1290	(0.01~10)mL	$U_{rel}=0.4\%$		
		Particle counting		(10~100000) ea/mL	$U_{rel}=6.0\%$		
55	*Liquid-borne Particle Counters	Sample volume	V.R.for Liquid-borne Particle Counters JJG 1061	(1~50)mL	$U_{rel}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Particle counting		(10~100000)ea/mL	$U_{rel}=5\%$		
		Particle size		(1~50) μm	$U_{rel}=4\%$		
56	*Thin Layer Chromatography Scanners	Content	C.S. for Thin Layer Chromatography Scanners JJF 1712	(0.01~0.5) mg/mL	$U=0.0019\text{mg/L}$		
57	*Chlorine analyzer	Content	C.S. for chlorine analyzer JJF(Min) 1098	(0.00001-0.0001) mol/L	$U_{rel}=3.5\%$		
				(>0.0001-0.1) mol/L	$U_{rel}=3.5\%$		
		Potential		(-2000~2000)mV	$U=0.1\text{mV}$		
		Temperature		(150~300) $^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
		Time		(10~15)min	$U=0.6\text{s}$		
		Flow		(0~200)mL/min	$U=1.3\%$		
58	*Total Dissolved Solids (TDS) Meters	Temperature	C.S. for Total Dissolved Solids (TDS) Meters JJF (Min) 1097	(5~50) $^{\circ}\text{C}$	$U=0.2^{\circ}\text{C}$		
		TDS		(1~1000)mg/L	$U_{rel}=0.4\%$		
59	Total Organic Carbon Analyzer With Conductivity Measurement	Content	V.R.of Total Organic Carbon Analyzer With Conductivity Measurement JJF(Zhe) 98	(0.1~2.5) mg/L	$U_{rel}=3\%$		
60	*Ammonia-Nitrogen Automatic Analyzers	Content	V.R.of Ammonia-Nitrogen Automatic Analyzers JJG 631	(0.1~500)mg/L	$U_{rel}=4\%$		
61	*Water Quality On-line Analyzers of Total	Content	V.R.of Water Quality On-line Analyzers of Total Phosphorus and Total	TP: (0.01~50) mg/L	$U_{rel}=4.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Phosphorus and Total Nitrogen		Nitrogen JJG 1094	TN: (0.1~100) mg/L	$U_{rel}=3.5\%$		
62	*Total Nitrogen Analyzers	Temperature		(100~200)°C	$U=0.5^{\circ}\text{C}$		
		Time	C.S. for Total Nitrogen Analyzers JJF(Min) 1114	(5~120)min	$U=1.2\text{s}$		
		Content		(0.1~100) mg/L	$U_{rel}=3\%$		
63	*Total Phosphorus Analyzers	Temperature		(100~200)°C	$U=0.5^{\circ}\text{C}$		
		Time	C.S. for Total Phosphorus Analyzers JJF(Min) 1113	(5~120)min	$U=1.2\text{s}$		
		Content		(0.1~100) mg/L	$U_{rel}=3.5\%$		
64	*Elemental Analyzers	Oxygen content		Oxygen, nitrogen and hydrogen analyzer (O) : 0.0013%~0.0174%	$U_{rel}= (3.2\sim 8.6) \%$		
		Hydrogen content	C.S. for Elemental Analyzers JJF1321	Oxygen, nitrogen and hydrogen analyzer (H) : $2.4 \times 10^{-6} \sim 6 \times 10^{-6}$	$U_{rel}= (7.0\sim 7.6) \%$		
		Nitrogen content		Oxygen, nitrogen and hydrogen analyzer (N) : 0.0027%~0.0374%	$U_{rel}= (1.5\sim 7.6) \%$		
		Nitrogen content		Kjeldahl apparatus (N) (0.01~47)%	$U_{rel}=1.2\%$		
65	*Industrial Analyzers	Ash content		(9~50) %	$U=0.28\%$		
		Vdaf	V.R.of Industrial Analyzers JJG1140	(8~40) %	$U=0.36\%$		
		Temperature		(750~950) °C	$U=1.5^{\circ}\text{C}$		



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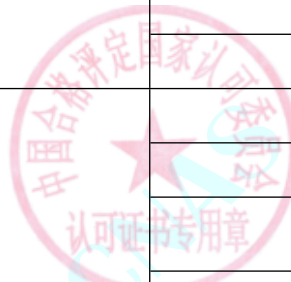
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
66	*Determinators for Total Sulfur in Coal	Content	V.R. of Determinators for Total Sulfur in Coal JJG1006	(0.01~1.00)%	$U=0.05\%$		
				(1.00~4.00)%	$U=0.06\%$		
				(4.00~6.00)%	$U=0.10\%$		
67	*Bomb Calorimeters	Calorimeter	V.R. of Bomb Calorimeters JJG672	(10000~30000) J/g	$U=35\text{J/g}$		
68	*Karl Fischer Volumetric Titrators for Water Content	Moisture Content	V.R. of Karl Fischer Volumetric Titrators for Water Content JJG1154	(0.1~20)mg	$U_{\text{rel}}=1.8\%$		
69	*Polymerase Chain Reaction Analyzers	Temperature	C.S. for Polymerase Chain Reaction Analyzers JJF1527	(10~120) °C	$U=0.2^{\circ}\text{C}$		
		Copy number		($10^2\sim 10^9$)copies/ μL	$U_{\text{rel}}=7\%$		
70	*ELISA Analytical Instruments	Wave Length	V.R. of ELISA Analytical Instruments JJG861	(400~630) nm	$U=0.4\text{nm}$		
		Absorbance		0.0001~2.0000	$U=0.011$		
71	*Micro-spectrophotometers	Content	C.S. of Micro-spectrophotometers JJF 1836	DNA:(10~2000)ng/ μL	$U_{\text{rel}}=7\%$		
72	*Carbon Monoxide Detectors	Gas concentration	V.R. of Carbon Monoxide Detectors JJG 915	(0.1~1000) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.2\%$		
		Time		(0.1~180)s	$U=1.2\text{s}$		
73	*Sulfur Hydrogen Gas Detectors	Gas concentration	V.R. of Sulfur Hydrogen Gas Detectors JJG 695	(0~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.4\%$		
		Time		(0.1~180)s	$U=1.2\text{s}$		
74	*Zirconia Oxygen Analyzers	Concentration	V.R. of Zirconia Oxygen Analyzers JJG 535	(0.1~100)%mol/mol	$U_{\text{rel}}=0.9\%$		
		Time		(0.1~180)s	$U=1.2\text{s}$		



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75	*Ammonia Gas Detectors	Concentration	V.R.of Ammonia Gas Detectors JJG 1105	(0.1~100) μ mol/mol	<i>U</i> _{rel} =3.0%		
		Time		(0.1~180)s	<i>U</i> =1.2s		
76	*Sulfur Dioxide Gas Detector	Concentration	V.R.of Sulfur Dioxide Gas Detector JJG 551	(1~1000) μ mol/mol	<i>U</i> _{rel} =1.6%		
		Time		(0.1~180)s	<i>U</i> =1.2s		
77	*Total Suspended Particulates Sampler	Flux	V.R.of Total Suspended Particulates Sampler JJG 943	(10~1200)L/min	<i>U</i> _{rel} =1.5%		
		Time		(0~3600)s	<i>U</i> =0.2s		
		Temperature		(10~50) °C	<i>U</i> =0.2°C		
		Atmospheric pressure		(87~105) kPa	<i>U</i> =0.3kPa		
		Length		(0~300)mm	<i>U</i> =0.03mm		
78	*Samplers for Stack Dust	Flux	V.R.of Samplers for Stack Dust JJG 680	(5~60)L/min	<i>U</i> _{rel} =1.5%		
79	*Liquid Chromatograph-Atomic Fluorescence Spectrometers	Flux	V.R.of Liquid Chromatograph-Atomic Fluorescence Spectrometers JJG 1151	(0.1~10)mL/min	<i>U</i> _{rel} =0.3%		
		Minimum detection quantity		Arsenate: < 1ng	<i>U</i> _{rel} =8%		
				Methyl arsenic: <0.7ng	<i>U</i> _{rel} =8%		
				Dimethyl arsenic:<0.7ng	<i>U</i> _{rel} =8%		
80	*Gel Permeation Chromatographs	Temperature	V.R.of Gel Permeation Chromatographs JJG 342	(20~90) °C	<i>U</i> =0.3°C		
		Flux		(0.1~10)L/min	<i>U</i> _{rel} =0.3%		
		Molecular weight		Organic mobile phase: 10kg/mol~1Mg/mol	<i>U</i> _{rel} =3%		
				Hydrodynamic phase: 1kg/mol~1Mg/mol	<i>U</i> _{rel} =9%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
Optics							
1	*Standard Light Sources Box	Color Temperature	C.S.for Standard Light Source Box JJF(FZ)055	(2500~7500)K	U=95K		
		Illuminance		(20~3000) lx	$U_{rel}=5\%$		
2	*Colorimeter and Color Difference Meter	Chromaticity	V.R.of Colorimeter and Color Difference Meters JJG595	Y: 1~100	U=2.0		
				x,y: Full Color Gamut	$U(x)=0.0080$ $U(y)=0.0080$		
3	*Whiteness Meter	Whiteness	V.R.of the Whiteness Meter JJG512	60~95	U=1.8		
4	*Specular Gloss Meter	Gloss	V.R.of Specular Gloss Meters and Gloss Plates JJG696	(0~100)GU	1.4GU		
5	*Abbe Refractometer	Refractive Index	V.R.of Abbe Refractometer JJG625	1.3000~1.7000	$U=2 \times 10^{-4}$		
		average dispenser		0.0070~0.0210	$U=1.7 \times 10^{-4}$		
6	Illuminance Meter	Illuminance	V.R.of Illuminance Meters JJG245	(10~3000)lx	$U_{rel}=2.0\%$		
7	*Clarity Test Equipment	Illuminance	C.S. for Clarity Test Equipment JJF1287	(10~3000)lx	$U_{rel}=8.6\%$		
		Time		10s~60s	U=0.1s		
8	Luminance Meter	Luminance	V.R.of Luminance Meter JJG211	(10~1000)cd/m ²	$U_{rel}=3.5\%$		
		Chromaticity		x,y: Full Color Gamut	$U(x)=0.0068$ $U(y)=0.0068$		
9	*Hazemeter	Haze	C.S. for Hazemeter JJF1303	1~30	U=0.32		
		Transmittance		0.3~0.9	U=0.008		
10	*Diffuse Transmission Visual	Transmission Density	V.R.of Diffuse Transmission Visual Densitometers JJG920	0.05~2.0	U=0.03		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Densitometer			2.0~4.0	$U=0.04$		
11	Color Temperature Meter	Color Temperature	V.R.of Color Temperature Meters JJG212	(2000~3000)K (5500~7000)K	$U=20K$ $U=97K$		
12	*Reflectometer	Reflectivity	C.S.for Reflectometer JJF1232	50~95	$U=2.0$		
13	*Electrical Light Source Spectrum Test System	Luminous flux	C.S.for Electrical Light Source Spectrum Test System JJF(Su)153	(1~2000)lm	$U_{rel}=4.0\%$		
		Chromaticity		x,y:Full gamut	$U=0.0060$		
		Colour Temperature		(2000~3400) K	$U=30K$		
		Wavelength		(200~800) nm	$U=0.4nm$		
14	Ultraviolet Radiometer (Energy Meter)	Energy	V.R.of Ultraviolet Radiometers JJG879	(0.01~10) J/cm ²	$U_{rel}=20\%$		
		UV Irradiance		(0.1~2) mW/cm ²	$U_{rel}=20\%$		
15	*UV Analyzers	Wavelength	C.S.for UV Analyzers JJF 1936	(200~400) nm	$U=0.6nm$		
		Irradiance		(10~1000) μ W/cm ²	$U_{rel}=15\%$		
16	*Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp	Irradiance	C.S.for Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp JJF 1525	(250~1100) nm:(0.1~1200)W/m ²	$U_{rel}=15\%$		
17	*Irradiance of Ultraviolet Test Chamber for Photovoltaic Modules	Irradiance	C.S.for Ultraviolet Test Chamber for Photovoltaic Modules JJF(Min) 1082	(250~800) nm:(0.1~25) mW/cm ²	$U_{rel}=15\%$		
		Temperature		(40~80) °C	$U=0.2^{\circ}C$		



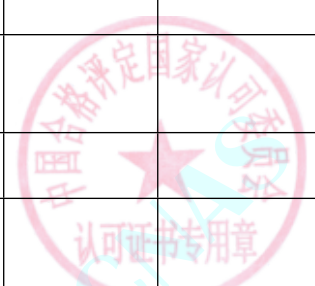
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
18	*Color Fastness to Light Yellowing Tester	Irradiance	C.S.for Color Fastness to Light Yellowing Tester JJF(Spin) 079	(200～1100) nm:(0.1～1200)W/m ²	<i>U</i> _{rel} =15%		
		Temperature		Type a instrument:(20～80) °C	<i>U</i> =0.4℃		
		Speed		Type a instrument:(1～10)rpm	<i>U</i> _{rel} =0.2%		
		Time		(0～60)min	<i>U</i> =0.2s		
19	Cathode Ray Tubes(CRT) Color Analyzer	Luminance	C.S.for Cathode Ray Tubes(CRT) Color Analyzer JJF 1079	(10～1000)cd/m ²	<i>U</i> _{rel} =3 %		
		Chromaticity		x,y: Full Color Gamut	<i>U</i> (x)=0.0035 <i>U</i> (y)=0.0035		
20	*Gel Documentation Systems	Signal to noise ratio	C.S.for Irradiance of Gel Documentation Systems JJF 1530	1～100	<i>U</i> _{rel} =5%		
		Illumination		(0.1～199.9) klx	<i>U</i> _{rel} =6%		
		Irradiance		(200～400)nm:(0.1～100)mW/m ²	<i>U</i> _{rel} =15%		
Special (textiles, Construction traffic etc.)							
1	*Fabric Shrinkage Tester	Length	C.S.for Fabric Shrinkage Tester JJF(SPIn)052	(40～530)mm	<i>U</i> =0.2mm		
		speed		(50～520)r/min	<i>U</i> _{rel} =1.0%		
		Time		3s～22min	<i>U</i> =0.4s		
		Temperature		(0～100)℃	<i>U</i> =0.5℃		
2	*Disk Sampler	Length	C.S.for Disk Sampler JJF(SPIn)061	(0～300)mm	<i>U</i> =0.02mm		
3	*Reciprocating Type Fabric Density Mirror	Length	C.S. of Reciprocating Type Fabric Density Mirror JJF(SPIn)023	(0～300)mm	<i>U</i> =0.02mm		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
4	*Yarn Length Tester	Length	C.S.of Yarn Length Tester JJF(SPin)019	(990~1010)mm	$U=0.4\text{mm}$		
		Force value		(0.1~100)cN	$U_{\text{rel}}=2\%$		
5	*Fabric Thickness Tester	Length	C.S.of Fabric Thickness Tester JJF(SPin)020	(0~10)mm	$U=6\text{ }\mu\text{m}$		
6	*Yarn Length Tester of Fabric	Length	C.S.of Yarn Length Tester of Fabric JJF(SPin)021	(0~200)mm	$U=0.04\text{mm}$		
		Force value		(5~150)cN	$U_{\text{rel}}=0.8\%$		
7	*Fabric Bursting Strength Tester	Aperture	C.S.of Fabric Bursting Strength Tester JJF(SPin)048	(0~150)mm	$U=0.04\text{mm}$		
		Burst expansion		(0.02~30) mm	$U=0.03\text{mm}$		
		Burst strength		(9~11)MPa	$U=0.013\text{MPa}$		
		Time		(10~35)s	$U=0.4\text{s}$		
8	*Light and Weather Fastness Testers	Temperature	C.S.for Light and Weather Fastness Testers JJF(SPin)051	(0~110)°C	$U=0.4\text{ }^{\circ}\text{C}$		
9	*Fabric Shrinkage Testers	Temperature	C.S.for Fabric Shrinkage Testers JJF(SPin)029	(150~210)°C	$U=1.0\text{ }^{\circ}\text{C}$		
		Time		(10~35)s	$U=0.4\text{s}$		
10	*Compression Strength Tester for Board	Force Value	V.R.of Compression Strength Tester for Board JJG(LI)49	(0.01~50)kN	$U_{\text{rel}}=0.4\%$		
11	Tyre Pressure Gauges	Pressure	V.R.of Tyre Pressure Gauges JJG927	(0.1~2.5)MPa	$U=0.3\%\text{FS}$		
12	*Horizontal Tension Tester for Paper and Board	Force Value	V.R.of Horizontal Tension Tester for Paper and Board JJG(LI)58.2	(0.1~1000)N	$U_{\text{rel}}=0.4\%$		
13	*Tear Tester for Paper and Board	Force Value	V.R.of Tear Tester for Paper and Board JJG(LI)63	(0.1~16)N	$U_{\text{rel}}=0.1\%$		



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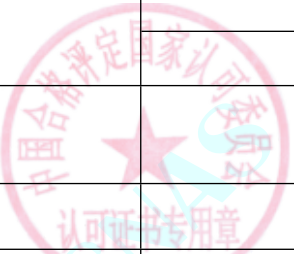
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
14	*Softness Tester	Force Value	V.R.of Softness Tester JJG(LI)64	(0.1~1000)mN	$U_{rel}=0.3\%$		
15	*Fogra Abrasion Tester For Paper and Paper Board	Force Value	V.R.of Fogra Abrasion Tester For Paper and Paper Board JJG(LI)70	(0.1~30)N	$U_{rel}=0.4\%$		
16	*Compression Strength Tester for Corrugated Box	Force Value	V.R.of Compression Strength Tester for Corrugated Box JJG(LI)115	(0.1~50)kN	$U_{rel}=0.4\%$		
17	*AKRON Abrasion Machine for Rubber	Bearing load	C.S for Akron Abrasion Machine for Rubber JJF(SH)039	(25~30)N	$U_{rel}=0.1\%$		
		Wheel speed		(30~80)r/min	$U=0.5r/min$		
		Rubber wheel shaft and wheel Angle		$5^{\circ} \sim 35^{\circ}$	$U=0.1^{\circ}$		
18	*Crock meter	Friction head gravity	C.S.of the Crock meter JJF(SPin)027	(0.1~15)N	$U=0.02N$		
		Friction head stroke		(0~150)mm	$U=0.6mm$		
19	*Tester of Wash Fastness	Test rack speed	C.S.of Tester of Wash Fastness JJF(SPin)026	(35~45) r/min	$U=0.6r/min$		
		Time		(30~40)min	$U=0.4s$		
		Temperature rise time		(0~30)min	$U=0.4s$		
		Temperature		(40~95)°C	$U=0.4^{\circ}C$		
20	*Tester of Color fastness to Perspiration	Length	V.R. of Tester of Color fastness to Perspiration JJF(SPin)028	(0~200)mm	$U=0.04mm$		
		Weight of the pressure hammer		(40~60)N	$U=0.16N$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
21	*Woven Pilling Tester	Movement track of grinding head and grinding table phase	C.S.of Woven Pilling Tester JJF(SPIn)031	ϕ (35~45)mm	$U=0.04\text{mm}$		
		Mill reciprocating speed		(55~65)BPM	$U=0.3\text{BPM}$		
		Weight of the pressure hammer		(100~500)cN	$U_{\text{rel}}=0.4\%$		
22	*Fabrics Abrasion Resistance Apparatus	Speed	C.S.of Fabrics Abrasion Resistance Apparatus JJF(SPIn)036	(40~50) r/min	$U=0.6 \text{ r/min}$		
		Mass		(200~2385) g	$U=(0.2\sim0.6) \text{ g}$		
23	*Grammage Tester for Paper and Board	Mass	V.R.of Grammage Tester for Paper and Board JJG(LI)54.2	(0~50)g	$U=(1.1\sim1.4)\text{mg}$		
24	*Absorption Tester for Paper and Board	Area	V.R.of Absorption Tester for Paper and Board JJG(LI)55	(99~101) cm^2	$U=0.03\text{cm}^2$		
		Mass		(9~11)kg	$U=0.04\text{kg}$		
25	*Laboratory Lampen Mill Beater	Mass	V.R. of Laboratory Lampen Mill Beater JJG(LI)71	(9~11)kg	$U=0.04\text{kg}$		
		Length		(130~135)mm	$U=0.04\text{mm}$		
26	*Transmittance Meter of Automobile	Light transmittance	C.S.for Transmittance Meter of Automobile JJF1225	(1~100)%	$U=0.5\%$		
27	*Eight-basket Oven	Temperature	C.S. for Eight-basket Oven JJF(Textile)011	(50~150) $^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
28	Apparatus for Determining Penetration of	Length	C.S.for Apparatus for Determining Penetration of Bituminous Materials	(0~25)mm	$U=0.005\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Bituminous Materials	Temperature	JJF1208	(0~50)℃	<i>U</i> =0.1℃		
		Mass		(1~200)g	<i>U</i> =0.002g		
29	*Vertical Combustion Tester	Length	C.S.for Vertical Combustion Tester JJF(Spin)068	(0~50)mm	<i>U</i> =(0.2~0.5)mm		
		(>50~800)mm		<i>U</i> =1.1mm			
		Quality		(50~460)g	<i>U</i> =0.3g		
		Angle		(24~26)°	<i>U</i> =0.2°		
		Time		(10~20)s	<i>U</i> =0.2s		
30	*Reinforced Concrete Covermeter and Floorslab Thickness Tester	Length	C.S.for Reinforced Concrete Covermeter and Floorslab Thickness Tester JJF1224	(9~250)mm	<i>U</i> =0.5mm		
31	*Bursting Strength Tester for Paper(Board)	Pressure	C.S.for Bursting Strength Tester for Paper(Board) JJF 1811	(0~6000)kPa	<i>U</i> =3.6kPa		
32	Carbonization Depth Measuring Instruments/Carbonization depth measuring stick	Length	JJF 1721	Measuring Instruments: (0~8)mm	<i>U</i> =0.08mm		
				measuring stick: (0~70)mm	<i>U</i> =0.01mm		
33	*Compaction Instrument of Soil	Mass	V.R.of Compaction Instrument of Soil JJG(JT)058	(2450~4550)g	<i>U</i> =0.5g		
		Length		(2~55)mm	<i>U</i> =0.04mm		
				(290~460)mm	<i>U</i> =0.6mm		
	*Apparatus for	Force	V.R of Apparatus for Time of Setting of Concrete Mixture	(100~1200)N	<i>U</i> _{rel} =0.3%		



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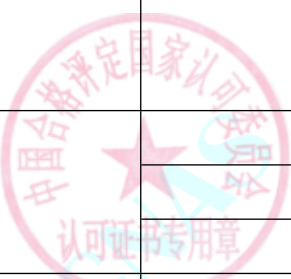
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Concrete Mixture by Penetration Resistance	Length	by Penetration Resistance JJG(JT)095	(4~15)mm	U=0.01mm		
				(23~165)mm	U=0.04mm		
35	*Sand Equivalent Tester	Mass		(990~1010)g	U=0.5g		
		Time		(25~35)s	U=0.2s		
		Frequency	V.R of Sand Equivalent Tester JJG(JT)137	(175~185)min ⁻¹	U=1min ⁻¹		
		Length		Oscillation distance:(200~205)mm	U=0.3mm		
				Size:(0.1~435)mm	U= (0.03~0.10) mm		
36	*Fibre Strength Tester	Force	C.S for Fibre Strength Tester JJF(FZ)016	(0.1~200)cN	U _{rel} =0.25%		
37	Multifunction Slope Scale	Angle	C.S for Multifunction Slope Scale JJF(Ji)140	(-90~90)°	U=0.3°		
38	*Sand-cone Density Apparatus	Length	V.R of Sand-cone Density Apparatus JJG(JT)120	(1~300)mm	U=0.04mm		
39	*Instrument for Steel Bar Gauge Length	Length	V.R of Instrument for Steel Bar Gauge Length JJG(Su) 67	(0~500)mm	U=0.09mm		
40	*Apparatus for Concrete Slump Test	Length	C.S for Apparatus for Concrete Slump Test JJF(Zhe)1093	(1.5~302)mm	U=0.05mm		
41	Construction Quality Tester Sets	Slope		(0~25)mm/m	U=0.14mm/m	Accredited only for diagonal	
				(115~240)mm	U _{rel} =0.12%	inspection	
		Length	C.S for Construction Quality Tester Sets JJF 1110	(760~2400)mm	U=0.6mm	ruler, wedge feeler gauge, grid and slope ruler.	



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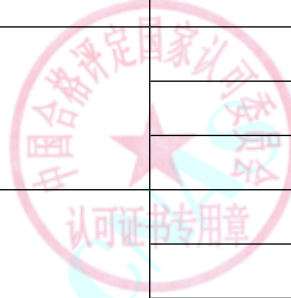
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
42	Needle and Flake Gage	Length	C.S for Needle and Flake Gages JJF 1593	(2~85)mm	<i>U</i> =0.04mm		
43	*Rebound Test Hammer	Force	V.R of Rebound Test Hammer JJG 817	(0.4~0.8)N	<i>U</i> _{rel} =2.5%	Except for specification	
		Rigidity		(60~820)N/m	<i>U</i> _{rel} =2.6%		
		Calibration value		(70~92) line	<i>U</i> =1.2 line		
		Length		Pointer length:(19.5~ 20.5)mm	<i>U</i> =0.02mm		
				Length of tension spring:(61~141)mm	<i>U</i> =0.2 mm		
44	Metrology Verification Device for Rebound Tester	Hardness	V.R.of Metrology Verification Device for Rebound Tester JJG(Su)59	(55~65)HRC	<i>U</i> =0.7HRC		
		Force		(0.2~1)N	<i>U</i> _{rel} =1.5%		
		Mass		(1995~2005)g	<i>U</i> =0.5g		
		Length		Caliper indication:(0~ 150)mm	<i>U</i> =2 μ m		
				Size:(2~198)mm	<i>U</i> =0.04mm		
45	*Apparatus to Measure Water Permeability of Concrete	pressure	C. S. for Apparatus to Measure Water Permeability of Concrete JJF 1812	(0.1~4)MPa	<i>U</i> =0.1%FS		
46	*Inspecting Specification for Apparatus of Fluidity of Cement Mortar	Mass	V.R of Inspecting Specification for Apparatus of Fluidity of Cement Mortar JJG(Zhe)116	(4200~4500)g	<i>U</i> =0.5g		
		Time		(20~30)s	<i>U</i> =0.2s		
		Length		(9~301)mm	<i>U</i> =0.04mm		
	*Apparatus for	Mass	V.R of Apparatus for Normal Consistency and	(290~310)g	<i>U</i> =0.05g		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Consistency and Setting Time of Cement Paste	Length	Setting Time of Cement Paste JJG(Zhe)118	(0.01~85)mm	<i>U</i> =0.02mm		
48	*Mortar consistency Tester	Mass	C.S. for Nonmetal Building	(290~310)g	<i>U</i> =0.05g		
		Length	Materials Plastic Limit Measuring Instruments	(0~185)mm	<i>U</i> =0.04mm		
		Angle	JJF1090	(25~35)°	<i>U</i> =0.1°		
49	*Mixer for cement paste	Rotate speed	V.R of Mixer for cement paste JJG(Zhe)114	(50~310)r/min	<i>U</i> _{rel} =0.2%		
		Length		Clearance/Wall thickness:(0.1~5)mm	<i>U</i> =0.01mm		
				Size:(4~170)mm	<i>U</i> =0.04mm		
		Time		(10~125)s	<i>U</i> =0.2s		
50	*Mixer for mixing mortars	Rotate speed	V.R for Mixer for mixing mortars JJG(Ji)3008	(50~300)r/min	<i>U</i> _{rel} =0.2%		
		Length		Clearance/Wall thickness:(0.1~5)mm	<i>U</i> =0.03mm		
				Size:(135~205)mm	<i>U</i> =0.04mm		
		Time		(25~95)s	<i>U</i> =0.2s		
51	*Apparatus of Abrasion Resistance for Cement Mortar and Concrete	Force	V.R of Apparatus of Abrasion Resistance for Cement Mortar and Concrete JJG(JT)097	(190~410)N	<i>U</i> _{rel} =0.3%		
		Rotate speed		(15~650)r/min	<i>U</i> _{rel} =0.2%		
		Length		(2~135)mm	<i>U</i> =0.04mm		
52	*Los Angeles Testing Machine	Mass	C.S for Los Angeles Testing Machine JJF(Zhe)1095	(380~5050)g	<i>U</i> =1.8g		
		Rotate speed		(25~40)r/min	<i>U</i> =0.6r/min		
		Length		Drum size:(8~720)mm	<i>U</i> =0.3mm		

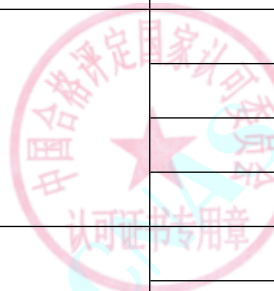


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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
53	*Cement Mortar Specimen Jolting Tabler Complying	Mass	V.R for Cement Mortar Specimen Jolting Tabler Complying JJG(Zhe)115	(2~15)kg	<i>U</i> =2g		
		Time		(55~65)s	<i>U</i> =0.2s		
		Length		(14.5~15.5)mm	<i>U</i> =0.05mm		
54	*Asphalt Mixture's Marshall Compaction Test Apparatus	Mass	V.R of Asphalt Mixture's Marshall Compaction Test Apparatus JJG(JT)065	(4500~10220)g	<i>U</i> =2g		
		Length		(50~200)mm	<i>U</i> =0.07mm		
				(>200~460)mm	<i>U</i> =1.1mm		
		Frequency		(50~70)min ⁻¹	<i>U</i> =1.2min ⁻¹		
55	*Cement Fineness Negative Pressure Screen Analyzers	pressure	C.S for Cement Fineness Negative Pressure Screen Analyzers JJF 1827	(-100~0)hPa	<i>U</i> =0.2hPa		
		Rotate speed		(25~35)r/min	<i>U</i> =0.5r/min		
56	*Marshall test machine for bituminous mixtures	Force	V.R of Marshall test machine for bituminous mixtures JJG(JT)066	(0.05~50)kN	<i>U</i> _{rel} =0.12%		
		Velocity		(40~60)mm/min	<i>U</i> _{rel} =0.5%		
		Length		Stream value:(0~11)mm	<i>U</i> =0.006mm		
				(50~77)mm	<i>U</i> =0.04mm		
57	*Liquid & Plastic Limit Gauge	Mass	V.R of Liquid & Plastic Limit Gauge JJG(JT)069	(70~110)g	<i>U</i> =0.002g		
		Time		(4~6)s	<i>U</i> =0.1s		
		Length		(0~55)mm	<i>U</i> =0.02mm		
		Angle		(25~35)°	<i>U</i> =0.1°		
58	*Test Apparatus for Theoretical Maximum Specific Gravity of Asphalt	Pressure	V.R of Test Apparatus for Theoretical Maximum Specific Gravity of Asphalt	(-100~150)kPa	<i>U</i> =0.03%FS		
		Capacity		(2000~5000)mL	<i>U</i> =8mL		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Gravity of Asphalt Mixtures	Time	Mixtures JJG(JT)105	(0~2)min	$U=0.2s$		
59	*The Expansion Tester of Cement Le Chatelier Needles	Mass	C.S for The Expansion Tester of Cement Le Chatelier Needles JJF(JC)110	(295~305)g	$U=0.05g$		
		Length		(0~6)mm	$U=0.012mm$		
60	*Friability Surveymeters	Rotate speed	C.S for Friability Surveymeters JJF(Ji)168	(10~200)r/min	$U_{rel}=0.6\%$		
		Number of rotations		(1~200)r	$U=0.5r$		
		Time		(0~4)min	$U=0.2s$		
61	*Instrument of Testing Mortar-strength by Penetration Resistance Method	Force	C.S for Instrument of Testing Mortar-strength by Penetration Resistance Method JJF 1372	(780~820)N	$U_{rel}=0.3\%$		
		Length		(0~41)mm	$U=0.02mm$		
62	*Asphalt Centrifugal Extractor	Rotate speed	V.R of Asphalt Centrifugal Extractor JJG(JT)132	(30~20000)r/min	$U_{rel}=0.2\%$		
		Length		(0.043~0.12)mm	$U=0.003mm$		
63	*California Bearing Ratio Instrument	Force	V.R of California Bearing Ratio Instrument JJG(JT)106	(2~300)kN	$U_{rel}=0.4\%$		
		Mass		(1240~1260)g	$U=0.5g$		
		Velocity		(1.00~1.25)mm/min	$U=0.12mm/min$		
		Length		(48~152)mm	$U=0.04mm$		
64	*Oedometers	Force	C.S for Oedometers JJF 1311	(0.01~20)kN	$U_{rel}=0.4\%$		
		Length		(0~100)mm	$U=0.03mm$		
65	*Concrete Vibrating table test	Force	C.S for concrete Vibrating table test JJF(Ji)123	(0.9~2)kN	$U_{rel}=1.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Vibration displacement		(0.4~0.6)mm(50Hz)	$U=0.006\text{mm}$		
		Vibration frequency		(45~55)Hz	$U=0.6\text{Hz}$		
		Time		(0~10)s	$U=0.2\text{s}$		
66	*Abrasion Tester for Paint Films	Mass	V.R of Abrasion Tester for Paint Films JJG(JT)125	(0.8~1000)g	$U=0.05\text{g}$		
		Hardness		(40~60)HD	$U=0.5\text{HD}$		
		Rotate speed		(55~65)r/min	$U_{\text{rel}}=0.2\%$		
		Length		(35~55)mm	$U=0.04\text{mm}$		
67	*coefficient of Friction Tester	Frictional force	C.S for coefficient of Friction Tester JJF(Ji)125	(0.1~1000)N	$U_{\text{rel}}=0.2\%$		
		Moving speed of Slider		(50~600)mm/min	$U_{\text{rel}}= (6.0\sim0.2) \%$		
		Slider mass		(20~2000)g	$U_{\text{rel}}=0.3\%$		
		Spring elasticity coefficient		(1~3)N/cm	$U=0.2\text{N/cm}$		
68	*Stiffness Tester for Board	Moment of force	Verification Regulation of Stiffness Tester for Board JJG (Qing) 57	(0.1~10)mN · m	$U_{\text{rel}}=0.2\%$		
		Speed		(150~250)° /min	$U_{\text{rel}}=3\%$		
69	*Simulation Test-bed for Road Transportation	Frequency	C.S for Simulation Test-bed for Road Transportation JJF 1271	(1~400)Hz	$U_{\text{rel}}=0.3\%$		
		Acceleration		(2~100)m/s ²	$U_{\text{rel}}=2\%$		
70	Hot Ball shaped Anemometer	Wind speed	Metrological Verification Regulation of Hot Ball shaped Anemometer JJG (JS) 0001	(5~25)m/s	$U=(0.2\sim0.5)\text{m/s}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
71	Portable 3-cup Anemometers	wind speed	Verification Regulation of Portable 3-cup Anemometers JJG 431	(5~25)m/s	$U=(0.2\sim0.5)\text{m/s}$		
72	Portable Induction Anemometer	wind speed	V.R of Portable Induction Anemometer JJG 515	(5~25)m/s	$U=(0.2\sim0.5)\text{m/s}$		
73	Contact Anemorumbomete r	wind speed	V.R of Contact Anemorumbometer JJG 613	(5~25)m/s	$U=(0.2\sim0.5)\text{m/s}$		



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