

Name: Wuxi Institute of Inspection, Testing and Certification(Wuxi Institute of Metrology and Testing/Wuxi Center of Fiber Inspection)

Address: No.8, Chunxin East Road, Dongting, Wuxi, Jiangsu, China

Registration No. CNAS L0260

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

Effective Date: 2025-06-10 Expiry Date: 2028-09-16

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
I Geometric measuring instrument							
1	*Measuring microscope	Length	V.R.of Reading Microscope JJG571	(0~40)mm	$U=2\ \mu\text{m}$		
				(>40~50)mm	$U=3\ \mu\text{m}$		
2	*Micro-scope for reading	Length	V.R.of Reading Microscope JJG571	(0~6)mm	$U=3\ \mu\text{m}$		
3	*Projector	Length	C.S. for Projectors JJF1093	(0~500)mm	$U=2\ \mu\text{m}$		
		Magnification		$4\times\sim 200\times$	$U_{\text{rel}}=0.02\%$		
4	*Linear comparator	Length	V.R.of Linear comparator JJG72	(0~50)mm	$U=0.4\ \mu\text{m}$		
				(>50~100)mm	$U=0.5\ \mu\text{m}$		
				(>100~150)mm	$U=0.6\ \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>150~200)mm	$U=0.7 \mu m$		
5	*Universal Measuring Microscope and Makers Microscope	Length	V.R.of Universal Measuring Microscope and Makers Microscope JJG56	(0~200) mm	$U=0.2 \mu m+2 \times 10^{-6}L$		
6	*Cable Length Meter	Length	V.R.of Cable Length Meter JJG987-2004 JJG987	(5~1000)m	$U_{rel}=0.20\%$		
7	Steel ruler	Length	V.R.of Steel rule JJG1	(0~2000)mm	$U=0.03mm+3 \times 10^{-5}L$		
8	steel tape	Length	V.R.of steeltape JJG4	measure length (0~100) m	$U=0.04mm+1.8 \times 10^{-5}L$		
				measure depth (0~30) m	$U=0.04mm+1.8 \times 10^{-5}L$		
9	Pi tapes	Length	Calibration Specification for Pi tapes JJF1423	ϕ (9~16000) mm	$U=0.01mm+1.2 \times 10^{-5}L$		
10	standard line	Length	V.R.of Cable Length Meter JJG987-2004 JJG987	(0~100)m	$U=0.06mm+2.8 \times 10^{-5}L$		
11	Wooden Rule(Wooden Folded Rule)	Length	V.R.of Wooden Rule(Wooden Folded Rule) JJG2	0~3000mm	$U=0.2mm+10^{-4}L$		
12	*Imageing Probe Measuring Machines	Length	C.S.for Imageing Probe Measuring Machines JJF1318	(0~500)mm	$U=0.8 \mu m+10^{-6}L$		
				(>500~2000)mm	$U=1.0 \mu m+2 \times 10^{-6}L$		
13	*Calibration Specification for Linear Displacement	Length	C.S.for Linear Displacement Sensoys JJF1305	Guyed displacement sensor: (0~5000)mm	$U=0.001mm$		
				Resistance displacement sensor: (0~1000)mm	$U=0.001mm$		



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	Sensoys			Magnetostrictive displacement sensor: (0~3000)mm	$U=0.001\text{mm}$		
				Laser displacement sensor: (0~2000)mm	$U=0.0005\text{mm}$		
14	*Calibration Specification for Biological microscope	Length	C.S.for Biological microscope JJF1402	(0~100)mm	$U=2.6\text{ }\mu\text{m}$		
		Zoom		Objective lens Zoom: 5×~100×	$U_{\text{rel}}=1.2\%$		
15	Proof bar	Length	V.R.of Micrometer JJG21,C.S.for Large Dimension Outside Micrometers JJF1088	25mm~1000mm	$U=0.4\text{ }\mu\text{m}+4\times 10^{-6}L$		
				1000mm~3000mm	$U=1.0\text{ }\mu\text{m}+3\times 10^{-6}L$		
16	Internal micro-meter	Length	V.R. of Internal micrometers JJG22	(0~1000)mm	$U=1.1\text{ }\mu\text{m}+3\times 10^{-6}L$		
				1000mm~3000mm	$U=1.7\text{ }\mu\text{m}+2.9\times 10^{-6}L$		
17	*Micrometer with dial comparater	Length	V.R.of Micrometer with Dial Comparater and Indicating Snap Gauge JJG26	(0~100)mm	$U=1\text{ }\mu\text{m}$		
18	*Height caliper	Length	V.R.of Height caliper JJG31	0~500mm	$U=0.01\text{mm}$		
				500mm~1000mm	$U=0.02\text{mm}$		
				1000mm~1500mm	$U=0.03\text{mm}$		
				1500mm~2000mm	$U=0.04\text{mm}$		
19	*Current calipers	Length	V.R.of current calipers JJG30	0~500mm	$U=0.01\text{mm}$		
				500mm~1000mm	$U=0.02\text{mm}$		
				1000mm~1500mm	$U=0.03\text{mm}$		



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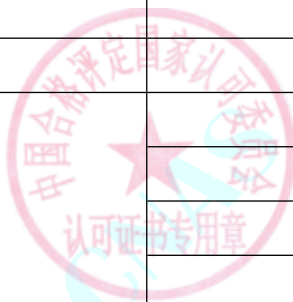
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				1500mm~2000mm	$U=0.04\text{mm}$		
20	*Micrometer	Length	V.R. of Micrometer JJG21,C.S. for Large Dimension Outside Micrometers JJF1088	(0~100) mm	$U=1\text{ }\mu\text{m}$		
				100mm~500mm	$U=2\text{ }\mu\text{m}$		
				500mm~700mm	$U=5\text{ }\mu\text{m}$		
				700mm~900mm	$U=6\text{ }\mu\text{m}$		
				900mm~1200mm	$U=8\text{ }\mu\text{m}$		
				1200mm~2000mm	$U=9\text{ }\mu\text{m}$		
21	*Depth micrometer	Length	V.R. of Depth Micrometers JJG24	(0~300)mm	$U=0.6\text{ }\mu\text{m}+8\times 10^{-6}L$		
22	*Dial test indicator	Length	V. R. of Dial test indicator JJG35	Reading in 0.001mm:(0~0.4)mm	$U=1.2\text{ }\mu\text{m}$		
				Reading in 0.01mm:(0~1)mm	$U=2\text{ }\mu\text{m}$		
23	*comparator of machine type	Length	V.R. of Comparators of Machine Type JJG39-2004 JJG39	-0.05mm~+0.05mm (division value 0.5 μm)	$U=0.08\text{ }\mu\text{m}$		
				-0.1mm~+0.1mm (division value 1 μm)	$U=0.15\text{ }\mu\text{m}$		
				-0.2mm~+0.2mm (division value 2 μm)	$U=0.3\text{ }\mu\text{m}$		
				-0.5mm~+0.5mm (division value 5 μm)	$U=0.6\text{ }\mu\text{m}$		
				-1mm~+1mm (division value 10 μm)	$U=1.2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
24	*Bore dial indicator	Length	C.S.for Bore Dial Indicator JJF1102	Reading in 0.01mm:2mm~18mm	$U=2 \mu m$		
				Reading in 0.01mm:18mm~50mm	$U=3 \mu m$		
				Reading in 0.01mm:>50mm~160mm	$U=4 \mu m$		
				Reading in 0.01mm:160mm~450mm	$U=5 \mu m$		
				Reading in 0.001mm:6mm~10mm	$U=1.2 \mu m$		
				Reading in 0.001mm:10mm~35mm	$U=1.3 \mu m$		
				Reading in 0.001mm:35mm~50mm	$U=1.5 \mu m$		
				Reading in 0.001mm:50mm~160mm	$U=1.6 \mu m$		
				Reading in 0.001mm:160mm~450mm	$U=1.8 \mu m$		
25	*Microcator	Length	V.R.of Microcator JJG118	-0.1mm~0.1mm	$U=0.02 \mu m$		
26	*Dial Gauges	Length	V.R. of Dial Gauges JJG 34	(0~1)mm	$U=1 \mu m$		
				1mm~2mm	$U=2 \mu m > 1mm \sim 2mm$		
				2mm~10mm	$U=3 \mu m$		
				10mm~30mm	$U=4 \mu m$		



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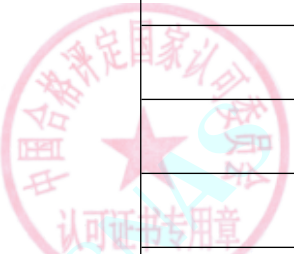
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				30mm~50mm	$U=6\text{ }\mu\text{m}$		
				50mm~100mm	$U=9\text{ }\mu\text{m}$		
27	Gauge Blocks	Length	V.R.of Gauge Blocks JJG146	(0.5~1000)mm	$U=0.07\text{ }\mu\text{m}+0.7\times 10^{-6}L$		
28	*Snap Gauge Reading in 0.01mm	Length	V.R.of Snap Gauge Reading in 0.01mm JJG109	Digital display:(0~100)mm	$U=3\text{ }\mu\text{m}$		
				Digital display: 100mm~300mm	$U=4\text{ }\mu\text{m}$		
				Digital display: 300mm~500mm	$U=5\text{ }\mu\text{m}$		
				Digital display: 500mm~600mm	$U=6\text{ }\mu\text{m}$		
				Digital display: 600mm~800mm	$U=7\text{ }\mu\text{m}$		
				Digital display: 800mm~1000mm	$U=8\text{ }\mu\text{m}$		
				Indi-cator:0~300mm	$U=3\text{ }\mu\text{m}$		
				Indi-cator: 300mm~500mm	$U=4\text{ }\mu\text{m}$		
				Indi-cator: 500mm~600mm	$U=5\text{ }\mu\text{m}$		
				Indi-cator: 600mm~800mm	$U=6\text{ }\mu\text{m}$		
29	*Depth Dial Gauge	Length	V.R.of Depth Dial Gauge JJG830	0.01mm:(0~50)mm	$U=2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.01mm: 50mm~100mm	$U=3 \mu m$		
				0.01mm: 100mm~200mm	$U=4 \mu m$		
				0.01mm: 200mm~300mm	$U=5 \mu m$		
				0.001mm: (0~30)mm	$U=1.0 \mu m$		
				0.001mm: 30mm~50mm	$U=1.2 \mu m$		
				0.001mm: 50mm~100mm	$U=1.4 \mu m$		
				0.001mm: 100mm~150mm	$U=1.6 \mu m$		
				0.001mm: 150mm~200mm	$U=1.9 \mu m$		
				0.001mm: 200mm~300mm	$U=2.5 \mu m$		
30	*Micrometers with Gauge	Length	V.R. of Micrometers with Gauge JJG427	(0~100)mm	$U=1.3 \mu m$		
31	*Thickness gauges	Length	Calibration Specification for Thickness gauges JJF1255	(0~30)mm (pointer type 0.001mm)	$U=1.2 \mu m$		
				(0~10)mm (pointer type 0.002)	$U=1.5 \mu m$		
				(0~30)mm (pointer type 0.01mm)	$U=4 \mu m$		
				(0~30)mm (pointer type 0.1mm)	$U=16 \mu m$		
				(0~30)mm (Digital display 0.01mm type)	$U=9 \mu m$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0~30)mm (Digital display type 0.001mm)	$U=2 \mu m$		
32	*Dial snap gauge	Length	Calibration Specification for Dial snap gauges JJF1253	(0~100)mm, division value 0.01mm	$U=8 \mu m$		
				(0~100)mm, division value 0.1mm	$U=24 \mu m$		
				(0~100)mm, division value 0.02mm	$U=10 \mu m$		
				(0~100)mm, division value 0.05mm	$U=16 \mu m$		
				(0~100)mm, division value 0.005mm	$U=4 \mu m$		
33	*Wide Range Gauges with Digital Display Reading in 0.001mm	Length	Calibration Specification for Wide Range Digital Display Gauges Reading in 0.001mm QTC13-001	(0~50) mm	$U=2 \mu m$		
34	*Tester for dial indicator gauge	Length	V.R. of Tester for Dial Indicator Gauge JJG201	Dial gauges reading in 0.001mm verification instrument: (0~5)mm	$U=0.2 \mu m$		
				Dial gauges reading in 0.01mm verification instrument: (0~50)mm	$U=0.8 \mu m$		
				Raster indicator verification instrument: (0~100)mm	$U=0.8 \mu m$		
35	Electronic level	Angle	V.R. of Electronic levels and Coincidence levels JJG103	$\pm 10mm/m$ (division value 0.001mm/m)	$U=0.001mm/m$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$\pm 10\text{mm/m}$ (division value: 0.005mm/m)	$U=0.005\text{mm/m}$		
				$\pm 10\text{mm/m}$ (division value: 0.01mm/m)	$U=0.01\text{mm/m}$		
36	Coincidence level	Angle	V.R. of Electronic levels and Coincidence levels JJG103	$(-5 \sim 5)\text{mm/m}$	$U=0.003\text{mm/m}$		
37	Angle gauge blocks	Angle	V.R. of Angle gauge blocks JJG70	$(0 \sim 90)^\circ$	$U=2.5''$		
38	Square	Verticality	V.R. of squares JJG7	column square: $200\text{mm} \sim 500\text{mm}$	$U=0.5 \mu\text{m}$		
				square of wide seat: $63\text{mm} \sim 500\text{mm}$	$U=1 \mu\text{m}$		
				blade square: $50\text{mm} \sim 200\text{mm}$	$U=1 \mu\text{m}$		
				rectangle square: $125\text{mm} \sim 200\text{mm}$	$U=0.3 \mu\text{m}$		
				Graduated steel square: $150\text{mm} \sim 500\text{mm}$	$U=0.04\text{mm}$		
39	*Sine bar	Angle	V.R. of Sine bars JJG37	30°	$U=2.0''$		
40	Straight edge	Straight ness	V.R. of Straight edge JJG63	$75\text{mm} \sim 175\text{mm}$	$U=0.3 \mu\text{m}$		
				$175\text{mm} \sim 300\text{mm}$	$U=0.5 \mu\text{m}$		
				$300\text{mm} \sim 500\text{mm}$	$U=0.7 \mu\text{m}$		
41	Frame Levels and Shaft Levels	Angle	Calibration Specification for Frame Levels and Shaft Levels JJF1084	$(0.02 \sim 0.10)\text{mm/m}$	$U_{\text{rel}}=4\%$		
42	Level ruler	Angle	C.S. for Level Rules JJF1085	$(0.5 \sim 10)\text{mm/m}$	$U_{\text{rel}}=7\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
43	*Protractor for multiple point tool	Angle	V.R.of Protractors for multiple point tool JJG275	(0~180)°	U=5'		
44	*General Bevel Protractors	Angle	Calibration Specification for General Bevel Protractors JJF1959	(0~360)°	U=1'		
45	*Combined Type Angle Rules	Angle	C.S. for Combined Type Angle Rules JJF1132	(0~180)°	U=3'		
46	Square gauge	Verticality	V.R.of Square gauge JJG1046	100mm,150mm	U=0.2 μm		
				200mm,250mm	U=0.3 μm		
				315mm,400mm	U=0.4 μm		
				500mm	U=0.5 μm		
				630mm	U=0.6 μm		
47	Electronic digital display clinometer	Angle	Calibration Specification for Clinometers JJF1915	(0~360)°	U=0.01°		
48	*Gonio-meter	Angle	V.R. of Goniometer JJG97	(0~360)°	U=0.8"		
49	*Optical rotary table	Angle	C.S. of Optical&Digital Dividing Tables JJF1114	(0~360)° (division value 1")	U=1.3"		
				(0~360)° (division value 2")	U=1.4"		
				(0~360)° (division value 5")	U=3"		
50	*Optical dividing head	Angle	V.R. of Optical Digital Dividing Head JJG57	(0~360)° (division value 1")	U=0.8"		
				(0~360)° (division value 2")	U=1.1"		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0~360)° (division value 3")	$U=2.0''$		
				(0~360)° (division value 5")	$U=3.1''$		
				(0~360)° (division value 10")	$U=5.4''$		
				(0~360)° (division value 15")	$U=8.1''$		
51	Auto-collimator	Angle	V.R. of Autocollimator JJG202	-120" ~ 120" (division value 0.1")	$U=0.24''$		
				-120" ~ 120" (division value 0.2")	$U=0.27''$		
				-500" ~ 500" (division value 0.5")	$U=0.30''$		
				-500" ~ 500" (division value 1")	$U=0.37''$		
52	*Box plate	Verticality	V.R. of Box plate JJG194	100mm	$U=2.3 \mu m$		
				160mm	$U=2.6 \mu m$		
				200mm	$U=2.9 \mu m$		
				250mm	$U=3.1 \mu m$		
				315mm	$U=3.5 \mu m$		
				400mm	$U=4.3 \mu m$		
53	*Square tester	Verticality	C.S.for Square tester JJF1140	(0~500)mm	$U=0.8 \mu m$		
54	*Calibrator for level	Angle	V.R. of Calibrators for the Level JJG191	0.001mm/m、Division value:0.005mm/m、0.01mm/m	$U=0.00016mm/m$		



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55	*Calibration Specification for Angular-Position Transducers/Sensors	Angle	C.S.for Angular-Position Transducers/Sensors JJF1352	(0~360)°	U=1"		
56	*Calibration Specification for Photoelectric Shaft Encoders	Angle	C.S.for Photoelectric Shaft Encoders JJF1115	(0~360)°	U=1"		
57	Optical theodolite	Angle	V.R.of Optical theodolites JJG414	(0~360)°	U=0.4"		
58	Water level	Angle	V.R.of Water Levels JJG425	-25" ~ 25"	U=3"		
59	*Digital Display Height Measuring Instrument	Length	C.S.for Digital Display Height Measuring Instrument JJF1254	(0~1000)mm	U=0.16 μm+1.6×10 ⁻⁶ L		
60	Plumb Instruments	Angle	C.S.for Plumb Instruments JJF1081	-100" ~ 100"	U=0.6"		
61	*Concen-tricity Testers	Length	C.S.for Concentricity Testers JJF1109	(0~20) μm	U=3 μm		
62	*Bearing Inside and Outside Diameter Testers	Length	V.R.of Bearing Inside and Outside Diameter Testers JJG 471	φ (3~230)mm	U=0.6 μm		
63	*Gear tooth caliper	Length	C.S. for Gear Tooth Calipers JJF1072	M(1~26)	U=0.01mm		
64	*Common normal micrometer	Length	V.R.of the Common Normal Micrometer JJG82	(0~50)mm	U=1 μm	合格评定国家认可委员会 认可证书专用章	
				50mm~200mm	U=2 μm		
65	Screw Templates	Length	V.R.of Screw Templates JJG60	P: (0.4~6)mm	U=3 μm		
	Instruments of		C.S.for Instruments of Thread Inspection of Casing,Tubing,	monomial parameter gauges:(0~25)mm	U=5 μm		

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	of Casing, Tubing Line Pipe and New Rotary Shouldered Connection		Line Pipe and New Rotary Shouldered Connection	Gauge Length: (0~ 102.390)mm	$U=1.6 \mu\text{m}$		
		Angle	JJF1063	Gauge angle: (30°)	$U=3'$		
67	*Screw Thread Micrometers	Length	V.R. of Screw Thread Micrometers JJG25	(0~100)mm	$U=3 \mu\text{m}$		
				(100~200)mm	$U=4 \mu\text{m}$		
				Micrometer head: (0~ 200)mm	$U=1 \mu\text{m}$		
68	*Micrometers with Prismatically Arranged Measuring Faces	Length	V.R. of Micrometers with Prismatically Arranged Measuring Faces JJG182	(1~85) mm	$U=1 \mu\text{m}$		
69	Light-section micro-scope	Length	C.S. for Light-section microscopes JJF1092	(0.5~60) μm	$U_{\text{rel}}=2\%$		
70	*Contact instrument for the measure-ment of surface roughness	Roughness	C.S. for Contact(stylus) instrument of surface roughness measurement by the profile method JJF1105	$2 \mu\text{m} < Ra \leq 10 \mu\text{m}$	$U_{\text{rel}}=2.2\%$		
				$0.1 \mu\text{m} < Ra \leq 2 \mu\text{m}$	$U_{\text{rel}}=4.2\%$		
				$0.02 \mu\text{m} < Ra \leq 0.1 \mu\text{m}$	$U_{\text{rel}}=8.2\%$		
71	Flatness interfero-meter with parallel light brightening	Flatness	C.S. for Flat Equal Thickness Interferometers JJF1100	$\Phi 150\text{mm}$	$U=0.01 \mu\text{m}$		
72	*Pneumatic Measuring Instruments for Micrometer	Length	V.R. of Pneumatic Measuring Instrument for Micrometers JJG356	-8 μm ~8 μm (Buoy type 10000×)	$U=0.2 \mu\text{m}$		
				-15 μm ~15 μm (Buoy type 5000×)	$U=0.3 \mu\text{m}$		
				-40 μm ~40 μm (Buoy type 2000×)	$U=0.4 \mu\text{m}$		



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				-80 μm ~ 80 μm (Buoy type 1000 $\times$)	$U=0.8 \mu\text{m}$		
				-10 μm ~ 10 μm (Electronic column type for Division value of 0.2 μm)	$U=0.2 \mu\text{m}$		
				-25 μm ~ 25 μm (Electronic column type for Division value of 0.5 μm)	$U=0.3 \mu\text{m}$		
				-50 μm ~ 50 μm (Electronic column type for Division value of 1 μm)	$U=0.7 \mu\text{m}$		
73	*Ultrasonic thickness gauge	Length	C.S. for Ultrasonic Thickness Instrument JJF1126	(0.5 ~ 10)mm	$U=0.02\text{mm}$		
				(> 10 ~ 75)mm	$U=0.04\text{mm}$		
				(> 75 ~ 200)mm	$U=0.10\text{mm}$		
74	*Optimerer	Length	V.R.of Optimerer JJG45	(-80 μm ~ 80 μm) (division value 0.2 μm)	$U=0.02 \mu\text{m}$		
				(-100 μm ~ 100 μm) (division value 1 μm)	$U=0.1 \mu\text{m}$		
75	*Horizontal metro-scope	Length	C.S.for Length Measuring Instrument JJF1189	(0 ~ 500)mm	$U=0.16 \mu\text{m} + 1.0 \times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
76	*Magnetic and eddy current measuring instrument for coating thickness	Length	V.R of Magnetic and eddy current measuring instrument for coating thickness JJG818	(0~8000) μm	$U=0.15 \mu\text{m}+4.4\times 10^{-3}H$		
77	*Measure-ment Standard Instrument of Roundness	Roundness	V.R.of Measurement Standard Instrument of Roundness and Cylindricity JJG429	(0.5~10) μm	$U=0.04 \mu\text{m}$		
78	Calibrator of Extensometer	Length	C.S.for Calibrator of Extensometer JJF1096	(0~1/3)mm (> 1/3~25)mm	$U=0.10 \mu\text{m}$ $U_{\text{rel}}=0.03\%$		
79	*the Tool Presetting Instrument	Length	V.R.of The Tool Presetting Instrument JJG938	(0~1000)mm	$U=0.38 \mu\text{m}+2.7\times 10^{-6}L$		
80	*Grating Micro-meter	Length	Calibration Specification for Grating Micrometers JJF1682	(0~25)mm (Level: 0.2 μm) (0~50)mm (Level: 0.5 μm) (0~100)mm (Level: 1 μm ~10 μm)	$U=0.1 \mu\text{m}$ $U=0.2 \mu\text{m}$ $U=0.3 \mu\text{m}$		
81	Plug gauges	Length	V.R. of Plain limit gauges JJG343	1mm~10mm 10mm~50mm 50mm~500mm	$U=0.4 \mu\text{m}$ $U=0.5 \mu\text{m}$ $U=0.3 \mu\text{m}+4\times 10^{-6}L$		
82	Ring gauges	Length	V.R. of Plain limit gauges JJG343	1mm~20mm 20mm~500mm	$U=0.7 \mu\text{m}$ $U=0.5 \mu\text{m}+4\times 10^{-6}L$		
83	Snap gauges	Length	V.R. of Plain limit gauges	3mm~20mm	$U=0.7 \mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			JJG343	20mm~500mm	$U=0.5 \mu m+4 \times 10^{-6}L$		
84	Feeler gauges	Length	V.R.of Feeler gauges JJG62	0.02mm~0.10mm	$U=1.5 \mu m$		
				0.10mm~3.00mm	$U=2.5 \mu m$		
85	Thread Measuring Wires	Length	C.S.for Cylindrical measuring pin JJF1207	$\phi (0.118 \sim 6.585)\text{mm}$	$U=0.13 \mu m$		
86	Optical flat	Flatness	V.R.of Optical Flat JJG28	$\phi (30 \sim 60)\text{mm}$	$U=0.010 \mu m$		
				$\phi 80\text{mm}$	$U=0.012 \mu m$		
				$\phi (100 \sim 150)\text{mm}$	$U=0.016 \mu m$		
87	Radius Gauge	Length	V.R.of Radius Gauge JJG58	R: (1~25)mm	$U=7 \mu m$		
88	Test Sieves	Length	C.S.for Test Sieves JJF1175	(0.02~0.04)mm	$U=0.8 \mu m$		
				(0.04~4)mm	$U=1.3 \mu m$		
				(4~125) mm	$U=0.04\text{mm}$		
89	Pin gauge	Length	C.S.for Cylindrical measuring pin JJF1207	$\phi (0.1 \sim 25)\text{mm}$	$U=0.2 \mu m$		
90	Standard ring gauge	Length	V.R.of Standard ring gauge JJG894	1mm~300mm	$U=0.5 \mu m+4 \times 10^{-6}L$		
91	Electronic Plug Gauges	Length	Calibration Specification for Electronic Plug Gauges JJF1310	$\phi (6 \sim 130)\text{mm}$	$U=1.5 \mu m$		
92	*Length measuring instituter	Length	C.S. of Length measuring instituters JJF1066	Micron meter: ($\pm 100 \mu m$)	$U=0.1 \mu m$		
				Millimeter: (0~100)mm	$U=0.16 \mu m+1.0 \times 10^{-6}L$		
				Decimeter: (0~3)m	$U=0.3 \mu m+2 \times 10^{-6}L$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
93	*Inductive Micro-meters	Length	C.S.for Inductive Micrometers JJF1331	$(-1000 \sim +1000) \mu\text{m}$	$U=(0.02 \sim 2.0) \mu\text{m}$		
94	*Contact type inter-ferometer	Length	V.R. of Contact type interferometer JJG101	$-50 \mu\text{m} \sim +50 \mu\text{m}$	$U=0.012 \mu\text{m}$		
95	*Flat plate	Degree of the Plate	V.R. of Flat plate JJG117	$160\text{mm} \times 100\text{mm} \sim 4000\text{mm} \times 2500\text{mm}$	$U=0.8 \mu\text{m} + 0.7 \times 10^{-6}L$		
96	*Flat edge	Straight ness	Calibration Specification for Straight Edges JJF1097	$(0 \sim 5000)\text{mm}$	$U=0.3 \mu\text{m} + 4 \times 10^{-7}L$		
97	Inter-ference micro-scope	Roughness	V.R. of Interference microscope JJG77	$H(0.05 \sim 0.20) \mu\text{m}$	$U_{\text{rel}}=8\%$		
				$H(>0.20 \sim 1.00) \mu\text{m}$	$U_{\text{rel}}=2.2\%$		
98	*ThicStirs up the flash ranging diameter meterkness table	Length	C.S.for ThicStirs up the flash ranging diameter meterkness table JJF1250	$(0.1 \sim 30)\text{mm}$	$U=0.26 \mu\text{m}$		
99	*Measuring System of Coordinate Position	angle	C.S.for Measuring System of Coordinate Position JJF1251	$(0 \sim 360)^{\circ}$	$U=2.8''$		
		Length		$(0 \sim 40)\text{m}$	$U=1.9 \mu\text{m} + 1.6 \times 10^{-6}L$		
100	*X-Ray Fluorescence Coating Thickness Instrument	Length	C.S.for X-Ray Fluorescence Coating Thickness Instrument JJF1306	$0.05 \mu\text{m}$	$U_{\text{rel}}=10\%$		
				$(>0.05 \sim 50) \mu\text{m}$	$U_{\text{rel}}=5.5\%$		
101	Mould	Length	C.S.for Moulds JJF1307	$(0 \sim 300)\text{mm}$	$U=0.05\text{mm}$		
				$(>300 \sim 600)\text{mm}$	$U=0.1\text{mm}$		
102	*Metallographic Microscope	Length	Calibration Specification for Metallographic Microscope JJF1914	$(0 \sim 100)\text{mm}$	$U=1.5 \mu\text{m}$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
103	Standard Thickness Pieces Of X-Ray Fluorescence Coating Thickness Instrument	Length	C.S.for X-Ray Fluorescence Coating Thickness Instrument JJF1306	(0.1~50) μm	$U_{\text{rel}}=6.2\%$		
104	*Calibration Specification for Articulated Arm Coordinate Measuring Machines	Length	C.S.for Articulated Arm Coordinate Measuring Machines JJF1408	R(10~500)mm	$U=5\text{ }\mu\text{m}$		
				R(>500~1000)mm	$U=10\text{ }\mu\text{m}$		
				R(>1000~2000)mm	$U=15\text{ }\mu\text{m}$		
				R(>2000~3500)mm	$U=20\text{ }\mu\text{m}$		
105	High-precision Line Scale	Length	V.R.of High-precision Line Scale JJG73	(0~1000)mm	$U=0.1\text{ }\mu\text{m}+0.4\times 10^{-6}L(k=3)$		
106	Fineness of Grind Gage	Length	V.R.of Fineness of Grind Gage JJG905	(0~25) μm	$U=0.6\text{ }\mu\text{m}$		
				(25~50) μm	$U=0.7\text{ }\mu\text{m}$		
				(50~100) μm	$U=0.8\text{ }\mu\text{m}$		
				(100~150) μm	$U=1.3\text{ }\mu\text{m}$		
107	Line Template	Roughness	Calibration Specification for Line Template JJF(WXJL)002	Ra: (0.05~0.2) μm	$U_{\text{rel}}=5.2\%$		
				Ra: 0.2 μm ~0.4 μm	$U_{\text{rel}}=4.2\%$		
				Ra: 0.4 μm ~0.8 μm	$U_{\text{rel}}=3.3\%$		
				Ra: 0.8 μm ~4 μm	$U_{\text{rel}}=2.4\%$		
				Ra: 4 μm ~10 μm	$U_{\text{rel}}=2.2\%$		
				H: (0.1~20) μm	$U_{\text{rel}}=4.6\%$		



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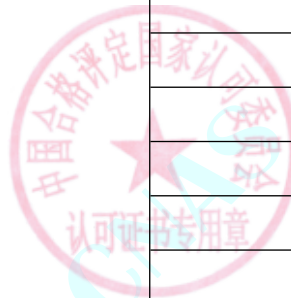
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				H: 20 μm ~ 30 μm	$U_{\text{rel}}=2.4\%$		
				H: 30 μm ~ 50 μm	$U_{\text{rel}}=1.4\%$		
108	*Micrometers of Measuring Inside Dimension	Length	Calibration Specification for Micrometers of Measuring Inside Dimension JJF1411	Tri diameter: (6~300)mm	$U=0.9\text{ }\mu\text{m}+8\times 10^{-6}L$		
				Inside: (5~150)mm	$U=1.9\text{ }\mu\text{m}+6\times 10^{-6}L$		
				Digital Inside: (5~200)mm	$U=0.9\text{ }\mu\text{m}+8\times 10^{-6}L$		
109	Film Cross-cut Tester	Length	Calibration specification for Film Cross-cut Tester JJF(su)196	(1~3)mm	$U=0.003\text{mm}$		
110	Calibration Specification for Surface Profile Gauges		C.S.for Surface Profile Gauges JJF1476	Digital: (0~6.5)mm/1 μm	$U=2\text{ }\mu\text{m}$		
				Digital: (0~6.5)mm/0.1 μm	$U=1.1\text{ }\mu\text{m}$		
				Pointer: (0~6.5)mm/0.002mm	$U=2\text{ }\mu\text{m}$		
				Pointer: (0~6.5)mm/0.01mm	$U=6\text{ }\mu\text{m}$		
111	Wet Film Thickness Gauges	Length	C.S.for Wet Film Thickness Gauges JJF1484	comb gauge: (5~100) μm	$U=1\text{ }\mu\text{m}$		
				comb gauge: (>100~3000) μm	$U=3\text{ }\mu\text{m}$		
				wheel gauge: (0~125) μm	$U=0.6\text{ }\mu\text{m}$		
				wheel gauge: (>125~1500) μm	$U=2.0\text{ }\mu\text{m}$		



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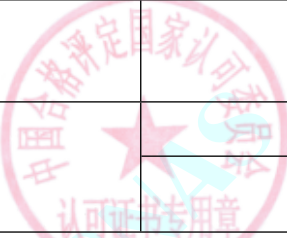
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
112	Calibration Specification for Blocks used in Ultrasonic Testing	Length	C.S.for Blocks used in Ultrasonic Testing JJF1487	(0~600)mm	$U=6\mu m+1.2\times 10^{-5}L$		
113	Single and Three Phase Plugs	length	Calibration Specification for Single and Three Phase Plugs JJF(WXJL)007	CMM: (0~300)mm	$U=0.002mm$		
				CMM: R(0.5~2)mm	$U=0.01mm$		
				CMM: R(>2~20)mm	$U=0.005mm$		
		Angle		CMM: 0° ~360°	$U=3'$		
		length		IPMM: (0~300)mm	$U=0.01mm$		
				IPMM: R(0.5~2)mm	$U=0.02mm$		
				IPMM: R(>2~20)mm	$U=0.01mm$		
		Angle		IPMM: 0° ~360°	$U=13'$		
Quality	(0~5)kg	$U=0.7g$					
114	Access Probe	length	Calibration Specification for Access Probe JJF(WXJL)003	CMM: (0~300)mm	$U=0.002mm$		
				CMM: R(0.5~2)mm	$U=0.01mm$		
				CMM: R(>2~20)mm	$U=0.005mm$		
		Angle		CMM: 0° ~360°	$U=3'$		
		length		IPMM: (0~300)mm	$U=0.01mm$		
				IPMM: R(0.5~2)mm	$U=0.02mm$		
				IPMM: R(>2~20)mm	$U=0.01mm$		
		Angle		IPMM: 0° ~360°	$U=13'$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Force		(1~200)N	$U_{rel}=0.6\%$		
115	Spline Gauge	length	Calibration Specification for Straight Cylindrical Involute Spline Gauges JJF1557	Major diameter, minor diameter: (0~180)mm	$U=1 \mu m+1 \times 10^{-5}L$		
				Tooth thickness, measurement over two pins: (0~180)mm	$U=1.2 \mu m+1 \times 10^{-5}L$		
				Space width, measurement between two pins: (0-180)mm	$U=1.5 \mu m+1 \times 10^{-5}L$		
116	Chamfer Gages for Measuring The Diameter for Tapered Hole	length	Calibration Specification for Chamfer Gages for Measuring The Diameter for Tapered Hole JJF (Su) 212	(0~150)mm	$U=0.01mm$		
117	Length Meter with Laser-based	length	Calibration Specification for Length Meter with Laser- based Measurement JJF (Su) 195	(0.1~9999)m	$U_{rel}=0.013\%$		
118	Roundness Flick	length	Calibration Specification for Roundness Flick Calibration Standard JJF1485	Chord Height(1~50) μm	$U_{rel}=5.6\%$		
119	*Fiber Diameter	length	Calibration Specification for Fiber Diameter Analyzer JJF (textile) 065	(0~1000) μm	$U=1.7 \mu m$		
120	Thickness slice	thickness	V.R of Magnetic and eddy current measuring instrument for coating thickness JJG818	(0~50) μm	$U=0.2 \mu m$		
				>50 $\mu m \sim 10mm$	$U_{rel}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
121	*Indication Snap Gauge	(length)	Verification Regulation of Micrometers with Dial Comparator Indication Snap Gauge JJG26	(0~200)mm	$U=0.4\text{ }\mu\text{m}$		
122	Fiber Tapes And Measuring Ropes	length	Verification Regulation of Fiber Tapes And Measuring Ropes JJG5	(0~200)m	$U=0.1\text{mm}+1.4\times 10^{-4}L$		
123	*Center Distance Calipers	length	Calibration Specification for Center Distance Calipers JJF(Su)199	(0~500)mm	$U=0.02\text{mm}$		
				(500~1000)mm	$U=0.03\text{mm}$		
124	*Step Gauges	length	Calibration Specification for Step Gauges JJF(Yi)154	(-100~100)mm	$U=(3\sim 10)\text{ }\mu\text{m}$		
125	*Calipers and Gauges of Chamfer	length	Calibration Specification for Calipers and Gauges of Chamfer JJF(Su)211	Calipers of Chamfer: (0~10)mm	$U=0.02\text{mm}$		
				Gauges of Chamfer: (0~10)mm	$U=0.017\text{mm}$		
126	Wedge-Shape Filler Gauges	length	Calibration Specification for Wedge-Shape Filler Gauges JJF1548	(0~60)mm	$U=0.010\text{mm}$		
127	*Detecting The Notch of Test Sample	Magnification	Calibration Specification for Projectors for Detecting The Notch of Test Sample JJF(zhe) 1133	$5\times\sim 100\times$	$U_{\text{rel}}=0.34\%$		
128	*X-Ray thickness gauge	Length	X-Ray thickness gauge JJG480	(0~30)mm	$U=0.002\text{mm}$		
129	*Solder Paste Inspector	Length	Calibration Specification for Solder Paste Inspector JJF (Su) 191	(0~500) μm	$U=2\text{ }\mu\text{m}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
130	*Instrument for measuring contact angle with image method	angle	Calibration Specification for Instrument for measuring contact angle with image method JJF (Su) 219	(6~180)°	U=0.3°		
131	Hand-held Laser Distance Meters	Length	Verification Regulation of hand-held laser distance meters JJG966	(0~60)m	U=0.8mm		
132	Laser Micrometers	Length	Calibration specification for Laser Micrometers JJF1663	(-30~30)mm	U=0.011%FS		
133	Electronic Tachometer Total Station	Angle	Verification Regulation of Electronic Tachometer Total Station JJG 100	(0~360)°	U=0.3"		
134	*optical Clinometers	Angle	Calibration Specification for Clinometers JJF1915	(0~360)°	U=6"		
135	*Atomic Force Microscope	Length	Calibration Specification for Atomic Force Microscope JJF (Su) 236	Z-direction t (20~500)nm	U=(3~5)nm		
136	*Scanning Electron Microscope	Length	Calibration specification for Scanning Electron Microscopes(SEM) JJF1916	(100~2000)nm	U=(3~8)nm		
137	Concrete Crack Width and Depth Measuring Instrument)	Length	Calibration Specification for Concrete Crack Width and Depth Measuring Instruments JJF1334	(0.01~10)mm (Width Measuring Instrument)	U=0.004mm		
				(0.01~10)mm (Width standard plate)	U=0.003mm		
				(20~200)mm (Depth Measuring Instrument)	U=3mm		
				(20~500)mm (Dipth standard plate)	U=0.5mm		
138	Construction Quality Tester sets	length	Calibration Specification for Construction Quality Tester	Diagonal detection ruler: (0~100)mm	U=0.2mm		



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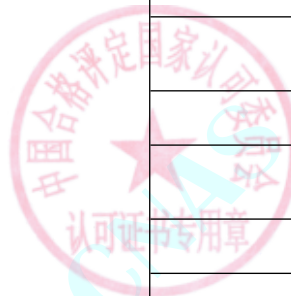
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			sets JJF1110	Feeler Gauges: (0~15)mm	$U=0.04\text{mm}$		
				Hundred grid: (10~300)mm	$U_{\text{rel}}=0.1\%$		
		Angle		Verticality detection ruler: (0~15)mm/2m	$U=0.2\text{mm}/2\text{m}$		
				Inside and outside right angle detection ruler: (0~10)mm/150mm	$U=0.2\text{mm}/150\text{mm}$		
				Slope ruler: (0~30)mm/m	$U=0.1\text{mm}/\text{m}$		
139	Borehole Clinometers	Angle	Calibration Specification for Borehole Clinometers JJF1550	$(-30^{\circ} \sim +30^{\circ})$	$U=0.008\%\text{FS}$		
140	*Brick Calipers	length	Calibration Specification for Brick Calipers JJF(Zhe)1109	Bending ruler: (-15~30)mm	$U=0.05\text{mm}$		
				Main ruler: (45~500)mm	$U=0.2\text{mm}$		
141	*Geometrical Quantity Precision for Part of Bicycle	Length	Specification for calibration of geometric accuracy checking tools for bicycle parts JJF(light industry)119	size: (0~500)mm	$U=0.01\text{mm}$		
				run-out: (0~0.1)mm	$U=5\text{ }\mu\text{m}$		
142	Critical Flow Venturi Nozzle	Length	V.R.of Critical Flow Venturi Nozzle JJG620	(50~75)mm	$U=3\text{ }\mu\text{m}$		
				(>75~500)mm	$U=4\text{ }\mu\text{m}$		
143	*Optical 3D Measuring Systems Based on Structured Light Scanning	Length	Calibration Specification for Optical 3D Measuring Systems Based on Structured Light Scanning JJF 1951	(50~3588)mm	$U=0.008\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
144	*Gear Measuring Centers	length	Specification for the calibration of gear measuring centers JJF1561	Tooth Profile: $r_b(30\sim 197)\text{mm}$	$U=1.8\text{ }\mu\text{ m}$		
				Sprial Line: $r_b(29\sim 33)\text{mm}$ 、 $\beta:(0\sim 30)^\circ$	$U=1.8\text{ }\mu\text{ m}$		
				Tooth Pitch: $m4、z25$	$U=1.8\text{ }\mu\text{ m}$		
145	Coordinate Measuring Spheres	length	Calibration Specification for Coordinate Measuring Spheres JJF 1422	diameter: $(0\sim 50)\text{mm}$	$U=0.21\text{ }\mu\text{ m}+0.6\times 10^{-6}L$		
				Roundness: $(0\sim 50)\text{mm}$	$U=0.03\text{ }\mu\text{ m}$		
146	*Rubber and Plastic Film Gage	Length	Calibration Specification for Rubber and Plastic Film Gage JJF 1488	Rubber and Film Gage: $(0\sim 30)\text{ mm}$	$U=1.2\text{ }\mu\text{ m}$		
				Plastic Film Gage: $(0\sim 1)\text{ mm}$	$U=1.2\text{ }\mu\text{ m}$		
147	*Micropattern Standards	Length	Calibration Specification for Micropattern Standards JJF 1917	$(0\sim 50)\text{ mm}$	$U=0.5\text{ }\mu\text{ m}$		
		Angle		$0\sim 360^\circ$	$U=1.5'$		
148	*Thread Gauge Scanners	Length	Calibration Specification for Thread Gauge Scanners JJF 1950	Plain diameter: $(0\sim 160)\text{ mm}$	$U=0.4\text{ }\mu\text{ m}+5\times 10^{-6}L$		
				Plain diameter: $(160\sim 360)\text{ mm}$	$U=1.0\text{ }\mu\text{ m}+5\times 10^{-6}L$		
				Thread diameter: $(0\sim 360)\text{ mm}$	$U=2.5\text{ }\mu\text{ m}+3\times 10^{-6}L$		
				pitch: $(0\sim 6)\text{ mm}$	$U=1\text{ }\mu\text{ m}$		
		Angle		Flank Angle: $(0\sim 40^\circ)$	$U=3'$		
				Smooth taper: $0\sim 20^\circ$	$U=2''$		
				Taper of thread: 1:16	$U=0.00030$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
149	*Auto Tester For Steel Rule	Length	Calibration Specification of Auto Tester For Steel Rule JJF（浙）1129	（0～1000）mm	<i>U</i> =0.005mm+4×10 ⁻⁶ <i>L</i>		
150	*Solder Paste Inspection Instruments	Length	Calibration Specification for Solder Paste Inspection Instruments JJF 1965	(10～500) μ m	<i>U</i> =1.6 μ m		
151	Standard Ball Bars	Length	Calibration Specification for Standard Ball Bars JJF 1859	CMM: (0～1000)mm	<i>U</i> =1 μ m+3×10 ⁻⁶ <i>L</i>		
				CMM: (>1000～2500)mm	<i>U</i> =2.5 μ m+3.5×10 ⁻⁶ <i>L</i>		
				Laser Tracker System: (>2500～4000)mm	<i>U</i> =3.2 μ m+3×10 ⁻⁶ <i>L</i>		
152	Material Measures of Length Measuring Instrument with Optical Principle	Flatness	Calibration Specification for Material Measures of Length Measuring Instrument with Optical Principle JJF 1941	four-edge straightedge: (0～300)mm	<i>U</i> =0.10m		
		Angle		Straight Edge Squares:90°	<i>U</i> =1.0″		
				cone mandrel Conical Half-angle: (2～45)°	<i>U</i> =2.4″		
				four-sided iron: 90°	<i>U</i> =0.4″		
		Length		standard mandrel: (0～500)mm	<i>U</i> =0.4 μ m		
				cross-wire mandrel: (0～200)mm	<i>U</i> =2.0 μ m		
				eccentric shaft Eccentricity: (20～30) μ m	<i>U</i> =0.8 μ m		
				Line Scale: (0～1000)mm	<i>U</i> =2.0 μ m+2×10 ⁻⁶ <i>L</i>		
153	*Optical Shaft Measuring	Length	Calibration Specification for Optical Shaft Measuring	Shaft Diameter <i>d</i> : (8～100)mm	<i>U</i> =0.8 μ m+4.4×10 ⁻⁶ <i>d</i>		



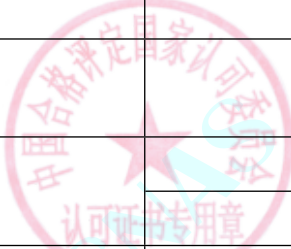
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Instrument		Instrument JJF 1933	Shaft length l: (0~400)mm	$U=1.6\text{ }\mu\text{ m}+5.8\times10^{-6}l$		
154	Copper Clad Thickness Measuring Instrument	Length	Calibration Specification for Copper Clad Thickness Measuring Instrument JJF(su)258	(4~10) $\mu\text{ m}$	$U_{\text{rel}}=9\%$		
				(>10~50) $\mu\text{ m}$	$U=0.6\text{ }\mu\text{ m}$		
				(>50~500) $\mu\text{ m}$	$U_{\text{rel}}=1.2\%$		
				standard thickness sheet: (0~50) $\mu\text{ m}$	$U=0.3\text{ }\mu\text{ m}$		
				standard thickness sheet: (>50~500) $\mu\text{ m}$	$U_{\text{rel}}=0.6\%$		
155	Metallographic Microscope	Length	Standard Guide for Calibrating Reticles and Light	(0~100)mm	$U=1.3\text{ }\mu\text{ m}$		
		Magnification	Microscope Mganifications ASTM E1951-14	magnification of objective lens: $2.5\times\sim100\times$	$U_{\text{rel}}=1.2\%$		
156	*Tire Tread Depth Gauges	Length	Calibration Specification for Tire Tread Depth Gauges JJF1477	(0~100) mm	$U=0.002\text{mm}$		
157	Gauges for pipe threads with 55 degree threads angle where pressure-tight joints are made on the threads	Length	Calibration Specification for Gauges for pipe threads with 55 degree threads angle where pressure-tight joints are made on the threads JJF (Su) 223	Thread plug gauge: (1~170) mm	$U=3.0\text{ }\mu\text{ m}+0.7\times10^{-5}L$		
				Thread ring gauge: (3~170) mm	$U=3.7\text{ }\mu\text{ m}+0.7\times10^{-5}L$		
				Plain taper gauge: (0~170) mm	$U=1.9\text{ }\mu\text{ m}+0.7\times10^{-5}L$		
				Pitch: (0.1~3) mm	$U=1.0\text{ }\mu\text{ m}$		
		Angle		(0~90)°	$U=4'$		
				Taper: 1:16	$U=0.0003\text{mm/mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
158	Taper Thread Gauges	Length	Calibration Specification for Taper Thread Gauges JJF (Xiang) 47	Pitch diameter、Major diameterPlug gauge: (1~400) mm	<i>U</i> =3.0 μ m+0.7×10 ⁻⁵ <i>L</i>		
				Pitch diameter、Major diamRing gauge: (3~400) mm	<i>U</i> =3.7 μ m+0.7×10 ⁻⁵ <i>L</i>		
				Pitch: (0.1~5) mm	<i>U</i> =1.0 μ m		
		Angle		(0~90)°	<i>U</i> =4′		
				Taper: (1:32)~(7:24)	<i>U</i> =0.0003mm/mm		
159	Cylindrical Thread Gauges	Length	Calibration Specification for Cylindrical Thread Gauges JJF 1345	Plug gauge: (0.8~400) mm	<i>U</i> =2.0 μ m+1×10 ⁻⁵ <i>L</i>		
				Ring gauge: (3~400) mm	<i>U</i> =2.7 μ m+1×10 ⁻⁵ <i>L</i>		
				Pitch: (0.1~15) mm	<i>U</i> =1.0 μ m		
		Angle		(0~90)°	<i>U</i> =4′		
160	Welding Inspection Callipers	Angle	Calibration Specification for Welding Inspection Callipers JJF 2161	(0~160)°	<i>U</i> =8′		
		Length		(0~60) mm	<i>U</i> =0.01mm		
161	Roughness Comparison Specimens	Roughness	Calibration Specification for Roughness Comparison Specimens JJF 1099	<i>Ra</i> :0.012~100) μ m	<i>U</i> _{rel} =7.0%		
162	*Track of the Light Source	Straight ness	Calibration Specification for Track of the Light Source JJF (Su) 270	(0~9) m	<i>U</i> =0.04mm+0.5×10 ⁻⁵ <i>L</i>		
		Length		(0~9) m	<i>U</i> =0.03mm+0.3×10 ⁻⁵ <i>L</i>		
163	*Concentricity Testers	Length	Calibration Specification for Concentricity Testers JJF (Su) 279	(0~200) mm	<i>U</i> =1.5 μ m		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
164	*Industrial Endoscopes	Illuminance	Calibration Specification for Industrial Endoscopes JJF (Su) 269	(300~3000) lx	$U_{rel}=7\%$		
		Angle		(0~150) °	$U=7^{\circ}$		
		Length		(0.5~5) mm	$U=3 \mu m$		
165	*Contact (Stylus) Surface Contour Tester	Length	Calibration Specification for Contact (Stylus) Surface Contour Tester JJF (Su) 276	(0~200) mm	$U=1.4 \mu m$		
		Length		$\pm 50mm$	$U=0.7 \mu m$		
		Angle		15° 10' ~90°	$U=7''$		
		Length		R(4.7625~20.6399)mm	$U=1.1 \mu m$		
166	Paint Film Scribes	Length	Calibration Specification for Paint Film Scribes JJF 2163	(0~3) mm	$U=0.003mm$		
		Angle		(28~32)°	$U=6'$		
167	*Industrial Robots	Length	Calibration Specification for Industrial Robots JJF 2138	(0~20) m	$U=24 \mu m+6.8 \times 10^{-6}L$		
		Acceleration		(1~20) m/s ² , (1~160) Hz	$U_{rel}=2.2\%$		
168	*Optical Contact Angle Measuring Instruments	Angle	Calibration Specification for Optical Contact Angle Measuring Instruments JJF 2099	(0~180)°	$U=0.06^{\circ}$		
169	*Coordinate Measuring Machines	Length	C.S.for Coordinate Measuring Machines JJF1064	(0~1000)mm	$U=0.2 \mu m+8.5 \times 10^{-7}L$		
		Length		(1000~10000)mm	$U=0.8 \mu m+17.5 \times 10^{-7}L$		
170	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 JJG1081.2	(770~851)mm	$U=0.05mm$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
II Thermal measuring instrument							
1	Standard Platinum-10% Rhodium/Platinum Thermocouple	Temperature	V.R. of Standard Platinum-10% Rhodium/Platinum Thermocouple JJG75	(419.527~1084.62)°C	U=0.7°C		
2	Working Noble Metal Thermocouples	Temperature	V.R. of Working Noble Metal Thermocouples JJG141	S:(300~1100)°C	U=0.8°C	Accredited only for double-poles method	
				R:(300~1100)°C	U=0.8°C		
				B:(1100~1600)°C	U=2.8°C		
3	Base Metal Thermocouples	Temperature	C.S. for Base Metal Thermocouples JJF1637	(-40~300)°C	U=0.3°C		
				(>300~1200)°C	U=1.0°C		
4	Standard Mercury-in-Glass Thermometers	Temperature	V.R. of Standard Mercury-in-Glass Thermometers JJG161	(-30~0)°C	U=0.04°C		
				(>0~100)°C	U=0.03°C		
				(>100~200)°C	U=0.05°C		
				(>200~300)°C	U=0.06°C		
5	Thermistor Thermometers	Temperature	C.S. of Thermistor Thermometers JJF1379	(-50~-30)°C	U=0.07°C		
				(>-30~100)°C	U=0.06°C		
				(>100~200)°C	U=0.07°C		
6	Liquid-in-Glass Thermometers for Working	Temperature	V.R. of Liquid-in-Glass Thermometers for Working JJG130	(-80~-30)°C	U=0.08°C		
				(>-30~100)°C	U=0.06°C		
				(>100~200)°C	U=0.07°C		
				(>200~300)°C	U=0.09°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
7	Bimetallic thermometer	Temperature	C.S.of Bimetallic thermometer JJF1908	(-300~500)°C	$U=0.6^{\circ}\text{C}$		
				(>500~600)°C	$U=0.8^{\circ}\text{C}$		
				(-80~-30)°C	$U=0.4^{\circ}\text{C}$		
				(>-30~100)°C	$U=0.2^{\circ}\text{C}$		
8	Filled System Thermometers	Temperature	C.S.of Filled System Thermometers JJF1909	(>100~300)°C	$U=0.4^{\circ}\text{C}$		
				(>300~500)°C	$U=1^{\circ}\text{C}$		
				(-80~-30)°C	$U=0.4^{\circ}\text{C}$		
				(>-30~100)°C	$U=0.2^{\circ}\text{C}$		
9	Industry Platinum Resistance Thermometers	Temperature	V.R.of Industry Platinum and Copper Resistance Thermometers JJG229	(>100~200)°C	$U=0.05^{\circ}\text{C}$	Accredited only for Industrial Platinum Resistance Thermometer	
				(>200~300)°C	$U=0.06^{\circ}\text{C}$		
				(>300~420)°C	$U=0.6^{\circ}\text{C}$		
				(-80~0)°C	$U=0.03^{\circ}\text{C}$		
10	Surface Thermometers	Temperature	C.S.for the Surface Thermometers JJF1409	(50~400)°C	$U=(0.5\sim0.7)^{\circ}\text{C}$		
11	Surface Platinum Resistance Thermometer	Temperature	V.R.of Surface Platinum Resistance Thermometer JJG684	(-30~300)°C	$U=0.3^{\circ}\text{C}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
12	Sheathed Thermocouples	Temperature	C.S. for Sheathed Thermocouples JJF1262	(-40~300)°C	U=0.2°C		
				(>300~1100)°C	U=1.0°C		
13	*Digital Thermometer	Temperature	C.S. for Digital Thermometer JJF(su)95	(-80~100)°C	U=0.03°C		
				(>100~300)°C	U=0.04°C		
				(>300~1100)°C	U=1.0°C		
14	*Digital Temperature Indicators and Controllers	Temperature	V.R. of Digital Temperature Indicators and Controllers JJG617	IPRT Input(-200~850)°C	U=(0.2~0.4)°C		
				Tc K,N,J Input(-200~1200)°C	U=(0.3~0.4)°C		
				Tc S Input(0~1600)°C	U=(0.3~0.5)°C		
				Tc B Input(0~1800)°C	U=(0.3~0.6)°C		
				Tc R Input(0~1700)°C	U=(0.3~0.6)°C		
				Tc T Input(-200~400)°C	U=0.3°C		
				Tc E Input(-200~1000)°C	U=(0.3~0.4)°C		
15	*Self-balance Display Instruments	Temperature	V.R. of Recorders for Industrial-Process Measurement JJG74	IPRT Input(-200~850)°C	U=(0.2~0.4)°C		
				Tc K,N,J Input(-200~1200)°C	U=(0.3~0.4)°C		
				Tc S Input(0~1600)°C	U=(0.3~0.5)°C		
				Tc B Input(0~1800)°C	U=(0.3~0.6)°C		
				Tc R Input(0~1700)°C	U=(0.3~0.6)°C		
				Tc T Input(-200~400)°C	U=0.3°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Tc E Input(-200~1000) °C	$U=(0.3\sim0.4)^{\circ}\text{C}$		
16	*Analogue Temperature Indicators and Controllers	Temperature	V.R.of Analogue Temperature Indicators and Controllers JJG951	IPRT Input(-200~850)°C	$U=0.8^{\circ}\text{C}$		
				Tc K,N,J Input(-200~ 1200)°C	$U=(0.8\sim1.0)^{\circ}\text{C}$		
				Tc S Input(0~1600)°C	$U=(0.8\sim1.0)^{\circ}\text{C}$		
				Tc B Input(0~1800)°C	$U=(0.8\sim1.0)^{\circ}\text{C}$		
				Tc R Input(0~1700)°C	$U=(0.8\sim1.0)^{\circ}\text{C}$		
				Tc T Input(-200~400)°C	$U=0.8^{\circ}\text{C}$		
				Tc E Input(-200~1000) °C	$U=0.8^{\circ}\text{C}$		
17	Temperature Transmitter	Temperature	C.S. of the Temperature Transmitter JJF1183	With sensor (-30~ 300) °C	$U=0.4^{\circ}\text{C}$		
				With sensor(>300~1100) °C	$U=1.5^{\circ}\text{C}$		
				Without sensor(4~ 20)mA	$U=0.016\text{mA}$		
18	*Data Acquisition System	Temperature	C.S.of Data Acquisition System JJF1048	IPRT Input(-200~850)°C	$U=(0.2\sim0.4)^{\circ}\text{C}$		
				Tc K,N,J Input(-200~ 1200)°C	$U=(0.3\sim0.4)^{\circ}\text{C}$		
				Tc S Input(0~1600)°C	$U=(0.3\sim0.5)^{\circ}\text{C}$		
				Tc B Input(0~1800)°C	$U=(0.3\sim0.6)^{\circ}\text{C}$		
				Tc R Input(0~1700)°C	$U=(0.3\sim0.6)^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Tc T Input(-200~400)°C	U=0.3°C		
				Tc E Input(-200~1000)°C	U=(0.3~0.4)°C		
19	Temperature Itinerant Detecting Instrument	Temperature	C.S.for Temperature Itinerant Detecting Instrument JJF1171	(-60~100)°C	U=0.08°C		
				(>100~200)°C	U=0.12°C		
				(>200~300)°C	U=0.16°C		
20	*Environmental Testing Equipment	Temperature	C.S. for Environmental Testing Equipment for Temperature and Humidity Parameters JJF1101	(-80~300)°C	U=0.3°C		
		Humidity		10%RH~95%RH	U=1.5%RH~2%RH		
21	*Box-type Resistance Furnace	Temperature	C.S. for Box-type Resistance Furnace JJF1376	furnace temperature uniformity(300~600)°C	U=2.4°C		
				furnace temperature uniformity(>600~1000)°C	U=3.5°C		
22	*Thermostatic Bath	Temperature	Measurement and Test Norm of Thermostatic Bath's Metrological Characteristics JJF1030	Temperature Uniformity(-80~300)°C	U=0.004°C		
				Temperature Flutuauon(-80~300)°C	U=0.006°C		
23	*Thermocouple Calibration Furnaces	Temperature	Testing Specification of Temperature Uniformity in Thermocouple Calibration Furnaces JJF1184	(300~1100)°C	U=0.25°C		
				(>1100~1300)°C	U=0.3°C		
24	*Temperature Block Calibrators	Temperature	Calibration Guideline of the Temperature Block Calibrators JJF1257	(-80~300)°C	U=0.32°C		
				(>300~1100)°C	U=1.4°C		
25	Radiation Thermometers	Temperature	V.R.of Radiation Thermometers JJG856	(-30~100)°C	U=0.3°C		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				($>100\sim 300$) $^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
				($>300\sim 600$) $^{\circ}\text{C}$	$U=1.5^{\circ}\text{C}$		
				($>600\sim 1000$) $^{\circ}\text{C}$	$U=2.5^{\circ}\text{C}$		
				($>1000\sim 1200$) $^{\circ}\text{C}$	$U=4.5^{\circ}\text{C}$		
				($>1200\sim 1600$) $^{\circ}\text{C}$	$U=6.0^{\circ}\text{C}$		
26	Thermal Imagers	Temperature	C.S. for Thermal Imagers JJF1187	($-20\sim 20$) $^{\circ}\text{C}$	$U=(0.5\sim 0.3)^{\circ}\text{C}$		
				($>20\sim 100$) $^{\circ}\text{C}$	$U=(0.3\sim 0.6)^{\circ}\text{C}$		
				($>100\sim 500$) $^{\circ}\text{C}$	$U=(0.6\sim 1.6)^{\circ}\text{C}$		
				($>500\sim 1600$) $^{\circ}\text{C}$	$U=(2.1\sim 6.0)^{\circ}\text{C}$		
27	Infrared Thermometers for Measurement of Human Temperature	Temperature	C.S of Infrared Thermometers for Measurement of Human Temperature JJF1107	($22\sim 42$) $^{\circ}\text{C}$	$U=0.1^{\circ}\text{C}$		
28	Mechanical Thermo hygrometers	Temperature	V.R. of Mechanical Thermo hygrometers JJG205	($5\sim 50$) $^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
		Moisture		30%RH $\sim$ 95%RH	$U=2\%\text{RH}$		
29	Precision Dew-point Hygrometers	Dew-point Temperature	V.R. of Precision Dew-point Hygrometers JJG499	dew-point temperature($-70\sim 20$) $^{\circ}\text{C}$	$U=(0.39\sim 0.25)^{\circ}\text{C}$	合格评定 国家认可 认可证书专用章	
30	Resistance and Capacitance Dew Point Hygrometer	Dew-point Temperature	C.S. for Resistance and Capacitance Dew Point Hygrometer JJF1272	dew-point temperature($-70\sim 20$) $^{\circ}\text{C}$	$U=(0.7\sim 0.5)^{\circ}\text{C}$		
31	Digital Temperature-hygrometers	Humidity	C.S. for Digital Temperature-hygrometers JJF 1076	5%RH $\sim$ 95%RH	$U=(1.3\sim 2.0)\%\text{RH}$		
		Temperature		($-20\sim 60$) $^{\circ}\text{C}$	$U=0.3^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
32	Temperature Calibration Devices for Polymerase Chain Reaction Analyzers	Temperature	C.S. for Temperature Calibration Devices for Polymerase Chain Reaction Analyzers JJF 1821	(0~120)°C	$U=0.04^{\circ}\text{C}$		
33	*On-line Temperature Measuring System	Temperature	C.S. for On-line Temperature Measuring System JJF(chuan)143	(-100~400)°C	$U=0.32^{\circ}\text{C}$		
				(>400~700)°C	$U=1.4^{\circ}\text{C}$		
34	*Temperature Indicators	Temperature	C.S. for Temperature Indicators JJF 1664	IPRT Input(-200~850)°C	$U=(0.2\sim0.4)^{\circ}\text{C}$		
				Tc K,N,J Input(-200~1200)°C	$U=(0.3\sim0.4)^{\circ}\text{C}$		
				Tc S Input(0~1600)°C	$U=(0.3\sim0.5)^{\circ}\text{C}$		
				Tc B Input(0~1800)°C	$U=(0.3\sim0.6)^{\circ}\text{C}$		
				Tc R Input(0~1700)°C	$U=(0.3\sim0.6)^{\circ}\text{C}$		
				Tc T Input(-200~400)°C	$U=0.3^{\circ}\text{C}$		
				Tc E Input(-200~1000)°C	$U=(0.3\sim0.4)^{\circ}\text{C}$		
35	Working Copper/Copper-Nickel Thermocouple	Temperature	V.R. of Working Copper/Copper-Nickel Thermocouple JJG 368	(-80~300)°C	$U=0.3^{\circ}\text{C}$		
36	Temperature Data Acquisition Instruments	Temperature	Calibration Specification of Temperature Data Acquisition Instruments JJF 1366	(-80~100)°C	$U=0.03^{\circ}\text{C}$		
				(100~200)°C	$U=(0.03\sim0.04)^{\circ}\text{C}$		
				(200~300)°C	$U=0.04^{\circ}\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
37	*Constant Temperature Heating Platform	Temperature	Calibration Specification for Constant Temperature Heating Platform JJF (JUNGONG) 256	(50~400)℃	$U=1.2^{\circ}\text{C}$		
38	*Disintegration Analyzers	Temperature	Calibration Specification for Disintegration Analyzers JJF 1449	37.0 ℃	$U=0.2^{\circ}\text{C}$		
		Length		55mm	$U=0.2\text{mm}$		
		Disintegration time		(2~1800)s	$U_{\text{rel}}=11\%$		
		timing time		(0.1~1800)s	$U_{\text{rel}}=0.2\%$		
39	*Liquid Constant Temperature Testing Equipment	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF2019	(-80~300)℃	$U=(0.26\sim0.89)^{\circ}\text{C}$		
40	*Carbon Dioxide Incubator	Temperature	Calibration Specification for Carbon Dioxide Incubator JJF (LIAO) 463	(15~55) ℃	$U=0.2^{\circ}\text{C}$		
		Carbon dioxide Deviation		(0~20)%	$U=3.2\%$		
41	*Blackbody radiation sources	Temperature in test hole	Calibration Specification for Blackbody Radiation Sources JJF (Su) 149	(-30~400) ℃	$U=0.09^{\circ}\text{C}$		
				(400~1000) ℃	$U=0.7^{\circ}\text{C}$		
				(1000~1600) ℃	$U=2.4^{\circ}\text{C}$		
				(-30~1000) ℃	$U=(1.1\sim2.7)^{\circ}\text{C}$		
		Radiation temperature		(1000~1600) ℃	$U=(3.2\sim4.8)^{\circ}\text{C}$		
42	*dissolution testers	Temperature	Calibration Specification for dissolution testers JJF (Zhe) 1096	(0~50) ℃	$U=0.28^{\circ}\text{C}$		
		Rotate speed		(50~200) r/min	$U_{\text{rel}}=0.8\%$		



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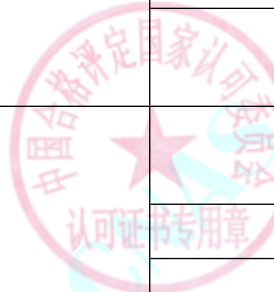
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Coaxiality		(0~5) mm	$U=0.06\text{mm}$		
		Sway degree		(0~5) mm	$U=0.12\text{mm}$		
43	*Microbial Identification and Antimicrobial Susceptibility Testing Systems	Temperature	Calibration Specification for Microbial Identification and Antimicrobial Susceptibility Testing Systems JJF 2034	(20~50) °C	$U=0.24^{\circ}\text{C}$		
		Illuminance		(10~10000) lx	$U_{\text{rel}}=5\%$		
44	*Portable Humidity Generators	Temperature	Calibration Specification of Portable Humidity Generators JJF 2176	(5~50) °C	$U=0.20^{\circ}\text{C}$		
		Humidity		(5~95) %RH	$U=(0.5\sim 1.7)\% \text{RH}$		
45	*Thermostatic Metal Bath	Temperature deviation	Calibration Specification for Thermostatic Metal Bath JJF (Xin) 87	(-30~150) °C	$U=(0.26\sim 0.56)^{\circ}\text{C}$		
		Temperature fluctuation		(-30~150) °C	$U=0.02^{\circ}\text{C}$		
		Temperature uniformity		(-30~150) °C	$U=0.02^{\circ}\text{C}$		
46	*Microwave Digestion Instrument	Temperature deviation	Calibration Specification for Temperature Parameters of Microwave Digestion Instruments JJF 2143	(-80~200) °C	$U=0.6^{\circ}\text{C}$		
		Temperature fluctuation		(-80~200) °C	$U=0.6^{\circ}\text{C}$		
		Temperature uniformity		(-80~200) °C	$U=0.6^{\circ}\text{C}$		
47	*Pharmaceutical Vacuum Freeze Dryer	Temperature deviation	Calibration Specification for Pharmaceutical Vacuum Freeze Dryer JJF (Chuan) 190	(-55~60) °C	$U=0.2^{\circ}\text{C}$		
		Temperature uniformity		(-55~60) °C	$U=0.2^{\circ}\text{C}$		
		working pressure		(0.5~100) Pa	$U_{\text{rel}}=15\%$		
		ultimate pressure		(0.5~100) Pa	$U_{\text{rel}}=15\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
48	Digital Thermometer	Temperature	C.S.for Digital Thermometer JJF(Su)95	(-196~-80) °C	<i>U</i> = (0.05~0.04) °C		
				(-80~100) °C	<i>U</i> = (0.04~0.03) °C		
				(100~300) °C	<i>U</i> =0.04°C		
				(300~1200) °C	<i>U</i> =1.5°C		
49	Temperature and Humidity Itinerant Detecting Instruments	Temperature	C.S.for Temperature and Humidity Itinerant Detecting Instruments JJF 1171	(-80~100) °C	<i>U</i> =0.08°C		
				(100~200) °C	<i>U</i> = (0.08~0.10) °C		
				(200~300) °C	<i>U</i> =0.10°C		
				(300~1200) °C	<i>U</i> =1.0°C		
		Moisture		(5~10) %RH	<i>U</i> =0.9%RH		
				(10~30) %RH	<i>U</i> =1.0%RH		
				(30~95) %RH	<i>U</i> = (1.2~1.8) %RH		
50	*Salt Mist Testing Chambers	Temperature	Calibration Specification for Salt Mist Testing Chambers JJF 2168	35°C	<i>U</i> =0.4°C		
		precipitation rate of salt spray		50°C	<i>U</i> =0.4°C		
				0.5mL/ (h•80cm ²) ~ 3mL/ (h•80cm ²)	<i>U</i> =0.2mL/ (h•80cm ²)		
51	*Ultraviolet Test Chambers of Photovoltaic Modules	UV Irradiance Correction Factor	Calibration Specification for Ultraviolet Test Chambers of Photovoltaic Modules JJF2062	(250~400)nm	<i>U</i> _{rel} =11%		
		UV Spectral Integrated Irradiance		(250~280)nm	<i>U</i> _{rel} =8.2%		
				(280~320)nm	<i>U</i> _{rel} =7.2%		



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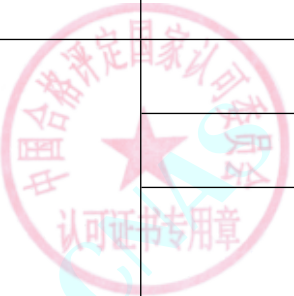
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(320~400)nm	$U_{rel}=6.4\%$		
		UV Irradiance Non-uniformity		(0.1~40)mW/cm ²	$U_{rel}=2.8\%$		
		UV Irradiance Instability		(0.1~40)mW/cm ²	$U_{rel}=2.8\%$		
III Mechanical measuring instrument							
(1) mass							
1	*Table balance	Mass	V.R.of Table Balances JJG156	(0~5)kg	$U=(0.03\sim1.3)g$		
2	*Analogue indication weighing instrument	Mass	V.R.of Analogue Indication Weighing Instruments JJG13	(0~10) kg	$U=0.6g\sim3g$		
				(>10~140) kg	$U=6g\sim59g$		
3	*Non-self- indication weighing instrument	Mass	V.R.of Non-self-indication Weighing Instruments JJG14	(0~50) kg, $e=(2\sim20)g$, (0~500) e	$U=0.23g\sim2.6g$		
				(0~50) kg, $e=(2\sim20)g$, (>500~2000) e	$U=0.24g\sim2.9g$		
				(0~50) kg, $e=(2\sim20)g$, (>2000~10000) e	$U=0.34g\sim3.7g$		
				(>50~1000) kg, $e=(20\sim500)g$, (0~500) e	$U=2.3g\sim0.06kg$		
				(>50~1000) kg, $e=(20\sim500)g$, (>500~2000) e	$U=2.4g\sim0.08kg$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>50~1000) kg, $e=$ (20~500) g, (>2000~10000) e	$U=3.3\text{g}\sim 0.08\text{kg}$		
				(>1~10) t, $e=$ (1~ 5) kg, (0~500) e	$U=0.12\text{kg}\sim 0.21\text{kg}$		
				(>1~10) t, $e=$ (1~ 5) kg, (>500~ 2000) e	$U=0.13\text{kg}\sim 1.3\text{kg}$		
				(>1~10) t, $e=$ (1~ 5) kg, (>2000~ 10000) e	$U=0.27\text{kg}\sim 1.3\text{kg}$		
				(>10~50) t, $e=$ (10~20) kg, (0~ 500) e	$U=1.2\text{kg}\sim 2.6\text{kg}$		
				(>10~50) t, $e=$ (10~20) kg, (>500~2000) e	$U=1.3\text{kg}\sim 5.2\text{kg}$		
				(>10~50) t, $e=$ (10~20) kg, (>2000~10000) e	$U=5.2\text{kg}\sim 7.9\text{kg}$		
				(0~30) kg, $e=$ (1~ 10) g, (0~500) e	$U=0.12\text{g}\sim 1.2\text{g}$		
4	*Digital indicating weighing instrument	Mass	V.R.of Digital Indicating Weighing Instrument JJG539	(0~30) kg, $e=$ (1~ 10) g, (>500~2000) e	$U=0.12\text{g}\sim 1.7\text{g}$		
				(0~30) kg, $e=$ (1~ 10) g, (>2000~ 10000) e	$U=0.17\text{g}\sim 2.2\text{g}$		



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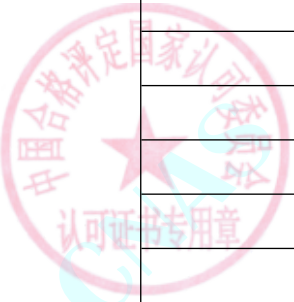
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>30~1000) kg, $e=$ (20~500) g, (0~500) e	$U=2.3g\sim0.06kg$		
				(>30~1000) kg, $e=$ (20~500) g, (>500~2000) e	$U=2.4g\sim0.08kg$		
				(>30~1000) kg, $e=$ (20~500) g, (>2000~10000) e	$U=3.3g\sim0.08kg$		
				(>1~10) t, $e=$ (1~5) kg, (0~500) e	$U=0.12kg\sim0.21kg$		
				(>1~10) t, $e=$ (1~5) kg, (>500~2000) e	$U=0.13kg\sim1.3kg$		
				(>1~10) t, $e=$ (1~5) kg, (>2000~10000) e	$U=0.27kg\sim1.3kg$		
				(>10~150) t, $e=$ (10~50) kg, (0~500) e	$U=1.2kg\sim6.5kg$		
				(>10~150) t, $e=$ (10~50) kg, (>500~2000) e	$U=1.3kg\sim13kg$		
				(>10~150) t, $e=$ (10~50) kg, (>2000~10000) e	$U=5.2kg\sim20kg$		



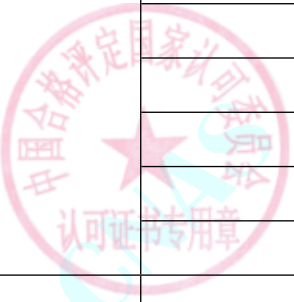
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
5	*Electronic conveyor belt scale	Mass	V.R.of Continuous Totalizing Automatic Weighing Instruments JJG195	(0.5~3000)t/h	$U_{rel}=0.09\%\sim 0.12\%$		
6	Retail appliance for vegetable oil	Mass	V.R.of Retail Appliance for Vegetable Oil JJG615	(50~2500) g	$U=(0.4\sim 19)g$		
7	*Discontinuous totalizing automatic weighing instrument	Mass	V.R.of Discontinuous Totalizing Automatic Weighing Instruments(Totalizing Hopper Weighers) JJG648	50kg~100t	$U=(0.016\sim 45)kg$		
8	*Quantitative automatic weighing instrument	Mass	V.R.of Automatic Gravimetric Filling Instruments JJG564	100g~1000kg	$U_{rel}=0.04\%\sim 0.4\%$		
9	Weights	Mass	V. R. of Weights JJG 99	F ₁ : 1mg~500mg	$U=(0.005\sim 0.017)mg$		
				F ₁ : 1g~500g	$U=(0.02\sim 0.4)mg$		
				F ₁ : 1kg~20kg	$U=(0.7\sim 13)mg$		
				F ₂ : 1mg~500mg	$U=(0.01\sim 0.04)mg$		
				F ₂ : 1g~500g	$U=(0.05\sim 1.3)mg$		
				F ₂ : 1kg~20kg	$U=(2\sim 37)mg$		
				M ₁ : 1mg~1000mg	$U=(0.01\sim 0.10)mg$		
				M ₁ : 1g~1000g	$U=(0.10\sim 5)mg$		
				M ₁ : 1kg~50kg	$U=(0.005\sim 0.21)g$		
				M ₁ : 50kg~100kg	$U=(0.21\sim 0.41)g$		
10	*Electronic	Mass	Electronic Balance Measuring	(1mg~200g)	$U=(0.023\sim 0.11) mg$		



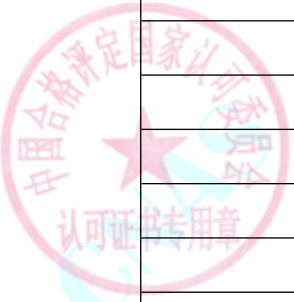
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	balance		Instruments JJG 1036	(200~5000)g	$U=(0.30\sim2.6)\text{mg}$		
				(5~40)kg	$U=(15\sim29)\text{mg}$		
(2) density							
1	Working Glass Hydrometer	Density	V.R of Working Glass Hydrometer JJG42	Density meter:(650~1800)kg/m ³	$U=(0.2\sim0.4)\text{ kg/m}^3$	only for direct comparison method	
				Alcohol meter:(0~100)%	$U=0.04\%$		
				BaUme meter:(0~64)Bh	$U=0.04\text{ Bh}$		
2	*Thermogravimetric Moisture Meter	Mass	Verification Regulation of Thermogravimetric Moisture Meters JJG 658	1mg~500g	$U=(0.2\sim0.6)\text{mg}$		
		Content of water		(94.5~95.5)%	$U=0.10\%$		
3	Laboratory Oscillation-type Liquid Density Meters	Density	Calibration Specification for Laboratory Oscillation-type Liquid Density Meters JJF 2165	(650~1500) kg/m ³	$U=(0.024\sim0.60)\text{ kg/m}^3$		
				(1500~2000) kg/m ³	$U=(0.036\sim0.60)\text{ kg/m}^3$		
(3) capacity							
1	General Volumetric Glass	volume	V.R.General Volumetric Glass JJG196	(0.1~1)mL	$U=0.002\text{mL}$		
				(>1~10)mL	$U=0.003\text{mL}$		
				(>10~25)mL	$U=0.008\text{mL}$		
				(>25~100)mL	$U=0.011\text{mL}$		
				(>100~500)mL	$U=0.027\text{mL}$		
				(>500~2000)mL	$U=0.10\text{mL}$		
2	*Tank car volume	volume	V.R.of Tank car volume JJG133	(5000~50000)L	$U_{\text{rel}}=0.19\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
3	Standard capacity measures (glass)	volume	V.R.of Standard capacity measures (glass) JJG20	(0.1~1)mL	$U=0.0001\text{mL}$		
				(>1~10)mL	$U=0.0003\text{mL}$		
				(>10~25)mL	$U=0.0010\text{mL}$		
				(>25~200)mL	$U=0.003\text{mL}$		
				(>200~500)mL	$U=0.02\text{mL}$		
				(>500~1000)mL	$U=0.04\text{mL}$		
4	*Quantitative Filling Machine for Liquid Material	Mass	V.R.of Quantitative Filling Machine for Liquid Material JJG687	(0.2~1000)kg	$U_{\text{rel}}=0.05\%$		
		volume		0.5mL~500L	$U_{\text{rel}}=0.1\%$		
5	*vertical Metal tank capacity	volume	V.R.of vertical Metal tank capacity JJG168-2005 JJG168	(20~100) m^3	$U_{\text{rel}}=0.24\%$		
				(>100~700) m^3	$U_{\text{rel}}=0.14\%$		
				(>700~1000) m^3	$U_{\text{rel}}=0.10\%$		
6	*metallic horizontal tank	volume	V.R.of metallic horizontal tank JJG266	(1~60) m^3	$U_{\text{rel}}=0.38\%$		
7	Locomotive Pipette	volume	V.R.of Locomotive Pipette JJG646	(0.1~1) μL	$U_{\text{rel}}=5\%$		
				(1~5) μL	$U_{\text{rel}}=2\%$		
				(5~40) μL	$U_{\text{rel}}=0.6\%$		
				(40~100) μL	$U_{\text{rel}}=0.3\%$		
				(100~500) μL	$U_{\text{rel}}=0.2\%$		
				(500~2500) μL	$U_{\text{rel}}=0.2\%$		
				(2500~10000) μL	$U_{\text{rel}}=0.1\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
8	Working Metal Tank	volume	V.R.of Standard Metal Tank JJG259	(1~1000)L	$U_{rel}=0.038\%$		
9	Microinjector	volume	Calibration Specification for Microinjector JJF(jing)19	(0.5~1000) μ L	$U_{rel}=0.5\%\sim 5\%$		
(4) flow							
1	*Coriolis Mass Flowmeter	Flow	On Line Calibration Specification for Coriolis Mass Flowmeters by Master Meter Method JJF1708	(0.004~50)t/h	$U_{rel}=0.24\%$		
2	*Electromagnetic Flowmeter	Flow	Calibration Specification for Electromagnetic Flowmeters JJF(Su) 228	Weighing method, Medium: liquid, DN(2~50)mm: (0.001~0.3)mm ³ /h	$U_{rel}=0.56\%$		
				Standard meter (mobile linking up device), Medium: liquid, DN(10~100)mm: (0.004~50)m ³ /h	$U_{rel}=0.28\%$		
				Standard meter (External clamp type Ultrasonic flowmeter), Medium: liquid, DN(50~3000)mm: (1~20000)m ³ /h	$U_{rel}=1.8\%$		
3	*Swinging Pipe Type Rain Test Chamber	Length	Calibration Specification for Swinging Pipe Type Rain Test Chamber JJF(WXJL)009	R: (200~1600)mm	$U=1.5\text{mm}$		
		Timer		(300~600)s	$U=1.3\text{s}$		
		Flow		(0.1~7)L/min	$U_{rel}=1.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
4	Reference Lesks	flow	Calibration Specification for Reference Leaks by Soap Film Flowmeter JJF1627	1mL/min~10L/min	$U_{rel}=2.4\%$		
5	Air biological sampler	Flow	Calibration Specification for Air biological samplers JJF(S)188	(20~200)L/min	$U_{rel}=1.3\%$		
6	Vortex Precession Flowmeters	flow	Verification Regulation of Vortex Precession Flowmeters JJG1121	5mL/min~4m ³ /h (4~4000)m ³ /h	$U_{rel}=0.6\%$ $U_{rel}=0.44\%$		
7	Differential Pressure Flowmeters	flow	V.R.of Differential Pressure Flowmeters JJG640	Water medium, , DN (15~100):(0.3~100)m ³ /h Air medium : 5mL/min~4m ³ /h Air medium : (4~4000)m ³ /h	$U_{rel}=0.26\%$ $U_{rel}=0.60\%$ $U_{rel}=0.44\%$		
8	*Liquefied Natural Gas Dispensers	flow	V.R.Liquefied Natural Gas Dispensers JJG1114	(10~80)kg/min	$U_{rel}=0.41\%$		
9	Gas Displacement Meters	flow	V.R.of Gas Displacement Meters JJG633	(0.016~4)m ³ /h (4~4000)m ³ /h	$U_{rel}=0.78\%$ $U_{rel}=0.56\%$		
10	*Thermal Mass Gas Flowmeters	flow	V.R.of Thermal Mass Gas Flowmeters JJG1132	(0.167~5) mL/min >5mL/min~1m ³ /h (1~120)m ³ /h (120~4000)m ³ /h	$U_{rel}=1.2\%$ $U_{rel}=0.60\%$ $U_{rel}=0.32\%$ $U_{rel}=0.46\%$		
11	Diaphragm Gas Meters	Flow	Diaphragm Gas Meters JJG577	(0.016~120)m ³ /h	$U_{rel}=0.50\%$		



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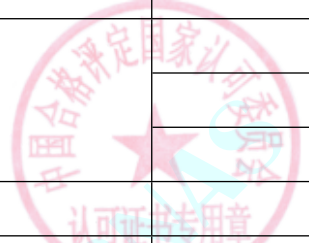
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
12	*Standard Bell Prover	Capacity	V.R.of Standard Bell Prover JJG165	(10~1000)L	$U_{rel}=0.052\%$		
13	target (bluff body)type flow transducer	flow	V.R.of target (bluff body)type flow transducer JJG461	Air medium: 5mL/min~4m ³ /h	$U_{rel}=0.60\%$		
				Air medium: (>4~4000)m ³ /h	$U_{rel}=0.44\%$		
				Water medium: (0.3~100)m ³ /h	$U_{rel}=0.26\%$		
14	Vortex Shedding Flowmeter	Flow	V.R.of Vortex-shedding Flowmeter JJG1029	Water medium: (0.3~100)m ³ /h	$U_{rel}=0.26\%$		
				Air medium: (4~4000)m ³ /h	$U_{rel}=0.44\%$		
15	Electromagnetism Flowmeter	Flow	V.R.of electromagnetic flowmeters JJG1033	DN(15~100): (0.3~100)m ³ /h	$U_{rel}=0.26\%$		
16	Goriolis Mass Flow Meters	flow	Goriolis Mass Flow Meters JJG1038	DN(15~100): (0.3~100)m ³ /h	$U_{rel}=0.11\%$		
17	*Verification Facility for Water Meters	Volum	Verification Facility for Water Meters JJG1113	(1~1000)L	$U_{rel}=0.05\%$		
18	Turbine Flowmeter	Flow	V.R.of turbine flowmeters JJG1037	Water medium: (0.3~100)m ³ /h	$U_{rel}=0.26\%$		
				Air medium: (4~4000)m ³ /h	$U_{rel}=0.44\%$		
19	Ultrasonic Flowmeters (liquid)	flow	Ultrasonic Flowmeters JJG1030	Meidum:water: (0.3~100)m ³ /h	$U_{rel}=0.44\%$		
				Medium air : 5mL/min~4m ³ /h	$U_{rel}=0.6\%$		
				Medium air :(4~4000)m ³ /h	$U_{rel}=0.44\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
20	*Weirs and Flumes for Flow Measurement	flow	V.R.of Weirs and Flumes for Flow Measurement JJG 711	(0.1~1000)m ³ /h	U _{rel} =3.0%		
21	Float Meter	Flow	Float Meter JJG257	Medium air: (0.005~500) L/min	U _{rel} =0.68%		
				Medium air: ≥500L/min~120m ³ /h	U _{rel} =0.50%		
				liquid:(0.3~100)m ³ /h	U _{rel} =0.2%		
22	Oval Gear Flowmeter	flow	V.R.of Liquid Positive Displacement Flow Meter JJG667	DN(15~80): (0.1~100)m ³ /h	U _{rel} =0.24%		
23	Flow Intergration Meters	flow	V.R.of Flow Intergration Meters JJG1003	(0.01~9999)m ³ /h	U _{rel} =0.02%		
24	Soap film flowme-ter	flow	V.R.of Soap film f low meter JJG586	electronic soap film flow meter (5mL/min~60L/min)	U _{rel} =0.60%		
		Volum		soap film flow meter: (10~1000)mL	U _{rel} =0.82%		
				soap film flow meter: (>1000~4000)mL	U _{rel} =0.60%		
25	Gasoline Vapor Recovery Detectors	Flow	Calibration Specification for Gasoline Vapor Recovery Detectors JJF 1948	(1~100) L/min	U _{rel} =0.8%		
		Pressure		(-2.5~2.5) kPa	U=0.12%FS		
				(-5~5) kPa	U=0.06%FS		
(5) pressure							
1	Liquid-medium Piston Gauge	Pressure	V.R.of Liquid-medium Piston Gauges JJG59	(0.06~60)MPa	U _{rel} =0.02%		
		Mass		(0.1~5)kg	U _{rel} =0.002%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		speed		(0.1~1)mm/min	$U_{rel}=0.2\%$		
2	*Compensated Micro-manometer	Pressure	V.R.of Compensated Micro-manometer JJG158	(-2.5~2.5)kPa	$U=(0.5\sim0.6)\text{Pa}$		
3	*Tilting Tube Micromanometers	Pressure	V.R.of Tilting Tube Micromanometers JJG172	(-2000~2000)Pa	$U=2.1\text{Pa}$		
4	*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 JJG52	(-0.1~800)MPa	$U=0.31\%\text{FS}$		
5	Elastic Element Precise Pressure Gauges and Vacuum Gauges	Pressure	V.R.of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG49	(-0.1~800)MPa	$U=0.11\%\text{FS}\sim0.14\%\text{FS}$		
6	*Digital Pressure Gauges	Pressure	V.R.of Digital Pressure Gauges JJG875	(-0.1~800)MPa	$U=0.014\%\text{FS}$		
		Insulation resistance		(10~500) M Ω	$U_{rel}=2.2\%$		
7	*Pressure Transducer(Static)	Pressure	V.R.of The Pressure Transducer(Static) JJG860	(-0.1~800)MPa	$U=0.06\%\text{FS}$		
8	*Liquid Manometer for Working	Pressure	V.R.of Liquid Manometer for Working JJG540	(0~2.5)kPa	$U=5\text{Pa}$		
				(2.5~15) kPa	$U=7\text{Pa}$		
				(15~250) kPa	$U=(0.01\sim0.15)\text{kPa}$		
9	*Liquid Level Gauges	Length	V.R.of Liquid Level Gauges JJG971	(0~1)m	$U=1.1\text{mm}$		
				(1~30)m	$U=13\text{mm}$		



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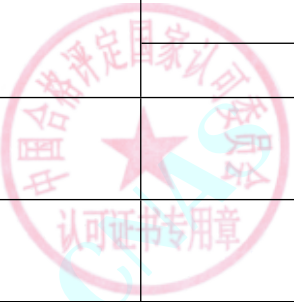
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Pressure		1kPa~6MPa	$U_{rel}=0.12\%\sim 0.06\%$		
10	*Pressure Controllers	Pressure	V.R.of Pressure Controllers JJG544	(-0.1~250)MPa	$U=0.2\%FS$		
11	*Stream Sterilizer	Pressure	C.S.for Temperature and Pressure of Stream Sterilizer JJF(su)96	(0~400)kPa	$U=1.3kPa$		
		Temperature		(40~140)°C	$U=0.24^{\circ}C$		
12	*Vacuum Drying Chamber	Temperature	Calibration Specification for Temperature and Pressure of Vacuum Drying Chamber JJF(su)177	(40~150)°C	$U=0.64^{\circ}C$		
		Pressure		(1~101)kPa abs	$U=1.3kPa$		
13	Automatic Standard Pressure Generators	Pressure	V.R.of Automatic Standard Pressure Generators JJG 1107	(0~6)MPa	$U=0.016\%FS$		
				(6~60)MPa	$U=0.026\%FS$		
				(60~250)MPa	$U=0.059\%FS$		
14	*Pressure Transmitter	Pressure	V.R. of Pressure Transmitters JJG882	(-0.1~800)MPa	$U=0.015\%FS$		
		Insulation resistance		(10~500) M Ω	$U_{rel}=2.2\%$		
15	Pressure Regulators with Bourdon Tube Pressure Gauge	pressure	Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge JJF 1328	(0~25)MPa	$U=1.2\%FS$		
16	*Medical Suction Equipment	pressure	Calibration Specification of Medical Suction Equipment JJF1810	(-95~0)kPa	$U=1kPa$		
		Noise		(30~130)dB	$U=0.2dB$		
		Insulation resistance		(10~500) M Ω	$U_{rel}=2.2\%$		
17	Vacuum Helium Leaks	Leak Rate	Calibration Specification for Vacuum Helium Leaks JJF 1833	$(1 \times 10^{-10} \sim 1 \times 10^{-4}) Pa \cdot m^3 \cdot s^{-1}$	$U_{rel}=13\% \sim 23\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
(6) vacuum							
1	Piezoresistive Vacuum Gauge	Pressure	V.R.of Piezoresistive Vacuum Gauge JJG932	$(1 \times 10^2 \sim 1 \times 10^5) \text{ Pa}$	$U_{\text{rel}}=7\%$		
		Insulation resistance		$(10 \sim 500) \text{ M}\Omega$	$U_{\text{rel}}=2.2\%$		
2	Industrial Thermal Conductivity Vacuum Gauge	Pressure	C.S.of Industrial Thermal Conductivity Vacuum Gauge JJF1050	$(1 \times 10^{-1} \sim 1 \times 10^5) \text{ Pa}$	$U_{\text{rel}}=7\%$		
3	Ionization Vacuum Gauge	Pressure	C.S.of Ionization Vacuum Gauge JJF1062	$(1 \times 10^{-4} \sim 1 \times 10^{-2}) \text{ Pa}$	$U_{\text{rel}}=15\%$		
		Insulation resistance		$(10 \sim 500) \text{ M}\Omega$	$U_{\text{rel}}=2.2\%$		
4	*Capacitance Diaphragm Vacuum Gauge	Vacuum	Calibration Specification for Capacitance Diaphragm Vacuum Gauge JJF 1503	$0.1 \text{ Pa} \sim 100 \text{ kPa}$	$U_{\text{rel}}=4\%$		
(7) Force							
1	*Mechanical Balance	Mass	V.R.of Mechanical Balance JJG98	Max:(0~200)g,d=0.1mg	$U=(0.016 \sim 0.11) \text{ mg}$		
				Max:(0~1)kg,d=0.5mg	$U=(0.19 \sim 0.73) \text{ mg}$		
				Max:(0~5)kg,d=2.5mg	$U=(0.49 \sim 4.0) \text{ mg}$		
				Max:(0~20)kg,d=10mg	$U=(1.0 \sim 14) \text{ mg}$		
2	*Refrigerant Leak Detector	Leak	Calibration Specification for Refrigerant Leak Detector JJF (light industry) 125	$(0.2 \sim 10) \text{ g/a}$	$U_{\text{rel}}=20\%$		
3	*Mass Spectrometric Leak Detector	Leak	Calibration Specification for Helium Mass Spectrometric leak detector JJF (Su) 129	$(1 \times 10^{-10} \sim 1 \times 10^{-4}) \text{ Pa} \cdot \text{m}^3 \cdot \text{s}^{-1}$	$U_{\text{rel}}=20\%$		
4	*Electronic	Mass	Calibration Specification for	$(1 \text{ mg} \sim 20 \text{ g}), d=0.001 \text{ mg}$	$U=(0.005 \sim 0.048) \text{ mg}$		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	balance		Electronic Balances JJF1847	(20~200)g,d=0.01mg	$U=(0.06\sim0.17)\text{mg}$		
				(200g~5kg),d=0.1mg	$U=(0.3\sim2.6)\text{mg}$		
				(5~40)kg,d=1mg	$U=(5.6\sim50)\text{mg}$		
5	*Torsion balance	Mass	V.R.of torsion balance JJG46	(0~500)mg	$U=(0.002\sim0.092)\text{mg}$		
6	*Working Dynamo-meter	Force	V.R.of Working Dynamometer JJG455	1cN~10kN	$U_{\text{rel}}=0.05\%\sim0.3\%$		
7	Standard Dynamo-meter	Force	V.R.of Standard Dynamometer JJG144	1N~1000N	$U_{\text{rel}}=0.04\%$		
8	*Flexure Testing Machine	Force	V. R. of Flexure Testing Machine JJG476	(0.1~300)kN	$U_{\text{rel}}=0.14\%$		
		Acceleration		50N/s	$U=1.8\text{N/s}$		
9	*Cupping Testing Machine	Erichsen cupping index	V. R. of Cupping Testing Machine JJG583	(0~16)mm	$U=6\text{ }\mu\text{m}$		
		Clamping force		10kN	$U=0.02\text{kN}$		
		Roughness		Ra: (0.012~6.3) μm	$U_{\text{rel}}=10\%$		
		Length		(0~70)mm	$U=0.03\text{mm}$		
10	*hydraulic jack	Force	V.R.of hydraulic jack JJG621	10kN~10MN	$U_{\text{rel}}=0.9\%\sim1.7\%$		
11	*Ball pressure test device	Force	V.R.of Working Dynamometer JJG455	20N	$U=0.03\text{N}$		
12	*Building Material Testing Machine Of Constant Loading Speed	force	V.R.of Building Material Testing Machine Of Constant Loading Speed JJG1025	5N~1000kN	$U_{\text{rel}}=0.13\%$		
				(1000~3000)kN	$U_{\text{rel}}=0.36\%$		
		Loading Speed		(0.01~30)kN/s	$U_{\text{rel}}=3.6\%$		
			Standard Practices for Force	1N~1000kN	$U_{\text{rel}}=0.13\%$		



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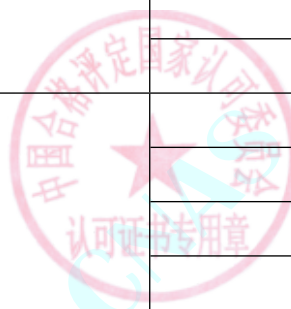
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date		
	machine	Displacement	Verification of Testing Machines ASTM E4,Standard Practices for Verification of Displacement Measuring Systems and Devices used in Material Testing Machines ASTM E2309/E2309M,Practices for	(1000~3000)kN	$U_{rel}=0.36\%$				
				(0.01~50)mm	$U=(0.008\sim 0.019)\text{mm}$				
				(5~300)mm	$U=(0.06\sim 0.12)\text{mm}$				
				(300~1000)mm	$U_{rel}=0.13\%$				
		Speed	Verification of Speed for Material Testing Machines ASTM E2658,Standard	(0.1~10)mm/min	$U=0.03\text{mm/min}$				
				10mm/min~45m/min	$U_{rel}=0.3\%$				
		Coaxiality	Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012	(0.001~2450) μ m/m	$U_{rel}=2.0\%$				
14	*Axial force fatigue testing machines	Static force	Verification Regulation of Axial Force Fatigue Testing Machines JJG556	1N~1000kN	$U_{rel}=0.13\%$				
		Cyclic force		100N~500kN	$U_{rel}=0.4\%$				
		Coaxiality		(0~50)%	$U=1.4\%$				
				直径: (2~20) mm	$U=0.3\text{mm}$				
				15	*High-Temperature Creep and Strength-Rupture Testing Machines			Force	High-Temperature Creep and Strength-Rupture Testing Machines JJG276
Temperature	(1000~3000)kN	$U_{rel}=0.36\%$							
	(0~300)℃	$U=0.5\text{℃}$							
(300~1200)℃	$U=1.5\text{℃}$								
16	*Spring tension and compression testing machine	Force	C.S.for working force measureing machines for special purposes JJF1134	1cN~10kN	$U_{rel}=0.14\%$				



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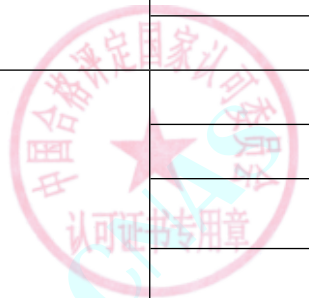
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
17	Screen Tension Meters	Mesh Tension	Calibration Specification for Screen Tension Meters JJF1465	(7~50)N/cm	<i>U</i> =1.2%FS		
18	*Interface Tensiometers	Interaical Tension	Calibration Specification for Interface Tensiometers JJF1464	(10~300)mN/m	<i>U</i> _{rel} =0.16%		
19	*Oil Consumption Meters of Mass Method	mass	Calibration Specification for Oil Consumption Meters of Mass Method JJF 1670	(0~2000)g	<i>U</i> =0.2g		
20	*Tension, Compression and Universal Testing Machines	Force	V.R.Tension, Compression and Universal Testing Machines JJG139	1N~1000kN	<i>U</i> _{rel} =0.13%		
				(1000~3000)kN	<i>U</i> _{rel} =0.36%		
		Coaxiality		(0~50)%	<i>U</i> =1.4%		
				直径：（2~20）mm	<i>U</i> =0.3mm		
		Speed		(0.1~10)mm/min	<i>U</i> =0.03mm/min		
				10 mm/min~45m/min	<i>U</i> _{rel} =0.3%		
		Displacement		(0.01~50)mm	<i>U</i> =(0.008~0.019)mm		
				(5~300)mm	<i>U</i> =(0.06~0.12)mm		
				(300~1500)mm	<i>U</i> _{rel} = 0.13%		
21	*Electronic Universal Testing Machine	Force	V. R. of Electronic Universal Testing Machine JJG475	1N~1000kN	<i>U</i> _{rel} =0.13%		
				(1000~3000)kN	<i>U</i> _{rel} =0.36%		
		Coaxiality		(0~50)%	<i>U</i> =1.4%		
				直径：（2~20）mm	<i>U</i> =0.3mm		
		Speed		(0.1~10)mm/min	<i>U</i> =0.03mm/min		



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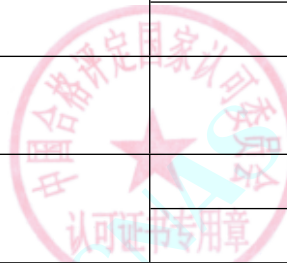
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Displacement		10 mm/min~45m/min	<i>U</i> _{rel} =0.3%		
				(0.01~50)mm	<i>U</i> =(0.008~0.019)mm		
				(5~300)mm	<i>U</i> =(0.06~0.12)mm		
				(300~1500)mm	<i>U</i> _{rel} =0.13%		
22	*abrasion testing machine	Mass	Calibration Specification for Abrasion Resistance Instruments JJF(Zhe)1070	(1~2500)g	<i>U</i> =0.5g		
		Rotational speed		(80 ~350)r/min	<i>U</i> _{rel} =0.2%		
23	*Hydraulic Stretchers	Force	C.S.for Hydraulic Stretchers JJF (Xin) 15	10kN~10MN	<i>U</i> _{rel} =0.9%~1.7%		
24	Extensometers	Length	V. R. of Extensometers JJG762,Standard Practice for Verification and Classification of Extensometer Systems ASTM E83	(0~0.3)mm	<i>U</i> =0.8 μ m		
				(0.3~500)mm	<i>U</i> _{rel} =0.2%		
25	*Drop-weight Impact Testing Machine	Qualite	C.S.for Drop-weight Impact Testing Machine JJF 1445	(0~32200)g	<i>U</i> =1.4g		
		Length		(0~5)m	<i>U</i> =1.0mm		
		speed		(0~10)m/s	<i>U</i> _{rel} =1.2%		
26	*Material testing machine	Force	Standard Practices for Force Calibration and Verification of Testing Machines ASTM E4,Standard Practices for Verification of Displacement Measuring Systems and Devices used in Material	1N~1000kN	<i>U</i> _{rel} =0.13%		
				(1000~10000)kN	<i>U</i> _{rel} =0.36%		
		Displacement		(0.01~50)mm	<i>U</i> =(0.008~0.019)mm		
				(5~300)mm	<i>U</i> =(0.06~0.12)mm		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Speed	Testing Machines ASTM E2309/E2309M,Practices for Verification of Speed for Material Testing Machines ASTM E2658,Standard	(300～1000)mm	<i>U</i> _{rel} =0.13%		
			Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012,V.R.Tension, Compression and Universal Testing Machines JJG139	(0.1～10)mm/min	<i>U</i> =0.03mm/min		
				10mm/min～45m/min	<i>U</i> _{rel} =0.3%		
		Coaxiality	(0.001～2450) μ m/m	<i>U</i> _{rel} =2.0%			
(8) torque							
1	*Torque Wrench	Torque	V.R.of Torque Wrench JJG707	(0.02～5000)Nm	<i>U</i> _{rel} =1.4%		
2	*Calibrating Instrument for Torque Wrenchs	Torque	V.R.of Calibrating Instrument for Torque Wrenchs JJG797	2mNm～5000Nm	<i>U</i> _{rel} =0.23%		
3	*Torsion Testing Machines	Torque	V.R.of Torsion Testing Machines JJG269	2mNm～2500Nm	<i>U</i> _{rel} =0.20%～0.13%		
		Angle		(0.5～360)°	<i>U</i> _{rel} =0.3%		
4	*Electric and Pneumatic Torque wrenches	Torque	Calibration Specification for Electric and Pneumatic Torque wrenches JJF1610	(0.1～10000)Nm	<i>U</i> _{rel} =1.5%		
5	*Working Torque-meter	Torque	Verification Regulation of Working Torque-meters JJG 1146	0.02cNm～10Nm	<i>U</i> _{rel} =0.10%～0.31%		
				(10～20000)Nm	<i>U</i> _{rel} =0.12%		
6	*Equipment of Power Measuring	Torque	V.R.of Equipment of Power Measuring JJG653	1mNm～5000Nm	<i>U</i> _{rel} =0.12%		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Rotate speed		(10~1000)r/min	<i>U</i> =(0.14~0.16)r/min		
				(1000~60000)r/min	<i>U</i> _{rel} =0.01%		
7	*Hydraulic Torque Wrenches	Torque	Calibration Specification for Hydraulic Torque Wrenches JJF（湘）71	（1000~30000）Nm	<i>U</i> _{rel} =2.1%		
8	Tacho-Torque Measuring Device	Torque	V. R. of Tacho-Torque Measuring Device JJG 924	(0.1~20000)Nm	<i>U</i> _{rel} =0.07%		
		Rotating velocity		(10~1000)r/min	<i>U</i> =(0.08~0.14)r/min		
				(1000~40000)r/min	<i>U</i> _{rel} =0.02%		
9	*Static Torque Measuring Devices	Torque	V. R. of Static Torque Measuring Devices JJG 995	0.2cNm~20000Nm	<i>U</i> _{rel} =0.07%		
10	*Standard Torque-meters	Torque	V. R. of Standard Torque-meters JJG 557	(0.1~20000)Nm	<i>U</i> _{rel} =0.05%		
11	Standard Torque Wrench	Torque	V. R. of Standard Torque Wrench JJG 1103	(0.1~5000)Nm	<i>U</i> _{rel} =0.05%		
12	Torque Multiplier Special for Engine	Torque	Calibration Specification for Torque Multiplier Special for Engine JJF(民航) 0121	(20~30000)Nm	<i>U</i> _{rel} =1.6%		
13	Torque-angle Wrench	Torque	Calibration Specification for Torque-angle Wrench VDI/VDE 2645, Calibration Specification for Torque-angle Wrench JJF(WXJL)063	(1.5~500)Nm	<i>U</i> _{rel} =0.42%		
		Angle		(0~360)°	<i>U</i> =0.3°		
14	*Power-driven Torque Tool	Torque	Calibration Specification for Power-driven Torque Tool JJF(WXJL)064	(0.1~10000)Nm	<i>U</i> _{rel} =1.5%		
		Angle		(0~720)°	<i>U</i> =0.4°		
(9) hardness							



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
1	*Metal Brinell hardness tester	Hardness	V.R.of Metal Brinell hardness tester JJG150, Standard Test Method for Brinell Hardness of Metallic Materials Annexes A1. Verification of Brinell Hardness Testing Machines ASTM E10 Annexes A1	(8~650)HBW	$U_{rel}=1.3\%$		
2	*Metal superficial Rockwell hardness tester	Hardness	V.R.of Metal superficial Rockwell hardness testers (scales A,B,C,D,E,F,G,H,K,N,T) JJG112	(20~91)HRN	$U=(0.8\sim0.5)HRN$		
		Force		(12~93)HRTW	$U=(0.9\sim0.5)HRTW$		
		length		(25~500)N	$U_{rel}=0.2\%$		
		Angle		(0~10) mm	$U=0.002mm$		
		time		(0~90) °	$U=0.1^{\circ}$		
				(0~60) s	$U=0.3s$		
3	*Metal Rockwell hardness tester	Hardness	V.R.of Metal superficial Rockwell hardness testers (scales A,B,C,D,E,F,G,H,K,N,T) JJG112, Standard Test Method for Rockwell Hardness of Materials Annexes A1. Verification of Rockwell Hardness Testing machines ASTM E18 Annexes A1	(20~95)HRC、(20~95)HRA、(20~95)HRB	$U=0.6HR$		
		force		(50~1500)N	$U_{rel}=0.2\%$		
		length		(0~10) mm	$U=0.002mm$		
		Angle		(0~90) °	$U=0.1^{\circ}$		
		time		(0~60) s	$U=0.3s$		
4	*Metal Vickers hardness tester	Hardness	V.R.of Metal Vickers hardness tester JJG151, Standard test method	(5~1000)HV	$U_{rel}=1.7\%$		
		Force		5mN~1500N	$U_{rel}=0.2\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Length	for Vickers hardness and Knoop Hardness of Metallic materials Annexes A1. Verification of Vickers hardness and Knoop Hardness Testing Machines ASTM E92 Annexes A1	(0.2~10)mm	$U=1.5 \mu m$		
5	*Shore hardness tester	Hardness	V.R.of Shore hardness tester JJG346	(26~99)HSD	$U=0.8HSD$		
6	*Leeb Hardness Tester	Hardness	V.R.of Leeb Hardness Tester JJG747	(465~847)HL	$U=(5.7 \sim 8.4)HLD$		
7	*Shore A Durometers	Hardness	V.R.of Shore A Durometers JJG304	(0~100)HA	$U=(0.3 \sim 0.4)HA$		
		Length		(0~8)mm	$U=0.003mm$		
		force		(1~10)N	$U=0.04N$		
		Angle		35°	$U=0.2^\circ$		
8	*D type Shao surname rubber hardness	Hardness	V.R.of Shore D Durometer JJG 1039	(0~100)HD	$U=0.5HD$		
		Length		(0~8)mm	$U=0.003mm$		
		force		(1~50)N	$U=0.04N$		
		Angle		30°	$U=0.2^\circ$		
9	*Webster Hardness Testing Machine	Hardness	V.R.of Metallic Webster Hardness Testing Machine JJG944	(5~18)HW	$U=0.4HW$	合格评定 国家认可 认可证书专用章	
10	*Brinell hardness tester	Length	Standard Test Method for Brinell Hardness of Metallic Materials Annexes	(0.1~10)mm	$U=3 \mu m$		
		Force		5N~1kN	$U_{rel}=0.40\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
			A1.Verification of Brinell Hardness Testing Machines ASTM E10 Annexes A1	(1~30)kN	U _{rel} =0.15%		
11	*Rockwell hardness tester	Force	Standard Test Method for Rockwell Hardness of Materials Annexes A1. Verification of Rockwell Hardness Testing machines ASTM E18 Annexes A1	(500~1500)N	U _{rel} =0.2%		
		Hardness		(20~95)HRC、(20~95)HRA、(20~95)HRB	U=0.6HR		
		length		(0~10) mm	U=0.002mm		
		Angle		(0~90) °	U=0.1 °		
		time		(0~60) s	U=0.3s		
12	*Barcol Hardness Testers	Hardness	Type A Barcol Hardness Testers JJG 610	(42~88)HBa	U=0.5HBa		
		Length		直径: (0.05~0.3)mm	U=2.0 μ m		
		Angle		(20~40)°	U=0.02 °		
		Roughness		Ra: (0.012~0.2) μ m	U _{rel} =10%		
13	*Pencil Hardness Testers	Aload	Calibration Specification for Pencil Hardness Testers JJF (SH) 007	(2~3000)g	U=2.5g		
		Angle		0° ~360°	U=0.2 °		
14	Plastic Rock Well Hardness Testing Machine	Hardness	V.R.of Plastic Rock Well Hardness Testing Machine JJG 884	(70~125) HRE (L、M、R)	U=0.8HR		
		Force		(60~1500)N	U _{rel} =0.2%		
15	Ultrasonic Hardness Testers	Hardness	Calibration Specification Ultrasonic Hardness Testers JJF 1436	(175~800) HV	U _{rel} =3.7%		
		Force		(1~100)N	U _{rel} =0.2%		
(10) Vibration, shock, acceleration							



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
1	*Standard Vibrator	Frequency	V.R.of Standard Vibrator in Middle Frequency Band(Comparison Method) JJG298	(20~2000)Hz	$U_{rel}=0.06\%$		
		Acceleration		(0.5~1000)m/s ² , (20~2000)Hz	$U_{rel}=4\%$		
		Harmonic Distortion		0.1%~30%	$U_{rel}=3\%$		
2	*Portable Braking Performance Tester for Motor Vehicles	Acceleration	C.S.for Portable Braking Performance Tester for Motor Vehicles JJF1168	(0~9.81)m/s ²	$U=(0.04\sim0.03)\text{m/s}^2$		
3	*Pendulum impact testing machine	Energy	V.R.of Pendulum impact testing machine JJG145	Direct Method:(1~300)J	$U_{rel}=0.3\%$		
				Indirect Method:(25~300)J	$U_{rel}=2.5\%$		
		length		(1~1000) mm	$U=0.2\text{mm}$		
		Angle		(0~180) °	$U=0.1^\circ$		
		time		(0~300) s	$U=0.3\text{s}$		
		moment		(1~300) Nm	$U_{rel}=0.13\%$		
4	*Cantilever-Beam(Izod-Type) Impact Testing Machine	Energy	V. R. of Cantilever-Beam(Izod-Type) Impact Testing Machine JJG608	(0.1~100)J	$U_{rel}=1.1\%\sim0.5\%$		
		length		(1~1000) mm	$U=0.2\text{mm}$		
		Angle		(0~180) °	$U=0.1^\circ$		
		time		(0~100) s	$U=0.3\text{s}$		
		moment		(1~100) Nm	$U_{rel}=0.13\%$		
5	*Impact tester	Mass	Calibration Specification for Film Impact Tester JJF(Yu)171	(0.1~5.0)kg	$U=2\text{mg}$		
		Length		Height:(10 ~3000)mm	$U=(0.04\sim0.3)\text{mm}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
6	*Mechanical vibration generator for testing	Frequency	V.R.of Mechanical vibration generator for testing JJG189	(5~5000)Hz	$U_{rel}=0.06\%$		
		Acceleration		(0.5~1000)m/s ² , (5~5000)H	$U_{rel}=4\%$		
		Displacement		(0.5~100)mm, (5~5000)Hz	$U_{rel}=4\%$		
		Velocity		(0.001~5)m/s, (5~5000)Hz	$U_{rel}=4\%$		
7	*Hydraulic Vibration Testing System	Frequency	V.R.of Hydraulic Vibration Testing System JJG638	(1~300)Hz	$U_{rel}=0.06\%$		
		Acceleration		(0.5~1000)m/s ² , (1~300)Hz	$U_{rel}=4\%$		
		Displacement		(0.5~100)mm, (1~300)Hz	$U_{rel}=4\%$		
		Velocity		(0.001~5)m/s, (1~300)Hz	$U_{rel}=4\%$		
8	*Electrodynamic Vibration Testing Systems	Frequency	V.R.of Electrodynamic Vibration Testing Systems JJG948	(5~5000)Hz	$U_{rel}=0.06\%$		
		Acceleration		(0.5~1000)m/s ² , (5~5000)Hz	$U_{rel}=4\%$		
		Distortion		0.1%~30%	$U_{rel}=3\%$		
		Pulse duration		(0.01~100) ms	$U_{rel}=6\%$		
		Velocity change		(0.01~100) m/s	$U_{rel}=6\%$		
9	*Electrodynamic Horizontal Vibration Generator for Testing	Frequency	V.R.of Electrodynamic Horizontal Vibration Generator for Testing JJG1000	(5~5000)Hz	$U_{rel}=0.06\%$		
		Acceleration		(0.5~1000)m/s ² , (5~5000)Hz	$U_{rel}=4\%$		
		Displacement		(0.5~100)mm, (5~5000)Hz	$U_{rel}=4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Distortion		0.1%~30%	$U_{rel}=3\%$		
10	*Shock and Dump Testing Machine	Acceleration	Verification Regulation of Shock&Bump Testing Machines JJG1174	(1~50000)m/s ²	$U_{rel}=4.5\%$		
		Pulse duration		(0.01~100) ms	$U_{rel}=6\%$		
		Velocity change		(0.01~100) m/s	$U_{rel}=6\%$		
11	Spring Hammers	Energy	Calibration Specification for Spring Hammers JJF1475	(0.2~2)J	$U_{rel}=0.8\%$		
		Length		(0.1~15)mm	$U=0.05\text{mm}$		
		Force		(1~10) N	$U_{rel}=0.22\%$		
12	*Impact machine	energy	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials ASTM E23	(1~300)J	$U_{rel}=2.5\%$		
13	*Temperature/Humidity/Vibration Combined Environmental Testing System	Temperature	C. S. for Temperature/Humidity/Vibration Combined Environmental Testing System JJF 1270	(-80~300)°C	$U=0.3^{\circ}\text{C}$		
		Relative humidity		5%~95%	$U=2\%\sim 3\%$		
		Vibration		(0.5~1000)m/s ² , (5~5000)Hz	$U_{rel}=4\%$		
		Wind speed		(0.5~20)m/s	$U=0.30\text{m/s}$		
14	*Calibration Specification for Dynamic Balancing Machines	Degree of unbalancedness	Calibration Specification for Dynamic Balancing Machines JJF(Hu、Su、Zhe、Wan)4013	(0.1~10000) g • mm/kg	$U_{rel}=0.9\%$		
		Angle		(0~360)°	$U=1.2^{\circ}$		
(11) Rotating speed							
1	*Roller Type Speedometer	Speed	V.R.of Roller Type Speedometer Tester JJG909	(30~120)km/h	$U_{rel}=0.44\%\sim 0.16\%$		



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	Tester	Length		(0~500)mm	<i>U</i> =0.07mm		
2	*Fixed Radar Vehicle Speed Measurement Devices	Speed	V.R.of Fixed Radar Vehicle Speed Measurement Devices JJG527	(20~180)km/h	<i>U</i> =(1.2~2.4)km/h		
3	*Constance Acceleration Centrifugal Test Machines	Rotational Speed	V.R of Constance Acceleration Centrifugal Test Machines JJG972	(30~40000)r/min	<i>U</i> _{rel} =(0.5~0.2)%		
		Acceleration		(1~100000)m/s ²	<i>U</i> _{rel} =(0.8~0.2)%		
4	*Medical Centrifuge	Rotate Speed	Calibration Specification of Medical Centrifuge JJF2004	(30~100000)r/min	<i>U</i> _{rel} =0.3%		
		Temperature		(-10~60) °C	<i>U</i> =0.5℃		
		Noise		(30~130)dB	<i>U</i> =0.2dB		
IV Acoustic measuring instrument							
1	sound wave belt tension meter	Frequency	C.S.of sound wave belt tension meter JJF1216	(0~100)Hz	<i>U</i> =0.2Hz		
				(>100~1000)Hz	<i>U</i> =2.0Hz		
		Acoustic signal sensitivity		(50~90)dB	<i>U</i> =1.5dB		
		strain		(0.01~1000000)N	<i>U</i> _{rel} =0.8%		
2	*Large Multi-channel Ultrasonic Flow Detectors	Time Base Linearity	Calibration Specification for Large Multi-channel Ultrasonic Flow Detectors JJF1862	0.1%~100%	<i>U</i> _{rel} =0.6%		
		Gain Linearity		0.1%~100%	<i>U</i> _{rel} =1.7%		
		Frequency		10Hz~500kHz	<i>U</i> _{rel} =0.8%		
3	*Ultrasonic Flow Detectors	Attenuation	Verification Regulation of Ultrasonic Flow Detectors	(0~110)dB, (0.5MHz~30MHz)	<i>U</i> =0.2dB		

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Amplitude Linearity	JJG 746	0.1%~100%	<i>U</i> _{rel} =1.7%		
		Time Base Linearity		0.1%~100%	<i>U</i> _{rel} =0.7%		
		Bandwidth		(0.5~30)MHz	<i>U</i> _{rel} =0.7%		
V Electromagnetic measuring instrument							
1	Potentiometer	Voltage	V.R.of DC potentiometer JJG123	10 μ V~0.01V	<i>U</i> =0.5 μ V		
				0.01V~2.1111110V	<i>U</i> _{rel} =0.007%		
2	Standard battery	Voltage	V.R.of Standard battery JJG153	(1.01855~1.01868)V	<i>U</i> =7.5 μ V		
3	Current transformer	Ratio error	V.R.of Measuring Current Transformer JJG313	(0.1~5000)A/5A,(5~5000)A/1A,5% <i>I</i> _n	<i>U</i> =0.06%		
				(0.1~5000)A/5A,(5~5000)A/1A,20% <i>I</i> _n	<i>U</i> =0.03%		
				(0.1~5000)A/5A,(5~5000)A/1A,100% <i>I</i> _n	<i>U</i> =0.12%		
				(0.1~5000)A/5A,(5~5000)A/1A,120% <i>I</i> _n	<i>U</i> =0.12%		
				(0.6~60)A/(1~50)mA,1% <i>I</i> _n	<i>U</i> =0.05%		
				(0.6~60)A/(1~50)mA,5% <i>I</i> _n	<i>U</i> =0.03%		
				(0.6~60)A/(1~50)mA,20% <i>I</i> _n	<i>U</i> =0.03%		
		Angle error		0.01' ~900.0' ,1% <i>I</i> _n	<i>U</i> =1.5'		
				0.01' ~900' ,5% <i>I</i> _n	<i>U</i> =1.9'		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				0.01' ~ 900' ,20%I _n	U=1.0'		
				0.01' ~ 900' ,100%I _n	U=0.8'		
				0.01' ~ 900' ,120%I _n	U=0.8'		
4	*D. C. bridge	Resistance	V.R.of D.C.bridge JJG125	0.01 Ω ~ 0.1 Ω	U _{rel} =1.0%		
				0.1 Ω ~ 1 Ω	U _{rel} =0.1%		
				1 Ω ~ 10 Ω	U _{rel} =0.01%		
				10 Ω ~ 1M Ω	U _{rel} =0.002%		
5	*Megger	Resistance	V.R.of High Insulation Resistance Meters JJG690	(1~10)G Ω	U _{rel} =3%		
				(10~1000)G Ω	U _{rel} =5%		
				(10~1000)V	U _{rel} =2%		
6	*Amperemeter、 Voltmeter、 Wattmeter	DC Current	V.R.of Amperemeter voltmeter wattmeter and Ohmmeter JJG124	(0.01~20)A	U _{rel} =0.06%		
		AC Current		(0.01~20)A, (45~ 65)Hz	U _{rel} =0.06%		
		DC Voltage		(0.01~1000)V	U _{rel} =0.06%		
		AC Voltage		(0.01~1000)V,(45~ 65)Hz	U _{rel} =0.06%		
		AC Power		(0.01~20)kW,(45~ 65)Hz	U _{rel} =0.09%		
7	D.C magnetoelectric galvanometer	current constant	V.R.of the DC Magnetoelectric Galvanometer JJG495	(10 ⁻⁶ ~10 ⁻¹⁰)安/格	U _{rel} =3.3%	合格评定国家认可 认证证书专用章	
8	High voltage electrostatic	Voltage	V.R.of High Voltage Electrostatic Voltmeter	AC: (1~100)kV,50Hz	U _{rel} =0.88%~0.15%		



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	voltmeter		JJG494	DC: (1~100)kV	$U_{rel}=0.88\%\sim 0.17\%$		
9	*Single-phase phasometer	phase	V.R.of 50Hz single-phase phasometer JJG440	$-90^{\circ} \sim +90^{\circ}$	$U=0.2^{\circ}$		
		power factor		0~1	$U=0.002$		
10	*DC standard voltage source	DC Voltage	Calibration Specification for Multifunction Standard Sources JJF1638	10mV~200mV	$U_{rel}=2.0\times 10^{-5}$		
				200mV~2V	$U_{rel}=1.0\times 10^{-5}$		
				2V~20V	$U_{rel}=1.0\times 10^{-5}$		
				20V~200V	$U_{rel}=1.0\times 10^{-5}$		
				200V~1000V	$U_{rel}=1.0\times 10^{-5}$		
11	DC standard resistor	resistance	V.R.of DC Standard Resistors JJG 166	0.001 Ω	$U=0.019 \mu \Omega$		
				0.01 Ω	$U=0.19 \mu \Omega$		
				0.1 Ω	$U=1.4 \mu \Omega$		
				1 Ω	$U=14 \mu \Omega$		
				10 Ω	$U=0.14m \Omega$		
				100 Ω	$U=1.4m \Omega$		
				1000 Ω	$U=0.014 \Omega$		
				10000 Ω	$U=0.14 \Omega$		
12	*Earth resistance meter	resistance	V.R.of Earth Resistance Meters JJG366	(0.1~1.0) Ω	$U_{rel}=1.2\%$		
				(1.0~1000) Ω	$U_{rel}=0.7\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
13	*Megohm-meter	resistance	V.R.of Megohmmeter JJG622	(1~10)M Ω	$U_{rel}=1.4\%$		
				(10~100)M Ω	$U_{rel}=1.6\%$		
				(100~1000)M Ω	$U_{rel}=1.9\%$		
				(1000~2500)M Ω	$U_{rel}=3\%$		
		Voltage		(50~2500)V	$U_{rel}=1.8\%$		
14	DC resistor box	resistance	resistance JJG982	0.001 Ω ~ 0.1 Ω	$U_{rel}=1.0\%$		
				0.1 Ω ~ 1 Ω	$U_{rel}=0.1\%$		
				1 Ω ~ 10 Ω	$U_{rel}=0.01\%$		
				10 Ω ~ 1M Ω	$U_{rel}=0.002\%$		
15	Alternating current Watt-Hour meter	AC Energy	V.R.of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG307	(57.7~380)V/(0.05~100)A (Balanced three-phase load), ($\cos \phi=1.0$)	$U_{rel}=0.15\%$		
				(57.7~380)V/(0.05~100)A (Balanced three-phase load), [$\cos \phi=0.5(L)$ 、0.8(C)]	$U_{rel}=0.18\%$		
				(57.7~380)V/(0.05~100)A(Balanced three-phase load), [$\cos \phi=0.5(C)$]	$U_{rel}=0.21\%$		
				(57.7~380)V/(0.05~100)A (Balanced three-phase load), [$\cos \phi=0.25(L)$]	$U_{rel}=0.31\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(57.7~380)V/(0.05~100)A(Unbalanced three-phase load),(cos $\phi=1.0$)	$U_{rel}=0.16\%$		
				(57.7~380)V/(0.05~100)A(Unbalanced three-phase load),[cos $\phi=0.5(L)$]	$U_{rel}=0.18\%$		
16	Electrical Energy Meters with Electronics	AC Energy	V.R.of Electrical Meters for Measuring Alternating-current Electrical Energy JJG596	(57.7~380)V/(0.05~100)A (Balanced three-phase load),(cos $\phi=1.0$)	$U_{rel}=0.06\%$		
				(57.7~380)V/(0.05~100)A(Balanced three-phase load),[cos $\phi=0.5(L)$ 、0.8(C)]	$U_{rel}=0.06\%$		
				(57.7~380)V/(0.05~100)A (Balanced three-phase load),[cos $\phi=0.5(C)$]	$U_{rel}=0.06\%$		
				(57.7~380)V/(0.05~100)A (Balanced three-phase load),[cos $\phi=0.25(L)$]	$U_{rel}=0.24\%$		
				(57.7~380)V/(0.05~100)A (Unbalanced three-phase load),(cos $\phi=1.0$)	$U_{rel}=0.06\%$		



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				(57.7~380)V/(0.05~100)A (Unbalanced three-phase load),[cos φ=0.5(L)]	<i>U</i> _{rel} =0.06%		
17	*Digital Multimeter	DC Voltage	C.S.for Digital Multimeter JJF1587	1mV~10mV	<i>U</i> _{rel} =0.05%		
				10mV~220mV	<i>U</i> _{rel} =0.005%		
				220mV~2.2V	<i>U</i> _{rel} =0.0015%		
				2.2V~22V	<i>U</i> _{rel} =0.0010%		
				22V~220V	<i>U</i> _{rel} =0.0010%		
				220V~1000V	<i>U</i> _{rel} =0.0012%		
		AC Voltage		2.2mV~22mV,(10Hz~20Hz)	<i>U</i> _{rel} =0.3%		
				22mV~220mV,(10Hz~20Hz)	<i>U</i> _{rel} =0.07%		
				220mV~2.2V,(10Hz~20Hz)	<i>U</i> _{rel} =0.04%		
				2.2V~22V,(10Hz~20Hz)	<i>U</i> _{rel} =0.04%		
				22V~220V,(10Hz~20Hz)	<i>U</i> _{rel} =0.04%		
				10mV~22mV,(20Hz~40Hz)	<i>U</i> _{rel} =0.2%		
				22mV~220mV,(20Hz~40Hz)	<i>U</i> _{rel} =0.06%		
				220mV~2.2V,(20Hz~40Hz)	<i>U</i> _{rel} =0.02%		



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				2.2V~22V,(20Hz~40Hz)	$U_{rel}=0.02\%$		
				22V~220V,(20Hz~40Hz)	$U_{rel}=0.02\%$		
				220V~1000V,(20Hz~40Hz)	$U_{rel}=0.04\%$		
				10mV~22mV,(40Hz~20kHz)	$U_{rel}=0.2\%$		
				22mV~220mV,(40Hz~20kHz)	$U_{rel}=0.06\%$		
				220mV~2.2V,(40Hz~20kHz)	$U_{rel}=0.01\%$		
				2.2V~22V,(40Hz~20kHz)	$U_{rel}=0.01\%$		
				22V~220V,(40Hz~20kHz)	$U_{rel}=0.015\%$		
				220V~1000V,(40Hz~20kHz)	$U_{rel}=0.01\%$		
				10mV~22mV,(20kHz~50kHz)	$U_{rel}=0.2\%$		
				22mV~220mV,(20kHz~50kHz)	$U_{rel}=0.07\%$		
				220mV~2.2V,(20kHz~50kHz)	$U_{rel}=0.01\%$		
				2.2V~22V,(20kHz~50kHz)	$U_{rel}=0.02\%$		
				22V~220V,(20kHz~50kHz)	$U_{rel}=0.02\%$		
				10mV~22mV,(50kHz~100kHz)	$U_{rel}=0.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				22mV~ 220mV,(50kHz~ 100kHz)	$U_{rel}=0.08\%$		
				220mV~2.2V,(50kHz~ 100kHz)	$U_{rel}=0.04\%$		
				2.2V~22V,(50kHz~ 100kHz)	$U_{rel}=0.04\%$		
				22V~220V,(50kHz~ 100kHz)	$U_{rel}=0.04\%$		
		DC Current		10 μ A~220 μ A	$U_{rel}=0.08\%$		
				220 μ A~2.2mA	$U_{rel}=0.007\%$		
				2.2mA~22mA	$U_{rel}=0.006\%$		
				22mA~220 mA	$U_{rel}=0.008\%$		
				220mA~2.2A	$U_{rel}=0.02\%$		
				2.2A~11A	$U_{rel}=0.07\%$		
				11A~20A	$U_{rel}=0.15\%$		
		AC Current		10 μ A~220 μ A,(10Hz~20Hz)	$U_{rel}=0.22\%$		
				220 μ A~ 2.2mA,(10Hz~20Hz)	$U_{rel}=0.08\%$		
				2.2mA~22mA,(10Hz~ 20Hz)	$U_{rel}=0.06\%$		
				22mA~220 mA,(10Hz~ 20Hz)	$U_{rel}=0.06\%$		



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				10 μ A $\sim$ 220 μ A, (20Hz $\sim$ 40Hz)	$U_{rel}=0.15\%$		
				220 μ A $\sim$ 2.2mA, (20Hz $\sim$ 40Hz)	$U_{rel}=0.04\%$		
				2.2mA $\sim$ 22mA, (20Hz $\sim$ 40Hz)	$U_{rel}=0.04\%$		
				22mA $\sim$ 220mA, (20Hz $\sim$ 40Hz)	$U_{rel}=0.03\%$		
				220mA $\sim$ 2.2A, (20Hz $\sim$ 40Hz)	$U_{rel}=0.05\%$		
				10 μ A $\sim$ 220 μ A, (40Hz $\sim$ 1kHz)	$U_{rel}=0.11\%$		
				220 μ A $\sim$ 2.2mA, (40Hz $\sim$ 1kHz)	$U_{rel}=0.04\%$		
				2.2mA $\sim$ 22mA, (40Hz $\sim$ 1kHz)	$U_{rel}=0.04\%$		
				22mA $\sim$ 220 mA, (40Hz $\sim$ 1kHz)	$U_{rel}=0.03\%$		
				220mA $\sim$ 2.2A, (40Hz $\sim$ 1kHz)	$U_{rel}=0.05\%$		
				2.2A $\sim$ 11A, (40Hz $\sim$ 1kHz)	$U_{rel}=0.06\%$		
				11A $\sim$ 20A, (40Hz $\sim$ 1kHz)	$U_{rel}=0.18\%$		
				10 μ A $\sim$ 220 μ A, (1kHz $\sim$ 5kHz)	$U_{rel}=0.18\%$		
				220 μ A $\sim$ 2.2mA, (1kHz $\sim$ 5kHz)	$U_{rel}=0.07\%$		



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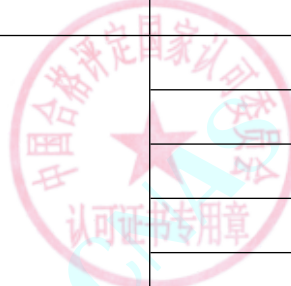
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				2.2mA~22mA,(1kHz~5kHz)	$U_{rel}=0.05\%$		
				22mA~220 mA,(1kHz~5kHz)	$U_{rel}=0.04\%$		
				220mA~2.2A,(1kHz~5kHz)	$U_{rel}=0.09\%$		
				2.2A~11A,(1kHz~5kHz)	$U_{rel}=0.17\%$		
				11A~20A,(1kHz~5kHz)	$U_{rel}=3.2\%$		
				10 μ A~220 μ A,(5kHz~10kHz)	$U_{rel}=1.1\%$		
				220 μ A~2.2mA,(5kHz~10kHz)	$U_{rel}=0.4\%$		
				2.2mA~22mA,(5kHz~10kHz)	$U_{rel}=0.4\%$		
				22mA~220 mA,(5kHz~10kHz)	$U_{rel}=0.17\%$		
				220mA~2.2A,(5kHz~10kHz)	$U_{rel}=0.9\%$		
				2.2A~11A,(5kHz~10kHz)	$U_{rel}=0.5\%$		
		Resistance		(1~11) Ω	$U_{rel}=0.01\%$		
				11 Ω ~33 Ω	$U_{rel}=0.01\%$		
				33 Ω ~110k Ω	$U_{rel}=0.004\%$		
				110k Ω ~1.1M Ω	$U_{rel}=0.004\%$		
				1.1M Ω ~3.3M Ω	$U_{rel}=0.007\%$		



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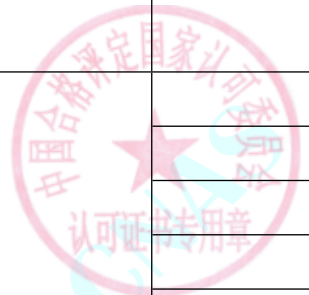
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				3.3M Ω ~ 11M Ω	<i>U</i> _{rel} =0.015%		
				11M Ω ~ 33M Ω	<i>U</i> _{rel} =0.058%		
				33M Ω ~ 110M Ω	<i>U</i> _{rel} =0.36%		
18	*Withstanding Voltage tester	voltage	V.R.of Withstanding Voltage Testers JJG795	AC: (0.5~10)kV, 50Hz	<i>U</i> _{rel} =1.1%~0.7%		
				AC: (10~15)kV, 50Hz	<i>U</i> _{rel} =0.7%~1.2%		
				DC: (0.5~10)kV	<i>U</i> _{rel} =1.1%~0.7%		
				DC: (10~15)kV	<i>U</i> _{rel} =0.7%~1.2%		
		current		AC: (0.5~200)mA, 50Hz	<i>U</i> _{rel} =1.1%~0.6%		
				AC: (200~500)mA, 50Hz	<i>U</i> _{rel} =0.6%~0.9%		
				DC: (0.5~200)mA	<i>U</i> _{rel} =1.1%~0.6%		
				DC: (200~500)mA	<i>U</i> _{rel} =0.6%~0.9%		
		time		AC test: (1~900)s	<i>U</i> _{rel} =1.4%~1.2%		
				DC test: (1~900)s	<i>U</i> _{rel} =1.2%		
19	*High voltage and value D.C.resistors	resistance	V.R.of High Voltage and Value D.C.Resistors JJG1072	100 Ω ~ 10M Ω	<i>U</i> _{rel} =0.06%		
				10M Ω ~ 100M Ω	<i>U</i> _{rel} =0.12%		
				100M Ω ~ 1G Ω	<i>U</i> _{rel} =0.24%		
				1G Ω ~ 10G Ω	<i>U</i> _{rel} =0.58%		
				10G Ω ~ 333G Ω	<i>U</i> _{rel} =1.2%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				333G Ω ~ 1000G Ω	U _{rel} =2.3%		
20	*Earth Continuity Tester	resistance	V.R.of Earth-Continuity Testers JJG984	10m Ω ~ 11.11 Ω , (DC,50Hz)	U _{rel} =1%~0.3%		
		current		1A~60A, (DC,50Hz)	U _{rel} =0.7%		
21	*Verification Equipment for Electrical Energy Mete	Electrical Energy	V.R.of Verification Equipment for AC Electrical Energy Meter JJG597	(57.7~480)V,(0.1~100)A,(单相和三相平衡负载)cos φ =1.0	U _{rel} =0.06%		
				(57.7~480)V,(0.1~100)A,(单相和三相平衡负载)cos φ =0.5L	U _{rel} =0.06%		
				(57.7~480)V,(0.1~100)A,(单相和三相平衡负载)cos φ =0.8C	U _{rel} =0.06%		
				(57.7~480)V,(0.1~100)A,(三相不平衡负载)cos φ =1.0	U _{rel} =0.06%		
				A(57.7~480)V,(0.1~100)A,(三相不平衡负载)cos φ =0.5L,(三相不平衡负载)cos φ =1.0	U _{rel} =0.06%		
22	*Leakage Current ITester	current	V.R.of Leakage Current Instrument and Meter JJG843	DC:20 μ A~20mA	U _{rel} =0.3%		
				AC:(0.1~20)mA, 50Hz	U _{rel} =0.5%		
		voltage		DC:(50~300)V	U _{rel} =0.3%		
				AC:(50~300)V, 50Hz	U _{rel} =0.3%		
		DC resistance		100 Ω ~ 10k Ω	U _{rel} =0.3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Input impedance		100Ω～3kΩ（10Hz～1kHz）	<i>U</i> _{rel} =0.4%		
		100Ω～3kΩ（1kHz～1MHz）		<i>U</i> _{rel} =0.8%			
		传输特性		(0.1～20) mA (20Hz～1MHz)	<i>U</i> _{rel} =0.9%		
23	*Wrist zone tester	Resistance	C.S.for Wrist Strap and Footwear Tester JJF(DZ)31502	1000Ω～10MΩ	<i>U</i> _{rel} =0.24%		
				10MΩ～100MΩ	<i>U</i> _{rel} =0.58%		
				100MΩ～1GΩ	<i>U</i> _{rel} =1.16%		
24	*AC current Source	AC Current	AC Standard Current Source JJG(JG)70	10 μA～200 μA,(10Hz～2kHz)	<i>U</i> _{rel} =0.7%		
				200 μA～20mA,(10Hz～2kHz)	<i>U</i> _{rel} =0.26%		
				20mA～200mA,(10Hz～2kHz)	<i>U</i> _{rel} =0.1%		
				200mA～2A,(10Hz～2kHz)	<i>U</i> _{rel} =0.15%		
				2A～20A,(10Hz～2kHz)	<i>U</i> _{rel} =0.17%		
				20A～100A,(45Hz～65Hz)	<i>U</i> _{rel} =0.4%		
		frequency		10Hz～100kHz	<i>U</i> _{rel} =0.01%		
25	*AC Standard Voltage Source	AC Voltage	AC Standard V0ltage Source JJG(JG)71	10mV～200mV,(10Hz～100Hz)	<i>U</i> _{rel} =0.06%		
				200mV～1000V,(10Hz～100Hz)	<i>U</i> _{rel} =0.02%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		frequency	ilac-M	10mV~ 200mV,(100Hz~2kHz)	$U_{rel}=0.04\%$		
				200mV~ 1000V,(100Hz~2kHz)	$U_{rel}=0.02\%$		
				10Hz~100kHz	$U_{rel}=0.01\%$		
26	*DC Low Resistance Meters	Resistance	V.R.of DC Low Resistance Meters JJG837	100 $\mu\Omega$ ~ 20m Ω	$U_{rel}=0.12\%$		
				20m Ω ~ 190k Ω	$U_{rel}=0.02\%$		
27	*Power Analyzers	current	C.S.for Power Analyzers JJF2040	DC:(10~300)mA (DC)	$U_{rel}=0.02\%$		
				300 mA~3A (DC)	$U_{rel}=0.03\%$		
				3A ~11A (DC)	$U_{rel}=0.07\%$		
				11A ~20A (DC)	$U_{rel}=0.12\%$		
				20A~40A (DC)	$U_{rel}=0.04\%$		
				(1~10)mA(45Hz~10kHz)	$U_{rel}=0.59\%$		
				(10~300)mA(45Hz~1kHz)	$U_{rel}=0.07\%$		
				(10~300)mA(1kHz~10kHz)	$U_{rel}=0.24\%$		
				300 mA ~3A(45Hz~1kHz)	$U_{rel}=0.08\%$		
				300 mA ~3A(1kHz~5kHz)	$U_{rel}=0.7\%$		
				3A ~11A(45Hz~100Hz)	$U_{rel}=0.10\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				3A ~ 11A(100Hz ~ 1kHz)	$U_{rel}=0.17\%$		
				11A ~ 20A(45Hz ~ 100Hz)	$U_{rel}=0.17\%$		
				11A ~ 20A(100Hz ~ 1kHz)	$U_{rel}=0.18\%$		
				20A ~ 40A(45Hz ~ 65Hz)	$U_{rel}=0.04\%$		
				40A ~ 80A(45Hz ~ 65Hz)	$U_{rel}=0.07\%$		
				(1 ~ 30)V (DC)	$U_{rel}=0.01\%$		
				30V ~ 300V (DC)	$U_{rel}=0.01\%$		
				300V ~ 1000V (DC)	$U_{rel}=0.01\%$		
				(1 ~ 30)V(45Hz ~ 10kHz)	$U_{rel}=0.02\%$		
				30V ~ 300V(45Hz ~ 1kHz)	$U_{rel}=0.03\%$		
				30V ~ 300V(1kHz ~ 10kHz)	$U_{rel}=0.06\%$		
				300V ~ 1000V(45Hz ~ 1kHz)	$U_{rel}=0.04\%$		
				300V ~ 1000V(1kHz ~ 10kHz)	$U_{rel}=0.05\%$		
				(1 ~ 1000)V, (10 ~ 300)mA(DC)	$U_{rel}=0.03\%$		
				(1 ~ 1000)V, 300 mA ~ 11A(DC)	$U_{rel}=0.08\%$		
				(1 ~ 1000)V, 11A ~ 20A(DC)	$U_{rel}=0.14\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(1~1000)V, 20A ~ 40A(DC)	$U_{rel}=0.06\%$		
				(1~1000)V, (1~10)mA(45Hz~10kHz)	$U_{rel}=0.68\%$		
				(1~1000)V, (10~300)mA(45Hz~65Hz)	$U_{rel}=0.09\%$		
				(1~1000)V, (10~300)mA(65Hz~10kHz)	$U_{rel}=0.32\%$		
				(1~1000)V, 300mA ~ 3A(45Hz~65Hz)	$U_{rel}=0.10\%$		
				(1~1000)V, 300mA ~ 3A(65Hz~5kHz)	$U_{rel}=0.82\%$		
				(1~1000)V, 3A~11A(45Hz~65Hz)	$U_{rel}=0.14\%$		
				(1~1000)V, 3A~11A(65Hz~1kHz)	$U_{rel}=0.3\%$		
				(1~1000)V, 11A~20A(45Hz~65Hz)	$U_{rel}=0.22\%$		
				(1~1000)V, 11A~20A(65Hz~1kHz)	$U_{rel}=0.3\%$		
				(1~1000)V, 20A~40A(45Hz~65Hz)	$U_{rel}=0.06\%$		
				(1~1000)V, 40A~80A(45Hz~65Hz)	$U_{rel}=0.14\%$		
		Power		40Hz~1kHz	$U=0.002Hz$		
		Power Factor		-1~1, (45Hz~65Hz)	$U=0.002$		
28	*Clamp Ammeters	DC Current	C.S.of Clamp Ammeters	(0.1~2000)A	$U_{rel}=0.2\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Current	JJF1075	(0.1~2000)A, (40Hz~400Hz)	U _{rel} =0.2%		
29	*Digital Calibration Device for Amperemeters Volt meters and Ohmmeters	DC Voltage	C.S.of calibrators for electrical meters JJF1284	(1~200)mV	U _{rel} =0.018%		
				200mV~200V	U _{rel} =0.015%		
		AC Voltage		(200~1000)V	U _{rel} =0.02%		
				10mV~100mV(40Hz~10kHz)	U _{rel} =0.06%		
		DC Current		100mV~1000V(40Hz~10kHz)	U _{rel} =0.03%		
				10 μ A~200 mA	U _{rel} =0.018%		
				200mA~2A	U _{rel} =0.024%		
				2A~20A	U _{rel} =0.05%		
		AC Current		10 μ A~200 μ A(40Hz~2kHz)	U _{rel} =0.26%		
				200 μ A~2mA(40Hz~2kHz)	U _{rel} =0.08%		
				2mA~2A(40Hz~2kHz)	U _{rel} =0.07%		
				2A~20A(40Hz~2kHz)	U _{rel} =0.06%		
		Resistance		1 Ω ~20k Ω	U _{rel} =0.02%		
				20k Ω ~100M Ω	U _{rel} =0.05%		
30	High-Voltage Divider at Power Frequency	Voltage	V.R.of High Voltage Divider at Power Frequency JJG496	(1~100)kV	U _{rel} =0.12%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
31	DC High Voltage Divider	Voltage	V.R.of DC High Voltage Dividers JJG1007	(1~100)kV	<i>U</i> _{rel} =0.12%				
32	*Resistance Strain Gauge Indicator	Strain	V.R.of Resistance Strain Gauge Indicators JJG623	(10~10 ⁵) μ ε	<i>U</i> =(1~58) μ ε				
33	Voltage transformers of measuring service	Ratio error	V.R.of Voltage transformers of measuring service JJG314	(3~35)kV/(100,100/3,100/3 ^{1/2})V,20% <i>U</i> _n	<i>U</i> =0.05%				
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,50% <i>U</i> _n	<i>U</i> =0.04%				
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,80% <i>U</i> _n	<i>U</i> =0.03%				
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,100% <i>U</i> _n	<i>U</i> =0.03%				
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,120% <i>U</i> _n	<i>U</i> =0.03%				
		Angle error		0.01' ~900' ,20% <i>U</i> _n	<i>U</i> =2.2'				
				0.01' ~900' ,50% <i>U</i> _n	<i>U</i> =1.5'				
				0.01' ~900' ,80% <i>U</i> _n	<i>U</i> =1.0'				
				0.01' ~900' ,100% <i>U</i> _n	<i>U</i> =1.0'				
				0.01' ~900' ,120% <i>U</i> _n	<i>U</i> =1.0'				
34	flux mete	Magnetic flux	C.S. for Fluxmeter JJF1905	(0.1~0.5)mWb	<i>U</i> _{rel} =0.4%				
				(0.5~10000)mWb	<i>U</i> _{rel} =0.2%				



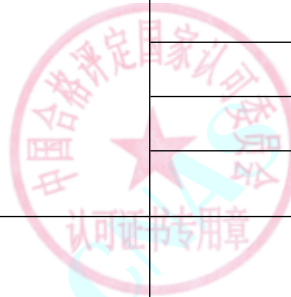
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
35	Magnetometer	Magnetic flux density	Calibration Specification for (1 mT~2.5 T) Magnetometers JJF 1832	(1~10)mT	$U_{rel}=0.3\%$		
				(10~2500) mT	$U_{rel}=0.13\%$		
36	*Digit high voltage meter	Voltage	C.S. of Digit high voltage meter JJF(Su)88	AC: (1~100)kV(50Hz)	$U_{rel}=0.12\%\sim 0.10\%$		
				DC: (1~100)kV	$U_{rel}=0.14\%\sim 0.12\%$		
37	*Loop resistance tester	Resistance	V.R. of Loop resistance tester、DC resistance meters JJG1052	(50~1900) $\mu\Omega$	$U_{rel}=0.15\%\sim 0.06\%$		
		Current		(10~600)A	$U_{rel}=0.15\%\sim 0.06\%$		
38	*Surface resistance tester	Resistance	C.S. for Surface Resistance Tester JJF1285	1000 Ω ~ 10M Ω	$U_{rel}=0.3\%$		
				10M Ω ~ 100M Ω	$U_{rel}=0.6\%$		
				100M Ω ~ 1G Ω	$U_{rel}=1.2\%$		
				1G Ω ~ 10G Ω	$U_{rel}=3\%$		
39	*DC Shunts	Voltage	V.R. of DC Shunts JJG1069	(45~100)mV/(1~50)A	$U_{rel}=2.0\times 10^{-3}$		
				(45~100)mV/(50~100)A	$U_{rel}=2.0\times 10^{-3}$		
				(45~100)mV/(100~200)A	$U_{rel}=8\times 10^{-4}$		
				(45~100)mV/(200~5000)A	$U_{rel}=4\times 10^{-4}$		
40	*clamp earth resistance meters	Resistance	V.R. of clamp earth resistance meters JJG1054	(0.1~9.999) Ω	$U=(0.007\sim 0.03) \Omega$		
				(10~99.99) Ω	$U=(0.03\sim 0.2) \Omega$		
				(100~999.9) Ω	$U=(0.3\sim 2.1) \Omega$		
41	*Burden Box of Instrument	Impedance	C.S. for Burden box of Instrument Transformer	Active(0.1~100) Ω	$U_{rel}=0.9\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Transformers		JJF1264	reactive(0.1~100) Ω	U _{rel} =1.0%		
		admittance		active(0.1~100)mS	U _{rel} =0.9%		
				reactive(0.1~100)mS	U _{rel} =1.0%		
42	*Transformers Test Set	in-phase	V.R.of Instrument Transformer Test Set JJG169	2.00‰~20.00‰	U=0.03‰~0.24‰		
		orthogonality		(10.00~100.00) '	U=0.12' ~1.2'		
		Impedance		1.999 Ω ~19.99 Ω	U _{rel} =0.3%		
		Admittance		1.999mS~19.99mS	U _{rel} =0.3%		
43	*Power Frequency A.C.Electrical Quantities Measuring Transducers	AC Voltage	V.R.of Power Frequency A.C.Electrical Quantities Measuring Transducers JJG 126	(10~600)V,(45Hz~65Hz)	U _{rel} =0.1%		
		AC Current		(0.1~20)A,(45Hz~65Hz)	U _{rel} =0.1%		
		AC Active Power		(10~600)V,(0.1~20)A,PF:(0.5~1),(45Hz~65Hz)	U _{rel} =0.1%		
44	*Electronic Insulating Resistance Meters	resistance	V.R. of Electronic Insulating Resistance Meters JJG1005	100 Ω ~10M Ω	U _{rel} =0.3%		
				10M Ω ~100M Ω	U _{rel} =0.3%~0.6%		
				100M Ω ~1G Ω	U _{rel} =0.6%~1.1%		
				1G Ω ~1T Ω	U _{rel} =1.1%~2.4%		
		open-circuit voltage		(50~5000)V	U _{rel} =1.8%		
45	*Magnetic Particle Flaw Detectors	Magnetization Current	C.S. for Magnetic Particle Flaw Detectors JJF1273	(100~5000)A(CircumferentialMagnetization Current)	U _{rel} =0.8%		



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				(100~5000)A(Portrait Magnetization Current)	<i>U</i> _{rel} =1.2%				
46	Four point probe resistivity tester	specific resistance	V.R.of Four point probe resistivity tester JJG508	(0.01~1214) Ω •cm	<i>U</i> _{rel} =3%				
47	Processcalibrator	DC Voltage Output	C.S.for Process Calibrators JJF1472	1mV~10mV	<i>U</i> _{rel} =0.012%				
				10mV~100V	<i>U</i> _{rel} =0.002%				
				10 μ A~30 μ A	<i>U</i> _{rel} =0.006%				
		DC Current Output		30 μ A~20mA	<i>U</i> _{rel} =0.002%				
				20 mA~30 mA	<i>U</i> _{rel} =0.008%				
				30 mA~100 mA	<i>U</i> _{rel} =0.006%				
				100 mA~200 mA	<i>U</i> _{rel} =0.005%				
				0.2A~2A	<i>U</i> _{rel} =0.03%				
				Resistance output	1 Ω ~3 Ω			<i>U</i> _{rel} =0.010%	
					3 Ω ~2M Ω			<i>U</i> _{rel} =0.006%	
		Frequency output		10Hz~100kHz	<i>U</i> _{rel} =0.01%				
		Temperature(Thermocouple analog output)		(-200~1800)℃	<i>U</i> =0.3℃				
		Temperature(Thermal resistance analog output)		(-200~800)℃	<i>U</i> =0.2℃				
DC Voltage measurement	1mV~10mV	<i>U</i> _{rel} =0.02%							



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
			ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	10mV~20V	<i>U</i> _{rel} =0.003%		
				20V~30V	<i>U</i> _{rel} =0.037%		
				30V~200V	<i>U</i> _{rel} =0.011%		
				200V~300V	<i>U</i> _{rel} =0.18%		
				300V~1000V	<i>U</i> _{rel} =0.052%		
		AC Voltage measurement		10mV~22mV(45Hz~1kHz)	<i>U</i> _{rel} =0.3%		
				22mV~1000V(45Hz~1kHz)	<i>U</i> _{rel} =0.1%		
		DC Current measurement		10 μ A~30 μ A	<i>U</i> _{rel} =0.046%		
				30 μ A~2A	<i>U</i> _{rel} =0.031%		
				2A~3A	<i>U</i> _{rel} =0.23%		
				3A~10A	<i>U</i> _{rel} =0.1%		
		Resistance Measurement		(1~10) Ω	<i>U</i> _{rel} =0.011%		
				10 Ω ~1M Ω	<i>U</i> _{rel} =0.05%		
				1M Ω ~100M Ω	<i>U</i> _{rel} =0.02%		
		Frequency measurement		10Hz~100kHz	<i>U</i> _{rel} =0.01%		
		Temperature(Thermocouple measurement)t		(-200~1800)℃	<i>U</i> =0.3℃		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Temperature(Thermal resistance analog outputThermal resistance measurment)		(-200~800)℃	U=0.2℃		
48	Magnetometers Based Magnetic Force	magnetic induction	Calibration Specification for Magnetometers Based Magnetic Force JJF1656	(0.05~10)mT	U _{rel} =1.7%		
49	*Alternating Current Resistance Box	Resistance	C.S.for Alternating Current Resistance Box JJF1636	(1~10) Ω (1kHz)	U _{rel} =2%		
				(10~100) Ω (1kHz)	U _{rel} =0.3%		
				100 Ω ~100k Ω (1kHz)	U _{rel} =0.03%		
50	*Impulse Voltage Testers for Winding Interturn Insulation	Shock Voltage	C.S.for Impulse Voltage Testers for Winding Interturn Insulation JJF1691	(0.5~15)kV	U _{rel} =2.2%		
		Wave Front Time		0.2 μ s	U _{rel} =10%		
				1.2 μ s	U _{rel} =4%		
51	*High-Voltage Generator	Voltage	Calibration Specification for (20~200)kV High-Voltage Generator JJF(WXJL)006	(20~200)kV (DC)	U _{rel} =0.7%		
				(20~200)kV (50Hz,60Hz)	U _{rel} =0.7%		
		Current		(10~5000) μ A (50Hz,60Hz)	U _{rel} =0.2%		
				(10~5000) μ A (DC)	U _{rel} =0.2%		
52	*Multifunction Standard Sources	DC Voltage	Calibration Specification for Multifunction Standard Sources JJF1638	10mV~200mV	U _{rel} =1.2×10 ⁻⁴ ~7×10 ⁻⁶		
				200mV~2V	U _{rel} =7×10 ⁻⁶ ~6×10 ⁻⁶		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				2V~20V	$U_{\text{rel}}=6 \times 10^{-6} \sim 4 \times 10^{-6}$		
				20V~200V	$U_{\text{rel}}=4 \times 10^{-6} \sim 7 \times 10^{-6}$		
				200V~1000V	$U_{\text{rel}}=7 \times 10^{-6}$		
		DC Current		10 μ A~2mA	$U_{\text{rel}}=7 \times 10^{-5} \sim 1.8 \times 10^{-5}$		
				2mA~20mA	$U_{\text{rel}}=1.8 \times 10^{-5} \sim 2 \times 10^{-5}$		
				20mA~200mA	$U_{\text{rel}}=2 \times 10^{-5} \sim 5 \times 10^{-5}$		
				200mA~2A	$U_{\text{rel}}=5 \times 10^{-5} \sim 1.9 \times 10^{-4}$		
				2A~20A	$U_{\text{rel}}=1.9 \times 10^{-4} \sim 5 \times 10^{-4}$		
		DC Resistance		1 Ω ~ 1G Ω	$U_{\text{rel}}=2.0 \times 10^{-5} \sim 2.6 \times 10^{-4}$		
		AC Voltage		(10~200) mV (10Hz~40Hz)	$U_{\text{rel}}=6 \times 10^{-4}$		
				200mV~2V (10Hz~40Hz)	$U_{\text{rel}}=1.6 \times 10^{-4}$		
				(2~20) V (10Hz~40Hz)	$U_{\text{rel}}=1.5 \times 10^{-4}$		
				(20~200) V (10Hz~40Hz)	$U_{\text{rel}}=1.5 \times 10^{-4}$		
				(200~1000) V (10Hz~40Hz)	$U_{\text{rel}}=1.6 \times 10^{-4}$		
				(10~200) mV (40Hz~100Hz)	$U_{\text{rel}}=6 \times 10^{-4}$		
				200mV~2V (40Hz~100Hz)	$U_{\text{rel}}=1.3 \times 10^{-4}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(2~20) V (40Hz~100Hz)	$U_{rel}=1.3 \times 10^{-4}$		
				(20~200) V (40Hz~100Hz)	$U_{rel}=1.3 \times 10^{-4}$		
				(200~1000) V (40Hz~100Hz)	$U_{rel}=1.4 \times 10^{-4}$		
				(10~200) mV (100Hz~2kHz)	$U_{rel}=4 \times 10^{-4}$		
				200mV~2V (100Hz~2kHz)	$U_{rel}=1.2 \times 10^{-4}$		
				(2~20) V (100Hz~2kHz)	$U_{rel}=1.1 \times 10^{-4}$		
				(20~200) V (100Hz~2kHz)	$U_{rel}=1.1 \times 10^{-4}$		
				(200~1000) V (100Hz~2kHz)	$U_{rel}=1.4 \times 10^{-4}$		
				(10~200) mV (2kHz~10kHz)	$U_{rel}=6 \times 10^{-4}$		
				200mV~2V (2kHz~10kHz)	$U_{rel}=1.3 \times 10^{-4}$		
				(2~20) V (2kHz~10kHz)	$U_{rel}=1.3 \times 10^{-4}$		
				(20~200) V (2kHz~10kHz)	$U_{rel}=1.3 \times 10^{-4}$		
				(200~1000) V (2kHz~10kHz)	$U_{rel}=1.4 \times 10^{-4}$		
				(10~200) mV (10kHz~30kHz)	$U_{rel}=1.2 \times 10^{-3}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				200mV~2V (10kHz~30kHz)	$U_{rel}=4 \times 10^{-4}$		
				(2~20) V (10kHz~30kHz)	$U_{rel}=2.9 \times 10^{-4}$		
				(20~200) V (10kHz~30kHz)	$U_{rel}=2.9 \times 10^{-4}$		
				(200~1000) V (10kHz~30kHz)	$U_{rel}=2.9 \times 10^{-4}$		
				(10~200) mV (30kHz~100kHz)	$U_{rel}=2.8 \times 10^{-3}$		
				200mV~2V (30kHz~100kHz)	$U_{rel}=1.0 \times 10^{-3}$		
				(2~20) V (30kHz~100kHz)	$U_{rel}=1.0 \times 10^{-3}$		
				(20~200) V (30kHz~100kHz)	$U_{rel}=1.0 \times 10^{-3}$		
				(200~1000) V (30kHz~100kHz)	$U_{rel}=1.0 \times 10^{-3}$		
				200mV~2V (100kHz~300kHz)	$U_{rel}=1.4\%$		
				(2~20) V (100kHz~300kHz)	$U_{rel}=0.8\%$		
				(20~200) V (100kHz~300kHz)	$U_{rel}=0.8\%$		
				200mV~2V (300kHz~1MHz)	$U_{rel}=12\%$		
				(2~20) V (300kHz~1MHz)	$U_{rel}=4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC Current	Verification Regulation of Off-board Chargers for Electric Vehicles(for Trial Implementation) JJG 1149	(20~200) V (300kHz~1MHz)	$U_{rel}=6\%$		
				(10~20) mA (10Hz~ 10kHz)	$U_{rel}=5 \times 10^{-4}$		
				(20~200) mA (10Hz~10kHz)	$U_{rel}=7 \times 10^{-4}$		
				200mA~2A (10Hz~ 2kHz)	$U_{rel}=1.1 \times 10^{-3}$		
				(2~20) A (10Hz~ 2kHz)	$U_{rel}=1.3 \times 10^{-3}$		
				200mA~2A (2kHz~ 10kHz)	$U_{rel}=1.2 \times 10^{-3}$		
				(2~20) A (2kHz~ 10kHz)	$U_{rel}=3 \times 10^{-3}$		
53	*Off-board Charger for Electric Vehicles	Energy	Verification Regulation of Off-board Chargers for Electric Vehicles(for Trial Implementation) JJG 1149	(15~1000)V,(2.5~ 250)A,(1.5~187.5)kW	$U_{rel}=0.20\%$	合格评定国家认可 证书专用章	
54	*AC Charging Spot for Electric Vehicles	Energy	AC Charge Spots for Electric Vehicles(for Trial Implementation) JJG1148	120V~480V,20mA~ 60A,4.8W~28.8kW	$U_{rel}=0.20\%$		
55	AC Peak Voltmeter	Voltage	V.R.of AC Peak Voltmeters JJG1168	1V~1414V,(10Hz~ 5kHz)	$U_{rel}=0.15\%$		
56	*Eddy Current Conductivity Meter	Conductivity	C.S. for Eddy Current Conductivity Meters JJF1692	0.58MS/m~58MS/m	$U=0.10MS/m \sim 0.36MS/m$		
57	Direct-current Electrical Energy	Electrical Energy	V.R.of Electronic Meters for Measuring Direct-current Electrical Energy JJG842	10mV~1000V, 10mA~ 500A	$U_{rel}=0.06\%$		
		Day Timing Error		~(10~10)s/d	$U=0.06s/d$		



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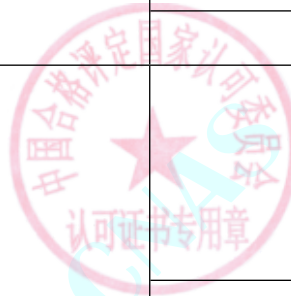
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
58	Multiparameter Physiological Simulators	ECG Amplitude	C.S.for Multiparameter Physiological Simulators JJF1470	(0.5~5.5)mV	$U_{rel}=1\%$		
		ECG Frequency		(30~300)min ⁻¹	$U_{rel}=0.2\%$		
		Base respiratory impedance		(500~2000) Ω	$U_{rel}=1\%$		
59	*Uninterruptible Power Supply	Voltage	Calibration Specification for Uninterruptible Power Supply JJF (DZ) 0027	110V~300V (50Hz)	$U=0.16V$		
		Frequency		50Hz、60Hz	$U=0.010Hz$		
		rated power		(110V~250V),(1A~ 20A) (50Hz)	$U_{rel}=0.2\%$		
		efficiency		10%~100%	$U_{rel}=0.2\%$		
		time		1ms~2s	$U_{rel}=1.6\%$		
		degree of distortion		0.01%~20%,(50Hz, 60Hz)	$U_{rel}=12\%$		
60	*Instantaneous Discontinuity Testing Instruments	Instantaneous Discontinuity Resisistance	Calibration Specifcation of Instantaneous Discontinuity Testing Instruments JJF (DZ) 0042	1 Ω ~99.99 Ω	$U_{rel}=3\%$		
		Instantaneous Time		0.1 μs ~99.99 μs	$U=0.05 \mu s$		
61	*Hall Current(Voltage)T ransducer	Alternating current	Verification Regulation of Hall Current(Voltage)Transducer JJG (Chuan) 136	100mA~2000A,(45Hz~ 400Hz)	$U_{rel}=0.08\%$		
		DC current		100mA~5000A	$U_{rel}=0.01\%$		
		AC voltage		1V~600V,(45Hz~ 1000Hz)	$U_{rel}=0.05\%$		
		DC voltage		1V~600V	$U_{rel}=0.03\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
62	*High Current Generator	Alternating current	Calibration Specification of High Current Generator JJF（JX）1037	5A～5000A,(50Hz)	<i>U</i> _{rel} =0.5%		
63	*Electrochemical Workstations	Potential	Calibration specification for electrochemical workstations JJF1910	(0.1～10) V	<i>U</i> _{rel} =0.005%		
		Current		10 ⁻⁷ A～10 ⁻⁶ A	<i>U</i> =0.4nA		
		10 ⁻⁶ A～10 ⁻⁵ A		<i>U</i> =4nA			
64	Current Transformers in Power System	ratio error	Verification Regulation of Instrument Transformers—Part 3:Current Transformers in Power System JJG 1189.3	(0.1～5000)A/5A,(5～5000)A/1A,5% <i>I</i> _n	<i>U</i> =0.06%		
				(0.1～5000)A/5A,(5～5000)A/1A,20% <i>I</i> _n	<i>U</i> =0.03%		
				(0.1～5000)A/5A,(5～5000)A/1A,100% <i>I</i> _n	<i>U</i> =0.12%		
				(0.1～5000)A/5A,(5～5000)A/1A,120% <i>I</i> _n	<i>U</i> =0.12%		
		phase displacement		0.01′～900′,5% <i>I</i> _n	<i>U</i> =1.9′		
				0.01′～900′,20% <i>I</i> _n	<i>U</i> =1.0′		
				0.01′～900′,100% <i>I</i> _n	<i>U</i> =0.8′		
				0.01′～900′,120% <i>I</i> _n	<i>U</i> =0.8′		
65	Voltage Transformers in Power System	ratio error	Verification Regulation of Instrument transformers - Part 4: Voltage transformers in power system JJG 1189.4	(100～600)V/(0.001～111.11)V , (6～35)kV/100V/（100/3）V/（100/3 ^{1/2} ）V/220V,80% <i>U</i> _n ～120% <i>U</i> _n	<i>U</i> =0.3%		
		phase displacement		(0.01～900)′,80% <i>U</i> _n ～120% <i>U</i> _n	<i>U</i> =1.0′		



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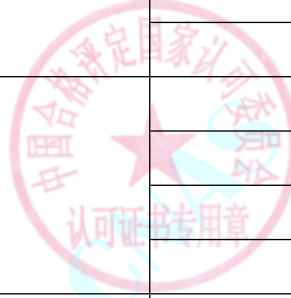
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
66	*Calibration Specification	DC resistance	Calibration specification for equipotential testers JJF(Ji) 3022	100 μ Ω ~3k Ω	<i>U</i> _{rel} =0.2%		
67	*Power Sources of DC Electric Welding Machines	no-load voltage	Calibration specification for welding power sources of DC electric welding machines JJF1985	(10~150)V;	<i>U</i> _{rel} =0.6%		
		welding current		(10~2000)A	<i>U</i> _{rel} =1.5%		
68	*Medical Leakage Current Testers	Leakage current	Verification regulation of medical leakage current testers JJG1188	10 μ A~20mA, (50Hz,60Hz)	<i>U</i> _{rel} =0.5%		
		DC input resistance		100 Ω ~3000 Ω	<i>U</i> _{rel} =0.4%		
		Impedance		(100~2200) Ω ,10Hz~1kHz	<i>U</i> _{rel} =0.4%		
				(100~2200) Ω ,1kHz~1MHz	<i>U</i> _{rel} =0.8%		
		Transmission impedance frequency response characteristics		100Hz~1kHz	<i>U</i> _{rel} =0.07dB		
				1kHz~1MHz	<i>U</i> _{rel} =0.16dB		
		Testing Voltage		50V~380V,(50Hz,60Hz)	<i>U</i> _{rel} =0.3%		
		69		*Calibrator of AC Charging Piles for Electric Vehicles	AC Power		
70	*Voltage Tester for Insulating Oils	AC Voltage	Calibration Specification for Voltage Tester for Insulating Oils JJF(JX) 1062	(5~80)kV, (50Hz)	<i>U</i> _{rel} =0.4%		
		Boost speed		(0.5~3)kV/s	<i>U</i> _{rel} =1.3%		
				(3~5)kV/s	<i>U</i> _{rel} =1.8%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				(5~10)kV/s	<i>U</i> _{rel} =3%		
		Duration		(30~600)s	<i>U</i> =0.4s		
		Length		(1~20)mm	<i>U</i> =0.05mm		
71	*Harmonics Analyzing Instruments at Power Frequency	AC Power	Calibration Specification for Harmonics Analyzing Instruments at Power Frequency JJF 1667	1W~80kW, (45Hz~ 65Hz)	<i>U</i> _{rel} =0.06%		
		Harmonic Power		10W~1.6kW, (50Hz~ 3kHz)	<i>U</i> _{rel} =0.12%		
		AC Voltage		10V~1000V, (45Hz~ 65Hz)	<i>U</i> _{rel} =0.02%		
		Harmonic Voltage		1V~40V,(50Hz~ 850Hz)	<i>U</i> _{rel} =0.03%		
				1V~40V, (850Hz~ 3kHz)	<i>U</i> _{rel} =0.06%		
		AC Current		10mA~80A, (45Hz~ 65Hz)	<i>U</i> _{rel} =0.03%		
		Harmonic Current		10mA~4A, (50Hz~ 850Hz)	<i>U</i> _{rel} =0.04%		
				10mA~4A, (850Hz~ 3kHz)	<i>U</i> _{rel} =0.09%		
		Frequency		45Hz~850Hz	<i>U</i> _{rel} =0.015%		
72	*DC Stabilized Power Supplies	DC Voltage	Calibration Specification for DC Stabilized Power Supplies JJF 1597	0.01V~1000V	<i>U</i> _{rel} =0.01%		
		DC Current		1 μ A~100 μ A	<i>U</i> _{rel} =0.08%		
				100 μ A~10mA	<i>U</i> _{rel} =0.06%		
					10mA~1kA		<i>U</i> _{rel} =0.02%
73	*Eddy Current	Frequency	Verification Regulation of	10Hz~10MHz	<i>U</i> _{rel} =0.2%		



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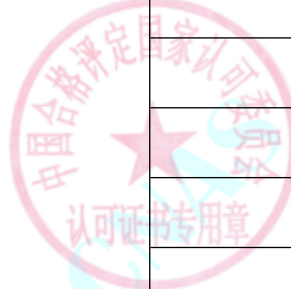
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Flaw Detector	AC Voltage	Eddy Current Flaw Detector JJG(MH) 0061	1mV~10V, (20Hz~800kHz)	<i>U</i> _{rel} =4%		
74	*Battery Charge & Discharge Testers	DC Voltage	Calibration Specification for Battery Charge & Discharge Testers JJF 2039	1V~1000V	<i>U</i> _{rel} =0.03%		
		DC Current		1mA~100mA	<i>U</i> _{rel} =0.3%		
				100mA~10A	<i>U</i> _{rel} =0.07%		
				10A~3kA	<i>U</i> _{rel} =0.03%		
		DC Resistance		0.1 Ω ~ 10 Ω	<i>U</i> =0.03 Ω		
				10 Ω ~ 100k Ω	<i>U</i> _{rel} =0.6%		
		Time		60s~100s	<i>U</i> =0.3s		
				100s~1000s	<i>U</i> _{rel} =0.6%		
				1000s~10000s	<i>U</i> _{rel} =0.1%		
		Rise Time		10 μ s~100 μ s	<i>U</i> =2.4 μ s		
				100 μ s~1ms	<i>U</i> _{rel} =4.5%		
				1ms~100ms	<i>U</i> _{rel} =3.9%		
		Discharge Capacity		1mAh~1000Ah	<i>U</i> _{rel} =0.3%		
		Temperature		(1~100)°C	<i>U</i> =0.6°C		
		DC Power		1mW~100mW	<i>U</i> =0.11mW		
				100mW~10W	<i>U</i> _{rel} =0.3%		
				10W~30kW	<i>U</i> _{rel} =0.2%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
75	*Power Quality Analyzer	AC Voltage	Verification Code for Power Quality Analyzer DL/T 1028	0.1V~1000V, (45Hz~65Hz)	<i>U</i> _{rel} =0.02%		
		Harmonic Voltage		0.1V~40V, (50Hz~850Hz)	<i>U</i> _{rel} =0.03%		
				0.1V~40V, (850Hz~3kHz)	<i>U</i> _{rel} =0.06%		
		Harmonic Current		10mA~4A, (50Hz~850Hz)	<i>U</i> _{rel} =0.04%		
				10mA~4A, (850Hz~3kHz)	<i>U</i> _{rel} =0.09%		
		Frequency		45Hz~65Hz	<i>U</i> =0.08Hz		
		flicker		1、5, (57.7V~230V, 50Hz)	<i>U</i> =0.02		
		Three-phase Voltage Unbalance		1%~50%, (100V, 50Hz)	<i>U</i> _{rel} =0.08%		
		Three-phase Current Unbalance		1%~ 50%, (1A、2A, 50Hz)	<i>U</i> _{rel} =0.08%		
76	*Digital AC Electrical Parameters Meter	AC Voltage	Calibration Specification for Digital AC Electrical Parameters Meter JJF 1491	1V~30V, (45Hz~1kHz)	<i>U</i> _{rel} =0.02%		
				30V~300V, (45Hz~1kHz)	<i>U</i> _{rel} =0.03%		
				300V~1000V, (45Hz~1kHz)	<i>U</i> _{rel} =0.04%		
		AC Current		1mA~10mA, (45Hz~1kHz)	<i>U</i> _{rel} =0.59%		
				10mA~300mA, (45Hz~1kHz)	<i>U</i> _{rel} =0.07%		



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				300mA~3A, (45Hz~1kHz)	$U_{rel}=0.08\%$		
				3A~11A, (45Hz~100Hz)	$U_{rel}=0.10\%$		
				3A~11A, (100Hz~1kHz)	$U_{rel}=0.17\%$		
				11A~20A, (45Hz~100Hz)	$U_{rel}=0.17\%$		
				11A~20A, (100Hz~1kHz)	$U_{rel}=0.18\%$		
				20A~40A, (45Hz~65Hz)	$U_{rel}=0.04\%$		
				1mW~10W, (45Hz~1kHz)	$U_{rel}=0.7\%$		
				10W~3kW, (45Hz~65Hz)	$U_{rel}=0.1\%$		
				10W~300W, (65Hz~1kHz)	$U_{rel}=0.3\%$		
				300W~3kW, (65Hz~1kHz)	$U_{rel}=0.8\%$		
		AC Power		3kW~11kW, (45Hz~65Hz)	$U_{rel}=0.14\%$		
				11kW~20kW, (45Hz~65Hz)	$U_{rel}=0.22\%$		
				3kW~20kW, (65Hz~1kHz)	$U_{rel}=0.3\%$		
				20kW~40kW, (45Hz~65Hz)	$U_{rel}=0.3\%$		
				40Hz~1kHz	$U_{rel}=0.01\%$		
		Frequency					



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Power Factor		-1~1, (45Hz~65Hz)	<i>U</i> =0.002		
77	Contactless Electrostatic Voltage Measuring Instruments	Electrostatic Voltage	Calibration Specification for Contactless Electrostatic Voltage Measuring Instruments JJF 1517	±(0.1~20)kV	<i>U</i> _{rel} =1.5%		
VI Radio measuring instrument							
1	*Alternating Current Bridge	Capacitance	V.R. of Alternating Current Bridge JJG 441	1pF (1kHz)	<i>U</i> _{rel} =1.2%		
				10pF~1000pF,(1kHz)	<i>U</i> _{rel} =0.12%		
				10nF~1 μ F,(1kHz)	<i>U</i> _{rel} =0.06%		
				10 μ F~100 μ F,(100Hz)	<i>U</i> _{rel} =0.12%		
		Inductance		100 μ H,(1kHz)	<i>U</i> _{rel} =0.06%		
				1mH~1H,(1kHz)	<i>U</i> _{rel} =0.03%		
		Resistance		1 Ω ~10 Ω ,(1kHz)	<i>U</i> _{rel} =0.12%		
				10 Ω ~100k Ω ,(1kHz)	<i>U</i> _{rel} =0.06%		
2	*Low-frequency Volt-meters	voltage	Calibration Specification for Low-frequency Volt-meters JJF 1925	10mV~300V,(20Hz~50kHz)	<i>U</i> _{rel} =0.8%		
				0.9V~1.1V,(50kHz~100kHz)	<i>U</i> _{rel} =1.4%		
				0.9V~1.1V,(100kHz~1MHz)	<i>U</i> _{rel} =1.5%		
3	*Electronic Voltmeter	voltage	V.R.of Electronic Voltmeter JJG 250	10mV~10V,(100Hz~1MHz)	<i>U</i> _{rel} =0.9%		
				1V,(1MHz~500MHz)	<i>U</i> _{rel} =2.6%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
4	*Low-frequency Signal Generators	Frequency	V.R. of Low-frequency Signal Generators JJG 602	1Hz~1MHz	<i>U</i> _{rel} =6×10 ⁻⁵		
		Voltage		10mV~300V,(1kHz)	<i>U</i> _{rel} =1%		
		Frequency Response		-3dB~3dB,(10Hz~ 1MHz)	<i>U</i> =0.24dB		
		Distortion		0.03%~10%,(20Hz~ 20kHz)	<i>U</i> _{rel} =3%		
5	*Semiconductor Device Curve Tracers	Current	Calibration Specification for Semiconductor Device Curve Tracers JJF 1236	100μA~0.5A	<i>U</i> _{rel} =1.4%		
				0.5A~10A	<i>U</i> _{rel} =1.7%		
		Voltage		0.01V~20V	<i>U</i> _{rel} =1.3%		
				20V~500V	<i>U</i> _{rel} =1.7%		
		Resistance		1 Ω ~100k Ω	<i>U</i> _{rel} =0.5%		
6	*Distortion Meter	voltage	Calibration Specification for Distortion Meters JJF 1852	10mV~300V,(20Hz~ 50kHz)	<i>U</i> _{rel} =0.8%		
				0.9V,(50kHz~100kHz)	<i>U</i> _{rel} =1.0%		
				0.9V,(100kHz~1MHz)	<i>U</i> _{rel} =1.2%		
		Distortion		0.01%~0.03%,(10Hz~ 10kHz)	<i>U</i> =0.006%		
				0.03%~1%,(10Hz~ 10kHz)	<i>U</i> _{rel} =10%		
				1%~100%,(10Hz~ 10kHz)	<i>U</i> _{rel} =2%		
				0.1%~0.3%,(10kHz~ 100kHz)	<i>U</i> _{rel} =12%		
				0.3%~1%,(10kHz~ 100kHz)	<i>U</i> _{rel} =5%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				1%~100%,(10kHz~100kHz)	<i>U</i> _{rel} =1.0%		
				0.1%~0.3%,(100kHz~200kHz)	<i>U</i> _{rel} =12%		
				0.3%~1%,(100kHz~200kHz)	<i>U</i> _{rel} =5%		
				1%~100%,(100kHz~200kHz)	<i>U</i> _{rel} =3%		
7	*Oscilloscope Calibrator	square wave voltage	V.R.of Oscilloscope Calibrator JJG 278	10mV~200V,(1kHz)	<i>U</i> _{rel} =0.2%		
		DC voltage		10mV~200V	<i>U</i> _{rel} =0.007%		
		time		10ns~5s	<i>U</i> _{rel} =0.005%		
		rising time		450ps~2ns	<i>U</i> =0.05ns		
		Sine wave Amplitude		-50dBm~20dBm, (10kHz~6GHz)	<i>U</i> =0.35dB		
		Amplitude faltness		-3dB~3dB, (10kHz~2GHz)	<i>U</i> =0.35dB		
		Frequency		10kHz~6GHz	<i>U</i> _{rel} =1×10 ⁻⁶		
		Waveform Generator Amplitude		10mV~50V, (1kHz)	<i>U</i> _{rel} =0.2%		
		Period		20ns~1s	<i>U</i> =2ns		
				1s~10s	<i>U</i> _{rel} =2×10 ⁻⁷		
8	*Anolog Oscilloscope	Voltage	V.R.of Analogue Oscilloscope JJG 262	1mV~200V	<i>U</i> _{rel} =1%		
		Time		500ps~10s	<i>U</i> _{rel} =1%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Rise time		700ps~40ns	<i>U</i> _{rel} =6.5%		
		Bandwidth		1MHz~500MHz	<i>U</i> _{rel} =5%		
		Resisance		50 Ω , 1M Ω	<i>U</i> _{rel} =0.5%		
		Calibration Signal Amplitude		(0.3~5)V, (0.5kHz~5kHz)	<i>U</i> _{rel} =0.5%		
		Calibration Signal Frequency		0.5kHz~5kHz	<i>U</i> _{rel} =0.001%		
9	*Spectrum Analyzer	Frequency	Calibration Specification for Spectrum Analyzer JJF1396	100Hz~40GHz	<i>U</i> _{rel} =1.2×10 ⁻⁷		
		Calibration Signal Level		-20dBm~-10dBm, (10MHz~1GHz)	<i>U</i> =0.20dB		
		Reference Level		-20dBm~10dBm, (10MHz~1GHz)	<i>U</i> =0.3dB		
				-60dBm~-20dBm, (10MHz~1GHz)	<i>U</i> =0.5dB		
				-90dBm~-60dBm, (10MHz~1GHz)	<i>U</i> =0.6dB		
		Span		100Hz~40GHz	<i>U</i> _{rel} =0.5%		
		Resolution Bandwidth		10Hz~10MHz	<i>U</i> _{rel} =0.5%		
		Resolution Bandwidth Conversion Effect		(-10~10)dB, (Frequency: 10MHz~1GHz, RBW: 10Hz~10MHz)	<i>U</i> =0.2dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Attenuation Conversion Effect		(-10~10)dB, (Frequency: 10MHz~1GHz, Attenuation: 0dB~80dB)	<i>U</i> =0.3dB		
		Vertical Scale		(0~10)dB, (1dB/div, 10MHz~1GHz)	<i>U</i> =0.05dB		
				(10~80)dB, (10dB/div, 10MHz~1GHz)	<i>U</i> =0.2dB		
				Input Frequency Response	(-10~10)dB, (100kHz~26.5GHz)		<i>U</i> =0.3dB
		Absolute Magnitude		(-30~10)dBm, (10MHz~1GHz)	<i>U</i> =0.3dB		
10	*Signal Generator	Frequency	Calibration Specification for Signal Generators JJF 1931	100kHz~26.5GHz	<i>U</i> _{rel} =1×10 ⁻⁷		
		Power		20dBm~30dBm,(30MHz~2GHz)	<i>U</i> =0.22dB		
				-110dBm~20dBm,(30MHz~2GHz)	<i>U</i> =0.13dB		
				-127dBm~-110dBm,(30MHz~2GHz)	<i>U</i> =0.6dB		
				20dBm~30dBm,(2GHz~18GHz)	<i>U</i> =0.26dB		
				-110dBm~20dBm,(2GHz~18GHz)	<i>U</i> =0.18dB		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				-127dBm~- 110dBm,(2GHz~ 18GHz)	$U=0.7\text{dB}$		
				20dBm~ 30dBm,(18GHz~ 26.5GHz)	$U=0.29\text{dB}$		
				-110dBm~- 20dBm,(18GHz~ 26.5GHz)	$U=0.23\text{dB}$		
				-127dBm~- 110dBm,(18GHz~ 26.5GHz)	$U=0.7\text{dB}$		
		Harmonic		-100dBc~- 25dBc,(10MHz~3GHz)	$U=0.8\text{dB}$		
				-100dBc~- 25dBc,(3GHz~6.6GHz)	$U=1.1\text{dB}$		
				-100dBc~- 25dBc,(6.6GHz~ 13.2GHz)	$U=1.3\text{dB}$		
		AM		5%~99%,(Carrier frequency:100kHz~ 10MHz,Modulation frequenc:1kHz)	$U_{\text{rel}}=0.9\%$		
				5%~20%,(Carrier frequency:10MHz~ 3GHz,Modulation frequency:1kHz)	$U_{\text{rel}}=2.9\%$		



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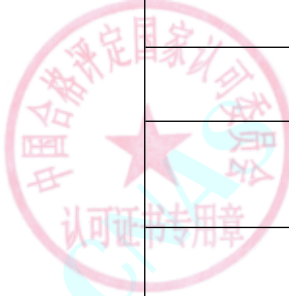
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				20%~99%,(Carrier frequency:10MHz~3GHz,Modulation frequenc:1kHz)	$U_{rel}=0.6\%$		
				5%~20%,(Carrier frequency:3GHz~26.5GHz,Modulation frequenc:1kHz)	$U_{rel}=6\%$		
				20%~99%,(Carrier frequency:3GHz~26.5GHz,Modulation frequency:1kHz)	$U_{rel}=1.8\%$		
		FM		250Hz~400kHz,(Carrier frequency:100kHz~26.5GHz,Modulation frequency:1kHz)	$U_{rel}=1.2\%$		
		PM		4rad~400rad,(Carrier frequency:100kHz~26.5GHz,Modulation frequenc:1kHz)	$U_{rel}=1.2\%$		
		Frequency of modulation signal generator		20Hz~1kHz	$U=0.03\text{Hz}$		
		Amplitude of modulation signal generator		1kHz~100kHz	$U=0.04\text{Hz}$		
				100mV~3V, (1kHz)	$U_{rel}=1.2\%$		
11	*Vector Network Analyzers	Scattering Parameter Modulus	Calibration Specification for Vector Network Analyzers JJF1495	20dB,(0.3GHz~18GHz)	$U=0.3\text{dB}$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				50dB,(0.3GHz~18GHz)	<i>U</i> =0.4dB		
		Scattering Parameter Phase		-180° ~ 180° , (0.3~8)GHz	<i>U</i> =0.7°		
				-180° ~ 180° ,(8~18)GHz	<i>U</i> =1.0°		
		Frequency		9kHz~18GHz	<i>U</i> _{rel} =2×10 ⁻⁷		
		Power		(-40~20)dBm, (9kHz~18GHz)	<i>U</i> =0.3dB		
		Modulus Dynamic Accuracy		(0~1)dB, (300kHz~18GHz)	<i>U</i> =0.05dB		
		Crosstalk		(-150~-70)dB, (300kHz~18GHz)	<i>U</i> =2dB		
		Background Noise		(-140~-70)dBm, (300kHz~18GHz)	<i>U</i> =3dB		
12	*Synthesized Signal Generators	Frequency	V.R.of Synthesized Signal Generators JJG502	5kHz~1MHz	<i>U</i> _{rel} =1×10 ⁻⁸		
				1MHz~26.5GHz	<i>U</i> _{rel} =1×10 ⁻⁹		
		power		30dBm~20dBm,(30MHz~2GHz)	<i>U</i> =0.21dB		
				30dBm~20dBm,(2GHz~18GHz)	<i>U</i> =0.25dB		
				30dBm~20dBm,(18GHz~26.5GHz)	<i>U</i> =0.29dB		
				20dBm~0dBm,(30MHz~2GHz)	<i>U</i> =0.12dB		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				20dBm~0dBm,(2GHz~18GHz)	$U=0.18\text{dB}$		
				20dBm~0dBm,(18GHz~26.5GHz)	$U=0.23\text{dB}$		
				0dBm~-30dBm,(30MHz~2GHz)	$U=0.14\text{dB}$		
				0dBm~-30dBm,(2GHz~18GHz)	$U=0.19\text{dB}$		
				0dBm~-30dBm,(18GHz~26.5Hz)	$U=0.24\text{dB}$		
				0dB~110dB,(30MHz~2GHz)	$U=0.20\text{dB}$		
				0dB~110dB,(2GHz~18GHz)	$U=0.24\text{dB}$		
				0dB~110dB,(18GHz~26.5GHz)	$U=0.29\text{dB}$		
				110dB~120dB,(30MHz~2GHz)	$U=0.4\text{dB}$		
				110dB~120dB,(2GHz~18GHz)	$U=0.4\text{dB}$		
				110dB~120dB,(18GHz~26.5GHz)	$U=0.5\text{dB}$		
				-100dBc~-25dBc,(10MHz~3GHz)	$U=0.8\text{dB}$		
				-100dBc~-25dBc,(3GHz~6.6GHz)	$U=1.1\text{dB}$		
		Attenuation (relative level)					
		Harmonic					



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AM		-100dBc ~ -25dBc, (6.6GHz ~ 13.2GHz)	$U=1.3\text{dB}$		
				5% ~ 20%, (Carrier frequency: 10MHz ~ 3GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=2.9\%$		
				20% ~ 99%, (Carrier frequency: 10MHz ~ 3GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=0.6\%$		
				5% ~ 20%, (Carrier frequency: 3GHz ~ 26.5GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=5\%$		
				20% ~ 99%, (Carrier frequency: 3GHz ~ 26.5GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=1.8\%$		
		PM		4rad ~ 400rad, (Carrier frequency: 30MHz ~ 26.5GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=1.2\%$		
		FM		200Hz ~ 400kHz, (Carrier frequency: 30MHz ~ 26.5GHz, Modulation frequency: 1kHz)	$U_{\text{rel}}=1.2\%$		
13	*Function Generators	Frequency	V.R. of Function Generators JIG840	0.1Hz ~ 250MHz	$U_{\text{rel}}=3 \times 10^{-9}$		



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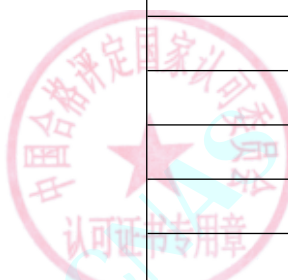
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Amplitude	ilac-M	5mV~55V,(1kHz)	$U_{rel}=0.1\%$		
		Amplitude Faltness		-3dB~3dB,(10Hz~250MHz)	$U=0.24\text{dB}$		
		Distortion degree		0.02%~1%,(20Hz~20kHz)	$U_{rel}=16\%$		
		Rise Time		1ns~10 μs	$U_{rel}=6\%$		
		DC Voltage		0.1V~20V	$U_{rel}=0.1\%$		
		Duty Cycle		5%~95%, (1kHz~1MHz)	$U_{rel}=0.6\%$		
14	*Audio Analyzer	Frequency Measurement	Calibration Specification for Audio Analyzer JJF1395	10Hz~200kHz	$U_{rel}=5\times 10^{-4}$		
		Voltage Measurement		100mV~300V,(1kHz)	$U_{rel}=0.8\%$		
		Distortion Measurement		0.1%~30%, (10Hz~200kHz)	$U_{rel}=10\%$		
		Frequency Output		10Hz~200kHz	$U_{rel}=6\times 10^{-5}$		
		Voltage Output		10mV~20V,(1kHz)	$U_{rel}=0.2\%$		
				1V, (10Hz~200kHz)	$U_{rel}=1\%$		
		Distortion Output		0.02%~0.1% ,(20Hz~20kHz)	$U_{rel}=16\%$		
15	*Digital RLC meters	Capacitance	Verification regulation for wide range digital RLC meter GJB 8817	1pF,(1kHz)	$U_{rel}=1.2\%$		
				10pF~1000pF,(1kHz)	$U_{rel}=0.12\%$		
				10nF~1 μF ,(1kHz)	$U_{rel}=0.06\%$		
				10 μF ~100 μF ,(100Hz)	$U_{rel}=0.12\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date					
		Inductance		100 μ H,(1kHz)	<i>U</i> _{rel} =0.06%							
				1mH~1H,(1kHz)	<i>U</i> _{rel} =0.03%							
		Resistance		1 Ω ~ 10 Ω ,(1kHz)	<i>U</i> _{rel} =0.12%							
				10 Ω ~ 100k Ω ,(1kHz)	<i>U</i> _{rel} =0.06%							
		Loss		0.0001,(1kHz)	<i>U</i> =0.00028							
				0.001,(1kHz)	<i>U</i> =0.00028							
				0.01,(1kHz)	<i>U</i> =0.00028							
				0.1,(1kHz)	<i>U</i> =0.00052							
				0.2,(1kHz)	<i>U</i> =0.0008							
				0.5,(1kHz)	<i>U</i> =0.0014							
				1,(1kHz)	<i>U</i> =0.003							
				16	*Standard Capacitors		Capacitor	V.R.of Standard Capacitors JJG183	10pF~100pF,(1kHz)	<i>U</i> _{rel} =0.60%		
									100pF~1000pF,(1kHz)	<i>U</i> _{rel} =0.07%		
									10nF~1 μ F,(1kHz)	<i>U</i> _{rel} =0.03%		
10pF~100pF,(100 Hz)	<i>U</i> _{rel} =0.60%											
100pF~1000pF,(100 Hz)	<i>U</i> _{rel} =0.13%											
10nF~1 μ F,(100 Hz)	<i>U</i> _{rel} =0.05%											
10pF~100pF,(10kHz)	<i>U</i> _{rel} =0.26%											
100pF~1000pF,(10kHz)	<i>U</i> _{rel} =0.13%											



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				10nF~1 μ F,(10kHz)	U _{rel} =0.06%		
17	*Standard Inductors	Inductor	V.R.of Standard Inductors JJG726	1000 μ H~1H,(1kHz)	U _{rel} =0.05%		
18	*Coaxial Attenuator	Attenuation	V.R.of Coaxial Attenuator JJG387	(0~100)dB,(50 Ω ,250kHz~18GHz)	U=0.62dB		
19	*Digital Storage Oscilloscope	Voltage	Calibration Specification for Digital Storage Oscilloscope JJF1057	1mV~200V	U _{rel} =1%		
		Time		500ps~10s	U _{rel} =0.6%		
		Rising Time		75ps~40ns	U _{rel} =6.5%		
		Bandwidth		1MHz~20GHz	U _{rel} =5%		
		Resisance		50 Ω , 75 Ω , 1M Ω	U _{rel} =0.5%		
		Calibration Signal Amplitude		(0.3~5)V, (1kHz~1MHz)	U _{rel} =0.5%		
		Calibration Signal Frequency		1kHz~1MHz	U _{rel} =0.001%		
20	*Small & Medium Scale Digital Integrated Circuit Testing System	DPS Voltage Parame-ters	Calibration Specification of Small & Medium Scale Digital Integrated Circuit Testing System JJF1160	-10mV~-40V	U _{rel} =0.06%		
				10mV~40V	U _{rel} =0.06%		
		DPS Current Parame-ters		-10 μ A~-500mA	U _{rel} =0.06%		
				10 μ A~500mA	U _{rel} =0.06%		
		PMU Set Voltage Measure Current Parame-ters		-10 μ A~-100mA,(-10mV~-20V)	U _{rel} =0.06%		
				10 μ A~100mA,(10mV~20V)	U _{rel} =0.06%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		PMU Set		-10mV~-20V,(-10 μ A~-100mA)	<i>U</i> _{rel} =0.06%		
		Current Measure		10mV~20V,(10 μ A~100mA)	<i>U</i> _{rel} =0.06%		
		Voltage Parameters		-10mV~-20V	<i>U</i> _{rel} =0.06%		
		Drive Unit		10mV~20V	<i>U</i> _{rel} =0.06%		
		Voltage Setting Parameters		-10mV~-20V	<i>U</i> _{rel} =0.07%		
		Comparing Unit Voltage Measuring Parameters		10mV~20V	<i>U</i> _{rel} =0.07%		
21	*Artificial Mains Networks	Impedance Modulus	Calibration Specification for Artificial Mains Networks JJF1705	5 Ω ~ 100 Ω ,(9kHz~108MHz)	<i>U</i> _{rel} =7%		
Impedance Phase	-180° ~ 180° , (9kHz~108MHz)	<i>U</i> =3.5°					
rated voltage coefficient	(-10~0)dB, (9kHz~108MHz)	<i>U</i> =0.4dB					
22	*Measuring Receivers	Frequency	Calibration Specification for Measuring Receivers JJF1173	10MHz	<i>U</i> _{rel} =3×10 ⁻⁹		
		Frequency		100kHz~40GHz	<i>U</i> _{rel} =3×10 ⁻⁹		
		Level		-120dB~-100dB,(100kHz~20GHz)	<i>U</i> =0.5dB		
				-100dB~-70dB,(100kHz~20GHz)	<i>U</i> =0.4dB		



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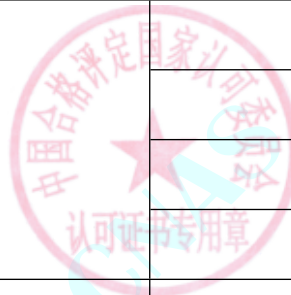
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				-70dB~-40dB,(100kHz~20GHz)	$U=0.5\text{dB}$		
				-40dB~0dB,(100kHz~20GHz)	$U=0.4\text{dB}$		
				-120dB~-100dB,(20GHz~26.5GHz)	$U=0.7\text{dB}$		
				-100dB~-70dB,(20GHz~26.5GHz)	$U=0.4\text{dB}$		
				-70dB~-40dB,(20GHz~26.5GHz)	$U=0.7\text{dB}$		
				-40dB~0dB,(20GHz~26.5GHz)	$U=0.4\text{dB}$		
				-110dB~-10dB,(26.5GHz~40GHz)	$U=0.5\text{dB}$		
				-10dB~0dB,(26.5GHz~40GHz)	$U=0.4\text{dB}$		
		AM		10%~90%,(Carrier frequency:100kHz~40GHz,Modulation frequency:400Hz、1kHz)	$U_{\text{rel}}=1.3\%$		
		FM		10kHz~400kHz,(Carrier frequency:100kHz~40GHz,Modulation frequency:400Hz、1kHz)	$U_{\text{rel}}=1.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		PM		4rad~400rad,(Carrier frequency:100kHz~40GHz,Moduiation frequenc:400Hz、1kHz)	<i>U</i> _{rel} =1.3%		
23	*EMI Testing Receivers	Level	Calibration Specification for EMI Testing Receivers JJF1144	(0~120)dB μ V ,(9kHz~1GHz)	<i>U</i> =0.7dB		
		Pulse amplitude		(0~60)dB μ V,(9kHz~1GHz)	<i>U</i> =1.2dB		
		Repetitive frequency response		(0~60)dB μ V ,(9kHz~1GHz)	<i>U</i> =1.1dB		
		Frequency		9kHz~100MHz	<i>U</i> _{rel} =2×10 ⁻⁵		
				100MHz~20GHz	<i>U</i> _{rel} =2×10 ⁻⁷		
		Attenuation		(0~90)dB, (9kHz~20GHz)	<i>U</i> =0.4dB		
		Indicate Linear		(0~60)dB, (9kHz~1GHz)	<i>U</i> =0.2dB		
		Resolution Bandwidth		200Hz~1MHz	<i>U</i> _{rel} =2%		
24	*Directional Coupler	Optical Return Loss	Calibration Specification for Directional Coupler and SWR Bridges JJF1680	(15~60)dB, (300kHz~8GHz)	<i>U</i> =0.8dB		
		Insertion loss		(0~3)dB,(300kHz~8GHz)	<i>U</i> =0.26dB		
		The coupling coefficient		(10~40)dB,(300kHz~8GHz)	<i>U</i> =0.33dB		
		directional		(20~50)dB,(300kHz~8GHz)	<i>U</i> =0.52dB		
25	*RF&Microwave Power Amplifier	power rating	C.S. for RF&Microwave Power Amplifiers JJF1678	(10~60)dBm, (10kHz~18GHz)	<i>U</i> =0.6dB		



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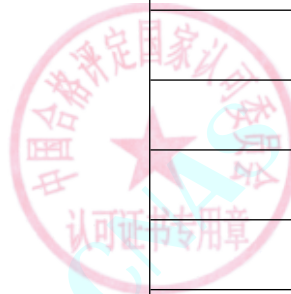
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Gain		(10~80)dB, (10kHz~18GHz)	<i>U</i> =0.7dB		
		power output at 1dB compression		(10~60)dBm, (10kHz~18GHz)	<i>U</i> =0.8dB		
		harmonic distortion		(-60~0)dBc, (10kHz~18GHz)	<i>U</i> =0.7dB		
26	*High Voltage Capacitance Bridge	Capacitance Ratio	V.R.of High Voltage Capacitance Bridges JJG563	0.1~1, (50Hz)	<i>U</i> =0.0002		
27	*High Voltage Dielectric Loss Tester	Voltage	V.R.of High Voltage Dielectric Loss Tester JJG1126	(1~10)kV, (50Hz)	<i>U</i> _{rel} =1.3%		
		Capacitance		100pF~500nF, (50Hz)	<i>U</i> _{rel} =0.2%		
		Dielectric Loss		0.00005~0.002, (50Hz)	<i>U</i> =0.00005		
				0.005~0.02, (50Hz)	<i>U</i> =0.0002		
				0.05, (50Hz)	<i>U</i> =0.0003		
				0.1, (50Hz)	<i>U</i> =0.0005		
28	*Pulse Generator	Pulse amplitude	V.R.of Pulse Generator JJG490	10mV~4V, (0.01Hz~500MHz,50 Ω)	<i>U</i> _{rel} =1.8%		
				4V~20V, (0.01Hz~500MHz,50 Ω)	<i>U</i> _{rel} =3.2%		
				10mV~50V, (0.01Hz~500MHz,1M Ω)	<i>U</i> _{rel} =1.8%		
				50V~200V,(0.01Hz~10MHz,1M Ω)	<i>U</i> _{rel} =3%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Rise Time/Fall Time		1ns～10ns	<i>U</i> _{rel} =6%		
		Frequency		0.1Hz～500MHz	<i>U</i> _{rel} =0.005%		
		Pulse Width		1ns～20ns	<i>U</i> _{rel} =0.6%		
				20ns～100ms	<i>U</i> =2ns		
				100ms～1s	<i>U</i> _{rel} =6×10 ⁻⁸		
		Delay Time		100ns～1ms	<i>U</i> =2ns		
				1ms～10s	<i>U</i> _{rel} =2×10 ⁻⁸		
		DC Voltage		0.1V～20V	<i>U</i> _{rel} =0.5%		
		Pulse Count		1～10000	<i>U</i> =1		
				10000～65280	<i>U</i> =2		
29	*Network Cable Analyzers	DC resistance	Calibration Specification for Network Cable Analyzers JJF1494	(1～1000) Ω	<i>U</i> _{rel} =1.2%		
		Propagation delay		(80～500)ns	<i>U</i> _{rel} =2%		
		insert loss		(0～40)dB,(1MHz～250MHz)	<i>U</i> =0.4dB		
		FEXT		(20～70) dB,(1MHz～250MHz)	<i>U</i> =0.6dB		
		FEXT		(10～60) dB,(1MHz～250MHz)	<i>U</i> =0.6dB		
		Return Loss		(8～26.5) dB,(1MHz～250MHz)	<i>U</i> =0.8dB		
		length		(20～100) m	<i>U</i> _{rel} =0.4%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
30	*RF&Microve Power Sensors	calibration factor	Calibration Specification for RF & Microwave Power Sensors JJF1887	50%~150%,(1MHz~ 8GHz)	<i>U</i> =2.2%		
		VSWR		1~2,(1MHz~8GHz)	<i>U</i> =0.01		
31	*RF and Microwave Power Meters	Reference source power	Calibration Specification for RF and Microwave Power Meters JJF1885	1mW,(50MHz)	<i>U</i> _{rel} =0.76%		
		calibration factor		50%~150%,(1MHz~ 8GHz)	<i>U</i> =2.2%		
		Linearity		-20dBm~ +10dBm,(50MHz)	<i>U</i> =0.06dB		
		VSWR		1~2,(1MHz~8GHz)	<i>U</i> =0.01		
32	*High Voltage Standard Capacitors	Capacitance	Verification Regulation of High Voltage Standard Capacitors JJG1075	1pF~10 μ F,(50Hz)	<i>U</i> _{rel} =0.05%		
		Loss factor		0~0.1,(50Hz)	<i>U</i> =0.00006~0.0006		
33	*Waveform Recorders	DC Voltage	Calibration Specification for Waveform Recorders JJF 1876	5mV~50V	<i>U</i> _{rel} =1.0%		
				50V~1000V	<i>U</i> _{rel} =0.7%		
		AC Voltage		5mV~50V, (1kHz)	<i>U</i> _{rel} =1.0%		
				50V~1000V, (1kHz)	<i>U</i> _{rel} =0.7%		
		Time Base		0.2 μ s~5s	<i>U</i> _{rel} =0.6%		
		Bandwidth		50kHz~2MHz	<i>U</i> _{rel} =4.0%		
		Input Resistance		10 Ω ~200M Ω	<i>U</i> _{rel} =0.5%		
		Interval		(1~1000)s	<i>U</i> _{rel} =0.6%		
		DC Gain		0.9~1.1, (5mV~50V)	<i>U</i> _{rel} =1.0%		
				0.9~1.1, (50V~1000V)	<i>U</i> _{rel} =0.7%		



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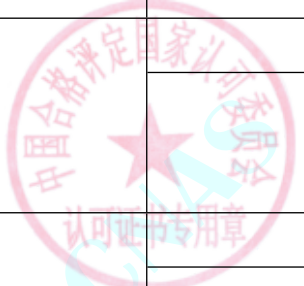
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
34	Volt-second Generators	DV Voltage	Calibration Specification for Volt-second Generators JJF 2178	2mV~5mV	<i>U</i> _{rel} =0.02%			
				5mV~10mV	<i>U</i> _{rel} =0.005%			
				10mV~2V	<i>U</i> _{rel} =0.001%			
		Pulse Width		10ms~10s	<i>U</i> _{rel} =0.0002%			
		Magnetic Flux		0.1mWb~0.5mWb	<i>U</i> _{rel} =0.05%			
				0.5mWb~1mWb	<i>U</i> _{rel} =0.01%			
				1mWb~10Wb	<i>U</i> _{rel} =0.002%			
35	*RF Voltmeters	AC Voltage	Verification Regulation of RF Votlmeters JJG 308	100mV~100V, (100kHz)	<i>U</i> _{rel} =1.2%			
		Frequency Response		0.8V~1V, (10kHz~ 2GHz)	<i>U</i> _{rel} =5.8%			
36	Standard Slices of Single Crystal Silicon Resistivity	Length	Calibration Specification for Standard Slices of Single Crystal Silicon Resistivity JJF 1760	Thickness: (100~1000) μ m	<i>U</i> =1.2 μ m			
				Diameter: (10~200)mm	<i>U</i> =0.05mm			
		Resistivity		(0.003~1000) Ω • cm	<i>U</i> _{rel} =2%			
		Sheet Resistance		0.05 Ω /□~25k Ω /□	<i>U</i> _{rel} =2%			
37	*Attenuators from Radio Frequency to Microwave Frequency	Attenuation	Calibration Specification for Attenuators from Radio Frequency to Microwave Frequency JJF 2092	0dB~100dB, (250kHz~26.5GHz)	<i>U</i> =0.2dB+0.05dB/10dB			
		VSWR		1~3, (250kHz~8GHz)	<i>U</i> =0.02			
VII Time and frequency measuring instrument								



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
1	Crystal Oscillators	Frequency	Specification for calibration of quartz crystal oscillators in electronic measuring instruments JJF 1984	1MHz、5MHz、10MHz	$U_{\text{rel}}=9 \times 10^{-8}$		
2	*Telephone Accounter	time interval	V.R.of Single and Dispersion Controlled Centre Telephone Accounter JJG107	(1~1800)s	$U=2\text{s}$		
3	Time Interval Generator	time interval	V.R.of Time Interval Generator JJG601	0.1ms~1s	$U=1 \mu\text{s}$		
				1s~3600s	$U=1\text{ms}$		
				3600s~10000s	$U_{\text{rel}}=1 \times 10^{-8}$		
		Frequency		1MHz、5MHz、10MHz	$U_{\text{rel}}=1 \times 10^{-8}$		
4	*Frequency Meters	frequency	V.R.of Frequency Meters JJG603	10Hz~10kHz	$U_{\text{rel}}=0.01\%$		
5	*Time Interval Meters	Time	V.R.of Time Interval Meters JJG238	20ns~1ms	$U=2\text{ns}$		
				1ms~10000s	$U_{\text{rel}}=3 \times 10^{-7}$		
6	*Electronic Parking Meters	time	Verification Regulation of Electronic Parking Meters JJG1010	(10~86400)s	$U=3\text{s}$		
7	*Residual Current Operated Protective Device Operated Characteristic Tester	Break Time	Calibration Specification for Residual Current Operated Protective Device Operated Characteristic Tester JJF1283	(20~5000)ms	$U=2.6\text{ms}$		
		Residued Current		(5~500)mA	$U_{\text{rel}}=1\%$		
8	*Pulse Counters	Number of pulses	Calibration Specification for Pulse Counters JJF1686	1~10000	$U=1$		
				10000~100000	$U=2$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				100000~1000000	<i>U</i> =4		
9	*Vibrating Wire Frequency Readout	Frequency	C.S. for Vibrating Wire Frequency Readouts JJF 1401	300Hz~6000Hz	<i>U</i> =0.1Hz		
10	*Time Interval Generator	Pulse Period	Calibration Specification for Time Interval Generators JJF 1902	20ns~1s	<i>U</i> =2ns		
				1s~1000s	<i>U</i> _{rel} =2×10 ⁻⁹		
				1000s~10000s	<i>U</i> _{rel} =2×10 ⁻⁷		
		Pulse Width		20ns~1s	<i>U</i> =2ns		
				1s~1000s	<i>U</i> _{rel} =2×10 ⁻⁹		
				1000s~10000s	<i>U</i> _{rel} =2×10 ⁻⁷		
		Time Interval		20ns~1ms	<i>U</i> =2ns		
				1ms~1000s	<i>U</i> _{rel} =2×10 ⁻⁸		
				1000s~10000s	<i>U</i> _{rel} =2×10 ⁻⁷		
				Rise Time	1ns~10ns		<i>U</i> _{rel} =6%
		Pulse Amplitude		0.1V~10V	<i>U</i> _{rel} =1.5%		
11	*Verification Instruments of Parking Timers	Current time	Calibration Specification for Verification Instruments of Parking Timers JJF1900	0h0min0s~23h59min59s	<i>U</i> =0.83s		
		Second pulse timing deviation		-1.00s~+1.00s	<i>U</i> =27ns		
		Frequency		10kHz、100kHz、 10MHz、20MHz	<i>U</i> _{rel} =5×10 ⁻⁹		
		Time		60s~90000s	<i>U</i> _{rel} =1×10 ⁻⁶		



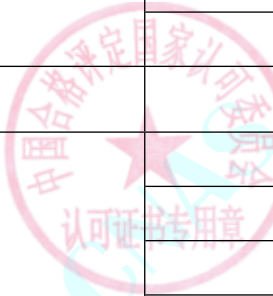
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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
12	*Microwave Frequency Counters	Frequency accuracy	Microwave frequency counters JJG841	1MHz、5MHz、10MHz	<i>U</i> _{rel} =3×10 ⁻⁹		
		second-order stability		1MHz、5MHz、10MHz	<i>U</i> _{rel} =3×10 ⁻⁹		
		Daily aging rate		1MHz、5MHz、10MHz	<i>U</i> _{rel} =3×10 ⁻⁹		
		input sensitivity		(-33~-20) dBm (1GHz~18GHz)	<i>U</i> =1dB		
		frequency		100kHz~18GHz	<i>U</i> _{rel} =6×10 ⁻⁹		
13	*Stopwatches	Time Interval	Calibration Specification for Stopwatches JJF 2195	Mechanical stopwatches: 2s~3600s	<i>U</i> =0.2s		
				Electronic stopwatches: 2s~3600s	<i>U</i> =0.03s		
				Electronic stopwatches Daily clock time difference rate: -9.99s~ 9.99s	<i>U</i> =0.05s		
				Pointer type electric stopwatch: 1s~600s	<i>U</i> =0.05s		
				Digital stopwatch: 1ms~50ms	<i>U</i> =0.3ms		
				Digital stopwatch: 50ms~9.9s	<i>U</i> _{rel} =0.5%		
14	*Universal Counters	Frequency	Calibration Specification for Universal Counters JJF 2196	0.1Hz~18GHz	<i>U</i> _{rel} =1×10 ⁻⁷		
		Period		20ns~100s	<i>U</i> _{rel} =2×10 ⁻⁷		
		Time interval		20ns~1ms	<i>U</i> =2ns		
				1ms~10000s	<i>U</i> _{rel} =7×10 ⁻⁷		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Oscillator Frequency		1MHz、5MHz、10MHz	$U_{\text{rel}}=7\times 10^{-11}$		
15	*Time Delay Relays	Time interval	Calibration Specification for Time Delay Relays JJF 1282	Electronic Time Delay Relays: (0.1~10)s	$U=0.01\text{s}$		
				Electronic Time Delay Relays: (10~100)s	$U=0.04\text{s}$		
				Electronic Time Delay Relays: (100~9999)s	$U_{\text{rel}}=0.4\%$		
				Mechanical Time Delay Relays: (20~3600)s	$U=5\text{s}$		
VIII Optical measuring instrument							
1	Abbe Refractometer	Abbe	V.R.of Abbe Refractometer JJG625	$n_D(1.4\sim 1.6)$	$U=4.4\times 10^{-5}$		
2	*Focimete	Focimeters	V. R. of Focimeters JJG580	$-25\text{m}^{-1}\sim +25\text{m}^{-1}$	$U=0.03\text{ m}^{-1}$		
3	Trial Case Lense	Focimeters	V. R. of Trial Case Lenses JJG579	$-20\text{m}^{-1}\sim +20\text{m}^{-1}$	$U=0.03\text{ m}^{-1}$		
4	*Eye Refractometer	Focimeters	V. R. of Eye Refractometers JJG892	$-20\text{m}^{-1}\sim +20\text{m}^{-1}$	$U=0.08\text{ m}^{-1}$		
		Radius of curvature (6.5~9.4) mm		$U=0.01\text{mm}$			
		Axies: (0~180) °		$U=2^\circ$			
5	Illuminometer	Illuminance	V.R.of IlluminometerJJG245-2005 JJG245	(20~3000)lx	$U_{\text{rel}}=1.4\%$		
6	standard light source box	illuminance	C.S.of standard light source box JJG(Spin)055	(50~3000)lx	$U_{\text{rel}}=5\%$		
		Temperature Colour		(2300~3000)K	$U=50\text{K}$		
				(3000~4500)K	$U=70\text{K}$		
				(2300~7000)K	$U=1.6\times 10^2\text{K}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
7	Whiteness Meter	Whiteness	V.R.for Whiteness Meter JIG512	(60~90)	$U=2.1$		
8	Luminance meter	brightness	V.R.of Luminance meter JIG211	(50~500)cd/m ²	$U_{rel}=3.4\%$		
9	Colorimeters and Colour Difference Meters	Chroma	V.R.of Colorimeters and Colour Difference Meters JIG595	Y:(0~100)	$U=2.1$		
				x:(color domain)	$U=0.0051$		
				y:color domain	$U=0.0051$		
10	Specular Gloss Meters	Gloss	V.R.of Specular Gloss Meters and Gloss Plates JIG696	(0~120)GU	$U=1.2GU$		
11	Gloss Plates	Gloss	V.R.of Specular Gloss Meters and Gloss Plates JIG696	(0~120)GU	$U=1.6GU$		
12	Ultraviolet Irradiance Meter	Irradiance	V.R.of Specular Ultraviolet IrradianceMeter JIG879	UV-A1:(10~2000) μ W/cm ² , UV-365:(10~2000) μ W/cm ² , UV-310:(10~200) μ W/cm ² , UV-254:(10~200) μ W/cm ²	$U_{rel}=24\%$		
13	Clarify Tester	Illuminance	C.S.for Clarify Tester JJF1287	(1000~4000)lx	$U_{rel}=12\%$		
14	Haze Meter	Haze	C.S.for Haze Meter JJF1303	0~30	$U=0.31$		
		Transmittance		0.5~1.0	$U=0.009$		
15	*Stabilized Laser Sources for Optical Transmit	Power	V.R.of Stabilized Laser Sources for Optical Transmit JIG958	(-60~0)dBm	$U_{rel}=2.6\%$		
		Wavelength		(800~1600)nm	$U=0.4nm$		
16	*Power	Power	V.R.of Optical Power Meter in Telecommuni-cation JIG965	(-60~0)dBm (850nm $\pm 20nm$, 1310nm $\pm 20nm$, 1550nm $\pm 20nm$)	$U_{rel}=2.6\%$		



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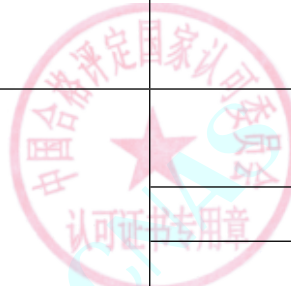
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
17	*Optical Attenuator for Telecommunications	Attenuator	C.S. of Optical Attenuator for Telecommunications JJF1199	(0~65)dB (1310nm±20nm, 1550nm±20nm)	$U=0.15\text{dB}$		
18	Color analyzers	Color coordinate	C.S. for cathode ray tube (CRT) color analyzers JJF1079	$x: (0\sim 1)y: (0\sim 1)$	$U=0.002$		
		brightness		$Y: (10\sim 300)\text{cd/m}^2$	$U_{\text{rel}}=2.5\%$		
19	*Optical Return Loss Meters for Telecommunication	Return loss value	C.S. for Optical Return Loss Meters for Telecommunication JJF1325	0.2dB (1310nm, 1550nm)	$U=0.3\text{dB}$		
				14.8dB (1310nm, 1550nm)	$U=0.3\text{dB}$		
				31.1dB (1310nm, 1550nm)	$U=1.2\text{dB}$		
				41.1dB (1310nm, 1550nm)	$U=1.8\text{dB}$		
20	Laser Power Meters	Laser Power	0.1mW~200W Laser Power Meters JJG249	0.1mW~500mW (530nm~1600nm)	$U_{\text{rel}}=4\%$		
21	Diffuse Transmission Visual Densitometer	Density	V. R. of Diffuse Transmission Visual Densitometer JJG920	0~2.0	$U=0.020$		
				>2.0~4.0	$U=0.024$		
22	Black and White Step Tablet	Density	V.R. of Black and White Step Tablet JJG452-2006 JJG452	0.05~2.0	$U=0.016$		
				>2.0~4.0	$U=0.017$		
23	Reference Filter for Calibration spectrophotometer	peak wavelength	Verification Regulation of Reference Filter for Calibration Spectrophotometer JJG 1034	(200~700)nm	$U=0.3\text{nm}$		
24	*Fiber Optical Power Meters	Optical Power	V.R. of Fiber Optical Power Meters JJG813	(-60~0)dBm, (1310nm, 1550nm)	$U=0.13\text{dB}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
25	*Reflectometer	Reflectivity	Calibration Specification for Reflectometers JJF 1232	(50~95)%	<i>U</i> =1.6%		
26	*Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp	Irradiance	Calibration Specification for Irradiance of Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp JJF 1525	(0.3~500)W/m ²	<i>U</i> _{rel} =12%		
27	*Spectral analyzer for communication	Optical power	Verification regulation of optical spectrum analyzers in communication JJG1035	(-60~0) dBm (1310nm、1550nm)	<i>U</i> =0.13dB		
		Wavelength		(700~1650) nm	<i>U</i> =0.4nm		
28	Ultraviolet Irradiance Meter	Irradiance	V.R.of Specular Ultraviolet IrradianceMeter JJG879	(320~390)nm:(10~2000) μ W/cm ² , 365nm:(10~2000) μ W/cm ² , (290~320)nm:(10~200) μ W/cm ² , 254nm:(10~200) μ W/cm ² , (320~400)nm:(10~20000) μ W/cm ² , (280~320)nm:(10~2000) μ W/cm ²	<i>U</i> _{rel} =24%		
29	*Electroluminescence Defect Detection Instruments of Photovoltaic Cells and Modules	Electroluminescence Space Resolution	Calibration Specification for Electroluminescence Defect Detection Instruments of Photovoltaic Cells and Modules JJF 2063	(0.25~2.00) lp/mm	<i>U</i> =0.20 lp/mm		
		Current		(0.1~1)A	<i>U</i> _{rel} =0.7%		
		Current		(1~20)A	<i>U</i> _{rel} =0.3%		



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30	*Solar Simulator	Spectral Match	Calibration Specification for Solar Simulator JJF1615, Photovoltaic devices Part 9: Classification of solar simulator characteristics IEC 60904-9	(300~1200)nm	$U_{\text{rel}}=7.2\%$		
		Irradiance		(20~2000)W/m ²	$U_{\text{rel}}=2.0\%$		
		Non-uniformity		(20~2000)W/m ²	$U_{\text{rel}}=2.0\%$		
31	*I-V Curve Testing Instrument	Open Circuit Voltage	Calibration Specification for I-V curve testing instrument JJF(WXJL) 062	10mV~80V	$U_{\text{rel}}=0.4\%$		
		Short Circuit Current		0.01mA~20A	$U_{\text{rel}}=1.1\%$		
32	*Display flicker/response time measuring instrument	Flicker degree	Calibration Specification for Display Flicker or Response Time Meters JJF2172	-80dB~-20dB	$U=3\text{dB}$		
		Flicker frequency		5Hz~120Hz	$U_{\text{rel}}=2\%$		
		Response time		1.5ms~70ms	$U_{\text{rel}}=2\%$		
33	*Optical Time Domain Reflectometer	Distance deviation	Verification Regulation of Standard Capacitance JJG959	(0~40)km, (1310nm)	$U=0.4\text{m}+1.5\times 10^{-5}L$		
		Loss deviation		(0~20)dB/dB, (1310nm/1550nm)	$U=0.04\text{ dB/dB}$		
		Dynamic range		(10~55)dB (1310nm/1550nm)	$U=0.5\text{ dB}$		
		Attenuation blind zone		(1~10)m, (1310nm/1550nm)			
		Event blind zone		(1~5)m, (1310nm/1550nm)			
IX Chemical measuring instrument							
1	*Open/Closed Cup Flash Point Testers	Temperature	C.S. for Open/Closed Cup Flash Point Testers JJF1384	Closed Cup: (70~110)℃	$U=3.4\text{℃}$		



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				Closed Cup:(111~180) ℃	<i>U</i> =4.7℃		
				Open Cup:(115~170)℃	<i>U</i> =6.2℃		
				Open Cup: (171~230) ℃	<i>U</i> =7.6℃		
2	*Air Sampler	Flow	V.R. of Air Samplers JJG956	(100~1000) mL/min	<i>U</i> _{rel} =1.3%		
				(> 1000~6000) mL/min	<i>U</i> _{rel} =0.8%		
3	*Dust Samplers	Flow	V.R. of Dust Samplers JJG520	(1~100) L/min	<i>U</i> _{rel} =1.3%		
4	*Total Suspended Praticulate Sampler	Flow	V.R. of Total Suspended Praticulate Sampler JJG943	(20~120)L/min	<i>U</i> _{rel} =1.5 %		
				(800~1200)L/min	<i>U</i> _{rel} =1.5 %		
5	*The bomb calorimeter	Calorific Value	V.R. of The bomb calorimeter JJG672	(26430~26490) J/g	<i>U</i> _{rel} =0.16%		
6	*Differential Scanning Calorimeters	Temperature	V.R. of the Differential Scanning Calorimeter JJG936	(150~450)℃	<i>U</i> =1.0℃		
		Caloric		(20~110)J/g	<i>U</i> =1.4 J/g		
7	*pH Meter	Voltage	V.R. of Laboratory pH Meter JJG119	(-2000~2000)mV	<i>U</i> =0.01%FS		
		Acidity		Potentiometer: 0~14	<i>U</i> =0.01		
				Instrument : 4~10	<i>U</i> =0.01		
		Temperature		(5~60)℃	<i>U</i> =0.1℃		
8	*Polarimeter	Optical Rotation	V.R. of Polarimeter and Saccharimeter JJG536	-45 ° ~+45 °	<i>U</i> =0.005°		
9	*Electrolytic conductivity meter	Conductivity	V.R. of Electrolytic Conductivity Meter JJG376	Potentiometer: (0.05~2 ×10 ⁵) μ S/cm	<i>U</i> _{rel} =0.2%		



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				Mating: (0.05~2×10 ⁵) μS/cm	U _{rel} =0.4%		
		Temperature		(15~35)℃	U=0.2℃		
10	*Mercury Analyzers	Detection Limit	V.R. of Mercury Analyzers JJG548	Cold Atomic Absorption Analyzer of Mercury: ≤1.0ng	U=0.20ng		
				Cold Atomic Fluorescence Analyzer of Mercury: ≤0.1ng	U=0.02ng		
11	*Flame Photometer	Concentration	V.R. of Flame Photometer JJG630	K: (0.004~0.2)mmol/L	U _{rel} =2.0 %		
				Na: (0.004~1)mmol/L	U _{rel} =2.0 %		
12	*Ultraviolet,Visible,Near-Infrared Spectrophotometer	Wave length	V.R. of Ultraviolet,Visible,Near-Infrared Spectrophotometers JJG178	(220~899)nm	U=0.4 nm		
				(900~2600)nm	U=1.0 nm		
		Transmission		(5~40)%	U=0.4%		
13	*Atomic Absorption Spectrophotometers	Detection Limit	V.R. of Atomic Absorption Spectrophotometers JJG694	Flame Atomizer(Cu): ≤0.02 μg/mL	U _{rel} =10 %		
				Graphite Furnace Atomizer(Cd): ≤4pg	U _{rel} =12 %		
14	*Gas Chromatograph	Sensitivity		TCD (Benzene: ≥800 mV•mL/mg	U _{rel} =8.0%		
				FID (n-Hexadecane、methane) : ≤0.5ng/s	U _{rel} =12%		
		Detection Limit	V.R. of Gas Chromatograph JJG700	ECD (Lindane) : ≤5pg/mL	U _{rel} =12%		
				FPD: (S)≤0.5ng/s/(P)≤0.1ng/s	U _{rel} =12%		



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				NPD: (N) $\leq 5\text{pg/s}$ /(P) $\leq 10\text{pg/s}$	$U_{\text{rel}}=14\%$		
15	*Liquid Chromatographs	Detection Limit	V.R. of Liquid Chromatographs JJG705	UV,VWD:(Naphthalene): $\leq 5 \times 10^{-8} \text{ g/mL}$	$U_{\text{rel}}=10\%$		
				FLD:(Naphthalene): $\leq 5 \times 10^{-9} \text{ g/mL}$	$U_{\text{rel}}=10\%$		
				RID:(Cholesterol): $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=12\%$		
				ELSD:(Cholesterol): $\leq 5 \times 10^{-6} \text{ g/mL}$	$U_{\text{rel}}=12\%$		
16	*Melting-Point Measurment Instruments	Melting Point	V.R. of Melting-Point Measurment Instruments JJG 701	(50~300)°C	$U=0.3 \text{ }^{\circ}\text{C}$		
17	*Extrusion Plastometer	Melt Flow Rate	V.R. for Extrusion Plastometer JJG878	(1~10)g/10min	$U=(0.18\sim 0.37)\text{g}/10\text{min}$		
18	*Alarmer Detectors of Combustible Gas	Concentration	V.R. of Alarmer Detectors of Combustible Gas JJG693	(1~100)%LEL	$U_{\text{rel}}=2.0\%$		
		Time		(1~60)s	$U=1.0\text{s}$		
19	*Atomic Fluoreacence Spectrometers	Detection Limit	V.R. of Atomic Fluorescence Spectrometers JJG939	As: $\leq 0.4 \text{ ng}$; Sb: $\leq 0.4 \text{ ng}$	$U_{\text{rel}}=10 \%$		
20	*Rotational Viscometers	Viscosity	V.R. of Rotational Viscometer JJG1002	(1~1.2×10 ⁵)mPa•s	$U_{\text{rel}}=1.2\%$		
21	Flow Cups Viscosimeter	Viscosity	V.R. of Flow Cups Viscometers JJG743	(1~1100)mm ² /s	$U_{\text{rel}}=1.0\%$		
22	*Ion Chromatographs	Detection Limit	V.R. of Ion Chromatographs JJG823	Conductivity detector $\leq 0.02 \mu \text{ g/mL}$	$U_{\text{rel}}=12\%$		
				UV visible detector $\leq 0.02 \mu \text{ g/mL}$	$U_{\text{rel}}=12\%$		



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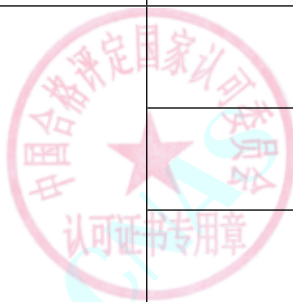
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Electrochemical detector $\leq 0.02 \mu\text{g/mL}$	$U_{\text{rel}}=13\%$		
23	*Ionometers	Voltage	V.R. of Laboratory Ion meters JJG757	(-2000~2000)mV	$U=0.01\%FS$		
		pX		Electrometer pX: (0~14)	$U=0.001$		
				instrument pX: (2~4)	$U=0.002$		
		Temperature		(5~45)°C	$U=0.1^\circ\text{C}$		
24	*Inductively Coupled Plasma- optical Emission Spectrometer	Detection Limit	V.R. of Emission Spectrometer JJG768	Zn213.856nm: $\leq$ 0.003mg/L/Ni231.604nm : $\leq$ 0.01mg/L/Mn257.610nm : $\leq$ 0.002mg/L/Cr267.716nm : $\leq$ 0.007mg/L/Cu324.754nm : $\leq$ 0.007mg/L/Ba455.403nm : $\leq 0.001\text{mg/L}$	$U_{\text{rel}}=8.0\%$		
		Wave length		(190~800)nm	$U=0.003 \text{ nm}$		
25	Routine Capillary Viscometers	Viscosity	V.R. of Routine Capillary Viscometers JJG155	(1~1.2×10 ⁵)mm ² /s	$U_{\text{rel}}=0.8\%$	合格判定 国家认可 CNAS 认可证书专用章	
26	*Chemical Oxygen Demand (COD) Meters	Concentration	V.R. of Chemical Oxygen Demand (COD) Meters JJG975	A:(10~1000)mg/L	$U_{\text{rel}}=2.4\%$		
				B:(10~1000)mg/L	$U=1.0\text{mg/L}$		
		Temperature		(100~200)°C	$U=0.6^\circ\text{C}$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
27	*Total Organic Carbon Analyzer	Concentration	V.R. of Total Organic Carbon Analyzer JJG 821	(0.05~1000)mg/L	$U_{rel}=1.4\%$		
28	*Electrochemical Oxygen Meter	Concentration	V.R. of Electrochemical Oxygen Meter JJG365	(0.01~100)%mol/mol	$U_{rel}=1.1\%$		
		Time		(1~60)s	$U=1.0s$		
29	*Carbon Monoxide Detectors	Concentration	V.R. of Carbon Monoxide Detectors JJG915	(0.1~2000) μ mol/mol	$U_{rel}=2.0\%$		
		Time		(1~60)s	$U=1.0s$		
30	Engler Viscosimeter	Time	V.R. of Engler Viscosimeter JJG742	(50~52)s	$U=0.50 s$		
31	*Determinators for Total Sulfur in Coal	Concentration of Sulfur	V.R. of Determinators for Total Sulfur in Coal JJG1006	S: 0.4%~5.0%	$U=0.06\%\sim 0.14\%$		
		Temperature		(1150~1350) $^{\circ}$ C	$U=1.6^{\circ}$ C		
32	*Automatic Potentiometric Titrators	Voltage	V.R. of Automatic Potentiometric Titrators JJG 814	(-2000~2000)mV	$U=0.20mV$		
		Concentration		$0.1mol \cdot L^{-1}$	$U_{rel}=0.34\%$		
		capacity		(1~100)mL	$U=(0.003\sim 0.030)mL$		
33	*Oil Content in Water Analyzer	Concentration	V.R. of Oil Content in Water Analyzer JJG950	(5~1000)mg/L	$U_{rel}=3.5\%$		
34	*Carbon-sulfur Analyzers	Concentration	V.R. for Carbon-sulfur Analyzers JJG395	IR Carbon-sulfur Analyzers: C: 0.005%~0.010%	$U=0.0005\%$		
				IR Carbon-sulfur Analyzers: C: >0.010%~0.100%	$U=0.002\%$		
				IR Carbon-sulfur Analyzers: C: >0.100%~1.000%	$U=0.004\%$		



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				IR Carbon-sulfur Analyzers: C:1.00%~ 4.00%	$U=0.02\%$		
				IR Carbon-sulfur Analyzers: S:0.003%~ 0.010%	$U=0.0004\%$		
				IR Carbon-sulfur Analyzers: S: >0.010%~0.100%	$U=0.002\%$		
				IR Carbon-sulfur Analyzers: S: >0.100%~ 0.200%	$U=0.003\%$		
				High Speed Automatic Carbon Sulfur Analyzers: C: 0.030%~0.100%	$U=0.003\%$		
				High Speed Automatic Carbon Sulfur Analyzers: C: >0.100%~0.500%	$U=0.005\%$		
				High Speed Automatic Carbon Sulfur Analyzers: C:>0.500%~1.000%	$U=0.007\%$		
				High Speed Automatic Carbon Sulfur Analyzers: C: >1.00%~4.00%	$U=0.02\%$		
				High Speed Automatic Carbon Sulfur Analyzers: S:0.003%~0.010%	$U=0.001\%$		
				High Speed Automatic Carbon Sulfur Analyzers: S:0.010%~0.050%	$U=0.002\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				High Speed Automatic Carbon Sulfur Analyzers: S: $>0.010\% \sim 0.050\%$	$U=0.003\%$		
				High Speed Automatic Carbon Sulfur Analyzers: S: $>0.100\% \sim 0.200\%$	$U=0.005\%$		
35	*Fluorescence Spectrophotometer	Detection Limit	V.R. of Fluorescence Spectrophotometer JJG537	A类: $\leq 5 \times 10^{-10} \text{g/ml}$	$U_{\text{rel}}=11\%$		
				B: $\leq 1 \times 10^{-8} \text{g/ml}$	$U_{\text{rel}}=10\%$		
36	*Fourier Transform Infrared Spectrometers	Wave Number	C.S. for Fourier Transform Infrared Spectrometers JJF1319	$(4000 \sim 400) \text{cm}^{-1}$	$U=0.09 \text{cm}^{-1}$		
37	*Sulfur Hydrogen Gas Detectors	Concentration	V.R. of Sulfur Hydrogen Gas Detectors JJG695	$(1 \sim 200) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=2.3\%$		
		Time		$(1 \sim 60) \text{s}$	$U=1.0 \text{s}$		
38	*Sulfur Dioxide Gas Detectors	Concentration	V.R. of Sulfur Dioxide Gas Detectors JJG551	$(0.1 \sim 1000) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=2.0\%$		
		Time		$(1 \sim 60) \text{s}$	$U=1.0 \text{s}$		
39	*Carbon Monoxide and Carbon Dioxide Infrared Gas Analyzer	Concentration	V.R. of Carbon Monoxide and Carbon Dioxide Infrared Gas Analyzer JJG635	CO: $(0.1 \sim 500) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=2.0\%$		
				CO ₂ : $(5 \sim 100000) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=2.0\%$		
		Time		$(1 \sim 90) \text{s}$	$U=1.0 \text{s}$		
40	*Flue Gas Analyzers	Concentration	V.R. of Flue Gas Analyzers JJG968	SO ₂ : $(10 \sim 1000) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=2.0\%$		
				NO: $(10 \sim 3000) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=1.1\%$		
				CO: $(0.1 \sim 10000) \times 10^{-6} \text{mol/mol}$	$U_{\text{rel}}=1.0\%$		



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				O ₂ : (0.01~25)%	$U_{\text{rel}}=1.6\%$		
		Time		(1~90)s	$U=1.0\text{s}$		
41	*Ammonia-Nitrogen Automatic Analyzers	Concentration	V.R. of Ammonia-Nitrogen Automatic Analyzers JJG631	(0.1~100)mg/L	$U_{\text{rel}}=2.8\%$		
42	*Gas Chromatography-Mass Spectrometries	Signal Noise Ratio	C.S. for Gas Chromatography-Mass Spectrometries JJF1164	Ion Trap、Unipolar Quadrupole、Triple Quadrupole: $\geq 10:1$	$U_{\text{rel}}=15\%$		
				Time of Flight、Electrostatic Field Orbit Hydrizin: $\geq 50:1$	$U_{\text{rel}}=15\%$		
		Mass		(74~300)u	$U=0.04\text{u}$		
43	*ICP Mass Spectrometers	Detection Limit	C.S. for Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be $\leq 30\text{ng/L}$ 、In $\leq 10\text{ng/L}$ 、Bi $\leq 10\text{ng/L}$	$U_{\text{rel}}=10\%$		
		Sensitivity		Be $\geq 5\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$ 、In $\geq 30\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$ 、Bi $\geq 20\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$	$U_{\text{rel}}=8\%$		
44	*Static Light Scattering Particle Size Analyzers	Partical Diameter	C.S. for Static Light Scattering Particle Size Analyzers JJF1211	(1~120) μm	$U_{\text{rel}}=3\%$	合格评定国家认可委员会 CNAS 认可证书专用章	
45	*Liquid-borne Particle Counters	Partical Number	V.R. of Liquid-borne Particle Counters JJG1061	(10~2500)grain/mL	$U_{\text{rel}}=5\%$		
46	*Instrument for KF Coulometry Titration	Content of Water	V.R. of Instrument for KF Coulometry Titration JJG1044	(10~5000) μg	$U_{\text{rel}}=3\%$		
	Hand	Sugar content	V.R. of Hand Saccharinmeter	(0.1~80)%	$U=0.2\%$		



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	Saccharimeter(Content-meter) and Hand Refractometer	Refractive index	(Content-meter)and Hand Refractometer JJG820	1.3330~1.5200	$U=0.0003$		
48	Wood Moisture Content Measuring Meters	Moisture Content	V.R. of Wood Moisture Content Measuring Meters JJG986	(6~28)%	$U=0.6\%$		
49	Airborne Particle Counter	Particle Concentration	C.S. for Airborne Particle Counter JJF1190	(4500~5500)Unit/28.3L	$U=10\%FS$		
		Particle size		(45000~55000)Unit/28.3L	$U=15\%FS$		
		Flow		(0.1~10) μm	$U_{rel}=10\%$		
		Time		(0.1~50)L/min	$U_{rel}=1.5\%$		
				(1~3600)s	$U=0.3s$		
50	*Volatile Organic Compounds Photo Ionization Detector	Concentration	C.S. for Volatile Organic Compounds Photo Ionization Detectors JJF1172	(20~2000) $\mu mol/mol$	$U_{rel}=3.3\%$		
		Time		(1~20)s	$U=1.0s$		
51	*Biochemical Oxygen Demand (BOD ₅) Meter	Concentration	V.R. of Biochemical Oxygen Demand (BOD ₅) Meter JJG824	Glucoseamino Acid Standard Solution Method(1~1000)mg/L	$U_{rel}=6\%$		
				Sodium Sulfite Method(1~1000)mg/L	$U_{rel}=2.3\%$		
				Standard Manometer Method(1~1000)mg/L	$U_{rel}=0.4\%$		
52	Breath Alcohol Analyzers	Concentration	V.R. of Breath Alcohol Analyzers JJG657	Direct use of primary reference substances: (0.01~2.0)mg/L	$U_{rel}=1.5\%$		
				Source method: (0.01~2.0)mg/L	$U_{rel}=3.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
53	*Paramagnetic Oxygen Analyzer	Concentration	V.R. of Paramagnetic Oxygen Analyzers JJG662	(0.01~100)%	$U_{rel}=1.6\%$		
		Time		(1~50)s	$U=1.0s$		
54	*Micro Oxygen Analyzers	Concentration	V.R. of Micro Oxygen Analyzers JJG945	(0.1~1000) μ mol/mol	$U_{rel}=2\%$		
		Time		(1~60)s	$U=1.0s$		
55	*Kinematic Viscosity Tester	Viscosity	C.S. for Kinematic Viscosity Tester JJF1274	(1~30000)mm ² /s	$U_{rel}=1.0\%$		
		Temperature		Temperature Uniformity and Fluctuation: (20~100)°C	$U=0.004^{\circ}C$		
56	*Liquid Chromatography-Mass Spectrometers	Signal Noise Ratio	C.S. for Liquid Chromatography-Mass Spectrometers JJF1317	QQQ: $\geq 30:1$ /Single quadrupole、ion trap : $\geq 10:1$	$U_{rel}=11\%$		
57	*Full(half)-automation Nitrogen Determination Instrument	Content	C.S. for Elemental Analyzers JJF1321	N: (10~50)%	$U_{rel}=0.8\%$		
58	*O、N、H Analyzer in Metal	Content	C.S. for Elemental Analyzers JJF1321	N: (30~1000) μ g/g	$U_{rel}=10\%$		
				H: (1.1~30) μ g/g	$U_{rel}=11\%$		
				O: (5~200) μ g/g	$U_{rel}=11\%$		
59	*On-line Automatic Monitors of Permanganate Index	Concentration	C. S. for On-line Automatic Monitors of Permanganate Index JJF 1875	(0.1~5)mg/L	$U_{rel}=5.0\%$		
				(>5~20)mg/L	$U_{rel}=4.2\%$		
			V.R. of Water Quality On-	TP: (0.1~10)mg/L	$U_{rel}=3\%$		



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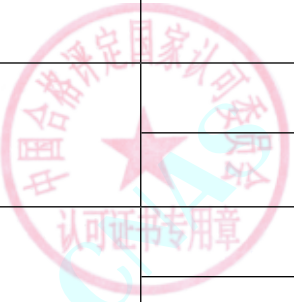
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	On-line Analyzers of Total Phosphorus and Total Nitrogen		line Analyzers of Total Phosphorus and Total Nitrogen JJG1094	TN: (0.1~50)mg/L	$U_{rel}=3\%$		
61	*On-line Total Organic Carbon Analyzer	Concentration	C.S. of On-line Total Organic Carbon Analyzer JJF(su) 118	(0.05~1000)mg/L	$U_{rel}=3\%$		
62	*Zirconia Oxygen Analyzers	Concentration	V.R. of Zirconia Oxygen Analyzers JJG535	(0.01~100)%	$U_{rel}=2\%$		
		Time		(1~20)s	$U=1.0s$		
63	*Turbidimeters	Turbidity	V.R. of Turbidimeters JJG880	(0.1~400)NTU	$U_{rel}=3.6\%$		
64	*Ammonia Gas Detectors	Concentration	V.R. of Ammonia Gas Detectors JJG1105	$(0.1\sim 200)\times 10^{-6}\text{mol/mol}$	$U_{rel}=3\%$		
		Time		(1~180)s	$U=1.0s$		
65	Ozone Gas Analyzers	Concentration	V.R. of Ozone Gas Analyzers JJG1077	$(0.1\sim 400)\times 10^{-6}\text{mol/mol}$	$U_{rel}=3\%$		
		Time		(1~180)s	$U=1.0s$		
66	Dissolved Oxygen Meters	Concentration	V.R. of Dissolved Oxygen Meters JJG291	(5~12)mg/L	$U=0.2\text{mg/L}$		
		Temperature		(10~30)°C	$U=0.1^{\circ}\text{C}$		
67	*Energy Dispersive X-ray Fluorescence Spectrometers	Detection Limit	Calibration Specification for Energy Dispersive X-Ray Fluorescence Spectrometers JJF 2024	Cd: (5~110) mg/kg	$U_{rel}=12\%$		
				Cr: (80~1200) mg/kg	$U_{rel}=11\%$		
				Hg: (80~1200) mg/kg	$U_{rel}=11\%$		
				Pb: (80~1200) mg/kg	$U_{rel}=11\%$		
68	*Optical Emission Spectrometer	Detection Limit	V.R. of Emission Spectrometer JJG768	C: $\leq 0.005\%$	$U=0.001\%$		



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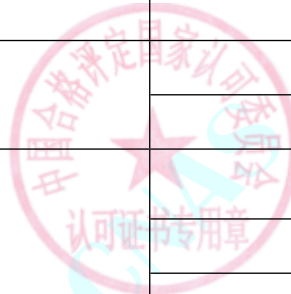
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Si: $\leq 0.005\%$	$U=0.0008\%$		
				Mn: $\leq 0.003\%$	$U=0.0007\%$		
				Cr: $\leq 0.003\%$	$U=0.0007\%$		
				Ni: $\leq 0.005\%$	$U=0.0008\%$		
				V: $\leq 0.001\%$	$U=0.0005\%$		
69	*Polymerase Chain Reaction Analyzers	Temperature	C.S. for Polymerase Chain Reaction Analyzers JJF1527	(4~100)°C	$U=0.2^{\circ}\text{C}$		
		Sample concentration		$(1 \times 10^1 \sim 1.1 \times 10^7) \text{Copy}/\mu\text{L}$	$U_{\text{rel}}=10\%$		
70	*On-line pH Meters	Acidity	C.S. for On-line pH Meters JJF1547	Potentiometer: 0~14	$U=0.01$		
				Instrument: 4~10	$U=0.02$		
		Voltage		(-2000~2000)mV	$U=0.01\%\text{FS}$		
		Temperature		(5~60)°C	$U=0.1^{\circ}\text{C}$		
71	*Water Quality On-line Analyzers of Heavy Metals	Concentration	C.S. for Water Quality On-line Analyzers of Heavy Metals JJF1565	Pb、Cd、Hg、As、Cr ⁶⁺ 、Cr、Cu、Zn、Ni、Fe、Mn: (0.01~1.0)mg/L	$U_{\text{rel}}=3\%$		
72	*Osmometer	Osmolarity	V.R. of Osmometers JJG1089	(100~400)mOsmol · kg ⁻¹	$U=1.9\text{mOsmol} \cdot \text{kg}^{-1}$		
				(>400~700)mOsmol · kg ⁻¹	$U_{\text{rel}}=0.6\%$		
73	*Flow Analyzers with Spectrophotography	Detection Limit	C.S. for Flow Analyzers with Spectrophotography JJF1568	CN-、VHB: $\leq 0.002\text{mg/L}$	$U_{\text{rel}}=48\%$		
				Cr ⁶⁺ : $\leq 0.004\text{mg/L}$	$U_{\text{rel}}=48\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	h			Sulphide: ≤0.005mg/L	U _{rel} =48%		
				TP: ≤0.01mg/L	U _{rel} =48%		
				TN、NH ₄ ⁺ -N: ≤0.04mg/L	U _{rel} =48%		
				Anionic Detergent: ≤0.05mg/L	U _{rel} =48%		
74	*Industrial Analyzers	Weight	V.R. of Industrial Analyzers JJG1140	1g	U=0.3mg		
		Temperature		107℃	U=1.4℃		
				815℃	U=2.8℃		
				900℃	U=3.0℃		
				Ash Content	(8~15)%		U=0.13%
		(>15~30)%			U=0.16%		
		(>30~45)%			U=0.24%		
		Volatile		(8~20)%	U=0.21%		
(>20~40)%	U=0.35%						
75	Formaldehyde Gas Analyzers	Concentration	V.R. of Formaldehyde Gas Analyzers JJG1022	(0.08~1.3) μ mol/mol	U _{rel} =3%		
		Time		(1~180)s	U=1.0s		
76	*Thermogravimetric Analyzers	Curie Temperature Point	V.R. for Thermogravimetric Analyzers JJG1135	Curie Point of Alumel Alloy: 153.8℃	U=1.1℃		
				Ni: 358.6℃	U=1.2℃		
				Fe: 772.0℃	U=2.2℃		



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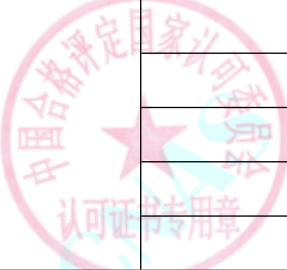
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Melting Point	V. R. of On-line Automatic Determination of Chemical Oxygen Demand JJG 1012	In: 156.52°C	$U=0.40^{\circ}\text{C}$		
				Sn: 231.81°C	$U=0.50^{\circ}\text{C}$		
				Pb: 327.77°C	$U=0.70^{\circ}\text{C}$		
				Zn: 420.67°C	$U=0.90^{\circ}\text{C}$		
77	*On-line Automatic Determination of Chemical Oxygen Demand(COD)	concentration	V. R. of On-line Automatic Determination of Chemical Oxygen Demand JJG 1012	(16~1000)mg/L	$U_{\text{rel}}=2.0\%$		
78	*Alarmer Detectors of Benzene	concentration	C. S. for Alarmer Detectors of Benzene JJF 1674	(0.1~10) $\mu\text{mol/mol}$	$U=0.21\mu\text{mol/mol}$		
				(>10~100) $\mu\text{mol/mol}$	$U_{\text{rel}}=3.3\%$		
		Time		(1~60)s	$U=1.0\text{s}$		
79	*Antibiotics Potency Analyzer	Diameter	C.S. for Antibiotics Potency Analyzers JJF 1614	(15~22)mm	$U=0.02\text{mm}$		
		Absorbance		0.3~1.0	$U_{\text{rel}}=0.7\%$		
		Temperature		(20~40) $^{\circ}\text{C}$	$U=0.3^{\circ}\text{C}$		
80	*Chlorine Alarm Detector	Concentration	C.S. for Chlorine Alarm Detectors JJF1433	(0.1~10) $\mu\text{mol/mol}$	$U_{\text{rel}}=3.3\%$		
		Time		(1~60)s	$U=1.0\text{s}$		
81	*Alarmer Detector of Sulfur Hexafluoride	Concentration	C.S. for the Alarmer Detector of Sulfur Hexafluoride JJF 1263	(1~1000) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.7\%$		
		Time		(1~30)s	$U=1.0\text{s}$		
82	*Residual Chlorine Meter	Concentration	C.S. for Residual Chlorine Meters JJF 1609	total residual chlorine: (0.05~10)mg/L	$U_{\text{rel}}=1.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				free residual chlorine: (0.05~10)mg/L	$U_{\text{rel}}=2.3\%$		
83	*Pour Point and Cloud Point Testers of Petroleum Product	Temperature	C. S. for Pour Point and Cloud Point Testers of Petroleum Products JJF 1869	Pour Point: (-30~-2.5) °C	$U=4.4^{\circ}\text{C}$		
				Cloud Point: (-21~0.5) °C	$U=2.2^{\circ}\text{C}$		
84	*Nonmethane Hydrocarbons Detectors	Nonmethane total hydrocarbon concentration	Calibration Specification for Nonmethane Hydrocarbons Detectors JJF (Su) 225	Methane channel: (10~500) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.2\%$		
				Total hydrocarbon channel: (10~500) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.3\%$		
85	Dust Concentration Measuring Instruments	Dust Concentration	Dust Concentration Measuring Instruments JJG 846	(0.1~50) mg/m^3	$U_{\text{rel}}=6\%$		
86	*On-line Monitoring Instrument of Volatile Organic Compounds in Stationary Sources	Total hydrocarbons concentration	Calibration Specification for On-line Monitoring Instrument of Volatile Organic Compounds in Stationary Sources JJF(Su) 230	(10~500) $\mu\text{mol/mol}$	$U_{\text{rel}}=1.6\%$ (As methane)		
		Benzene compound concentration		(1~50) $\mu\text{mol/mol}$	$U_{\text{rel}}=2.1\%$ (Benzene compound)		
87	Samplers for Stack Dust	Flow	Samplers for Stack Dust JJG 680	(5~80) L/min	$U_{\text{rel}}=1.3\%$		
		Pressure		(0~2.5)kPa	$U=0.38\%$		
		Pressure		-50kPa~50kPa	$U=0.06\%$		
		Temperature		(0~300) °C	$U=0.64\%$		
		Time		(0~3600)s	$U=0.32\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
88	*Micro-spectrophotometers	Concentration	Calibration Specification for Micro-spectrophotometers JJF 1836	(10～1100) mg/kg	<i>U</i> _{rel} =3.0%			
89	*Hydrogen Chloride Gas Detectors and Alarms	Concentration	Calibration Specification for Hydrogen Chloride Gas Detectors and Alarms JJF 1888-2020	(0.1～100) μ mol/mol	<i>U</i> _{rel} =6%			
		Time		(1～120)s	<i>U</i> =1.0s			
90	*Silicate Analyzer	Concentration	Calibration Specification for Silicate Analyzers JJF 1539	(0.1～100) μ g/mL	<i>U</i> _{rel} =2.1%			
91	*Phosphate Analyzer	Concentration	Calibration Specification for Phosphate Analyzers JJF 1567	(0.1～50)mg/L	<i>U</i> _{rel} =2.2%			
92	*Continuous Emission Monitoring Systems of Flue Gas Emitted from Stationary Source	Particle concentration (Non-working state)	Calibration Specification for Continuous Emission Monitoring Systems of Flue Gas Emitted from Stationary Source JJF 1585	30%～85%	<i>U</i> _{rel} =0.6%			
		Gas Concentration (Non-working state)		SO ₂ : (0.1～3000) μ mol/mol	<i>U</i> _{rel} =2.2%			
				NO: (0.1～1000) μ mol/mol	<i>U</i> _{rel} =2.2%			
				O ₂ : 0.1%～30%	<i>U</i> _{rel} =2.2%			
		Pressure (Non-working state)		(-3～3) kPa	<i>U</i> =0.2%FS			
		Particle concentration(Working condition)		(0～50) mg/m ³	<i>U</i> =2.6mg/m ³			
				(50～1000) mg/m ³	<i>U</i> _{rel} =6.4%			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Gas Concentration (Working condition)		SO ₂ : (0~20) μ mol/mol	$U=2.4 \mu \text{ mol/mol}$		
				SO ₂ : (20~50) μ mol/mol	$U=2.8 \mu \text{ mol/mol}$		
				SO ₂ : (50~250) μ mol/mol	$U=6.8 \mu \text{ mol/mol}$		
				SO ₂ : (250~3000) μ mol/mol	$U_{\text{rel}}=6.0\%$		
				NO: (0~20) μ mol/mol	$U=2.2 \mu \text{ mol/mol}$		
				NO: (20~50) μ mol/mol	$U=2.8 \mu \text{ mol/mol}$		
				NO: (50~250) μ mol/mol	$U=6.4 \mu \text{ mol/mol}$		
				NO: (250~1000) μ mol/mol	$U_{\text{rel}}=6.0\%$		
				O ₂ : 0.1%~30%	$U_{\text{rel}}=6.2\%$		
		Flow rate(Working condition)		(5~30) m/s	$U_{\text{rel}}=3.8\%$		
		Temperature(Working condition)		(0~800) °C	$U=1.6^{\circ}\text{C}$		
93	*Time-of-Flight Mass Spectrometers	m/z	Calibration Specification for Time-of-Flight Mass Spectrometers JJF1528	(172.8840~4071.1342)u	$U_{\text{rel}}=4.4 \times 10^{-6}$		
		Signal to Noise Ratio		S/N≥10:1	$U_{\text{rel}}=15\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
94	*Karl Fischer Volumetric Titrators for Water Content	Indication error	Verification Regulation of Karl Fischer Volumetric Titrators for Water Content JJG1154	(1~20) mg	$U_{rel}=2.3\%$		
95	*Plate Electrophoresis Apparatus	Voltage	Calibration Specification Plate Electrophoresis Apparatus JJF1654	(5~100) V	$U_{rel}=0.10\%$		
				(100~1000) V	$U_{rel}=0.10\%$		
		Current		(10~400) mA	$U_{rel}=0.20\%$		
		Migration Length		400mA~1A	$U_{rel}=0.6\%$		
				(10~120) mm	$U=0.20\text{mm}$		
X Ionizing radiation measuring instrument							
1	*Medical diagnostical X- ray radiation source	Air kerma rate	V.R.of Medical diagnostical X- ray radiation source JJG744	0.1mGy/min~1Gy/min	$U_{rel}=6\%$		
		Voltage		(50~150)kV	$U_{rel}=3\%$		
2	*Medical diagnostical X-ray radiation source for Spiral computer tomography(CT)	CTDI	V.R.of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography(CT) JJG 961	0.1mGy~100mGy	$U_{rel}=6\%$		
3	*Flow petectors	Air kerma rate	V.R.of X-ray Flaw Detectors JJG40	0.1mGy/min~10Gy/min	$U_{rel}=5\%$		
4	*X-ray RadiationSource for Medical Digital Radiography System	Air kerma	V.R. of X-ray RadiationSource for Medical Digital Radiography System JJG1078	0.1mGy~1Gy	$U_{rel}=6\%$		
		Voltage		(50~150)kV	$U_{rel}=3\%$		



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5	*X-ray Security Inspection Equipment	Air kerma rate	C.S.for X-ray Security Inspection Equipment JJF1275	(0.001~1)mGy•h ⁻¹	U _{rel} =10%		
6	*X、gamma-ray densitometry for Bone Mineral Density	Air kerma rate	V.R. of X、gamma-ray densitometry for Bone Mineral Density JJG1050	(0.001~1)mGy•h ⁻¹	U _{rel} =10%		
		Bone density		(0.5~1.5)g/cm ³	U _{rel} =1.0%		
		Bone mineral content		(0.3~2.0)g/cm	U _{rel} =1.0%		
		Transverse diameter of bone		(0.8~1.6)cm	U _{rel} =1.0%		
7	*X-ray Three Dimensional Size Measuring Machine	Length	Calibration Specification for X-ray Three Dimensional Size Measuring Machine JJF（BGMP）0022	（0~100）mm	U=2.4 μ m		
8	Phantoms Used in Computed Radiography (CR) and Digital Radiography (DR)	Length	Calibration Specification for Phantoms Used in Computed Radiography (CR) and Digital Radiography (DR) JJF 1927	Depth:（0.07~3.20）mm	U=0.003mm		
		Length		Thickness:(18~22)mm	U=0.008mm		
		Length		Error of labels on test charts0~420）mm	U=0.4mm		
		Line pairs		(0.1~10)LP/mm	U _{rel} =0.7%		
XI、special measuring instruments							
（1）Special measuring instrument for papermaking and paper							
1	*Puncture Resistance Tester for Board	Energy	Verification Regulation Of Puncture Resistance Tester for Board JJG(Light Industry)56	(0.1~48)J	U _{rel} =(0.5~0.4)%		
		Length		(0~300)mm	U=0.07mm		
		Frequency		(50~200)次	U=1 次		



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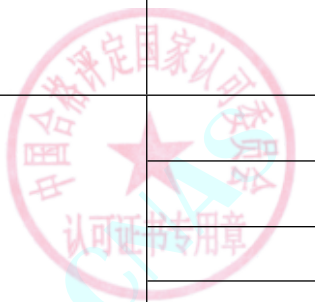
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
2	*Compression Strength Tester for Corrugated Box	Force	V.R.of Compression Strength Tester for Corrugated Box JJG(Light industry)115	(0.5~50)kN	$U_{rel}=0.17\%\sim 0.12\%$		
		Length		(0~500)mm	$U=0.07\text{mm}$		
		Speed		(1~10)mm/min	$U=0.03\text{mm/min}$		
				(10~60) mm/min	$U_{rel}=0.3\%$		
3	*Compression Strength Tester for Board	Force	V.R.of Compression Strength Tester for Board JJG(Light industry)49	(60~3000)N	$U_{rel}=0.18\%\sim 0.12\%$		
		Speed		12.5mm/min	$U=0.04\text{mm/min}$		
4	*Bursting Strength Testers for Paper(Board)	Pressure	Calibration Specification for Bursting Strength Testers for Paper(Board) JJF 1811	(100~6000)kPa	$U=5\text{kPa}$		
5	*Paper and Bord-Tester of Thickness	length	Calibration Specification for Paper and Bord-Tester of Thickness JJF(Ji)78	(0~25)mm	$U=0.4\text{ }\mu\text{ m}$		
		Parallelism		(0~0.1)mm	$U=0.2\text{ }\mu\text{ m}$		
(2) Medical measuring instruments							
1	*Blood cell analyzer	Concentration	V.R.of Blood cell analyzer JJG714	RBC:(2~6)×10 ¹² /L	$U_{rel}=2.6\%$		
				WBC:(2~15)×10 ⁹ /L	$U_{rel}=3.1\%$		
				HDB:(71~166)g/L	$U_{rel}=2.1\%$		
				PLT:(106~503)×10 ⁹ /L	$U_{rel}=3.1\%$		
2	*Pulmonary Function Measuring Instrument	vital capacity	C.S.for the Pulmonary Function Measuring Instrument JJF1213	(0.1~10)L	$U_{rel}=0.7\%$		
		Flow		Peak Expiratory Flow: (2~14)L/s	$U_{rel}=3\%$		
				Maximum minute ventilation: (30~250)L/min	$U_{rel}=3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Concentration		Oxygen: 6%~25%	$U_{\text{rel}}=1.2\%$		
				Carbon dioxide: 4%~16%	$U_{\text{rel}}=1.3\%$		
3	*Urine Analyzers	Concentration	C.S.of Urine Analyzers JJF1129	GLU:(5.6~56)mmol/L	$U_{\text{rel}}=3\%$		
				PRO:(0.30~3)g/L	$U_{\text{rel}}=5\%$		
				RBC:(10~300)个/ μL	$U_{\text{rel}}=13\%$		
				WBC:(5~280)个/ μL	$U_{\text{rel}}=9\%$		
		pH Value		5.0~8.0	$U_{\text{rel}}=6\%$		
		SG		0.995~1.030	$U=0.005$		
4	*ELISA Analytical Instruments	Absorbance	V. R. of ELISA Analytical Instruments JJG861	0.1~1.5	$U=0.006$		
		Wavelength		(405~620) nm	$U=0.8\text{nm}$		
5	*Noninvasive Automated Sphygmomanometers	Pressure	V.R.of Non-invasive Automated Sphygmomanometers JJG692	(0~40)kPa	$U=0.2\text{kPa}$		
6	*Semiautomatic clinical chemistry analyzers	Absorbency	V.R. of Semiautomatic Clinical Chemistry Analyzer JJG464	0.5~1.0	$U=0.006$		
7	*Cardiac Defibrillators	Delivered Energy	C.S.for Cardiac Defibrillators JJF1149	(2~360)J	$U_{\text{rel}}=5\%$		
		Pulse frequency		(40~200) min^{-1}	$U_{\text{rel}}=1.3\%$		
		Pulse width		(20~50)ms	$U_{\text{rel}}=1.3\%$		
		Pulse amplitude		(30~150)mA	$U_{\text{rel}}=2.3\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		voltage	ilac-MRA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(0.1~4.0) mV	$U_{rel}=2.1\%$		
		Scan speed		25 mm/s	$U_{rel}=1.1\%$		
		Amplitude-frequency characteristics		1 mV, (1 Hz~25 Hz)	$U_{rel}=2.1\%$		
		Heart rate		(30~200) min ⁻¹	$U_{rel}=1.5\%$		
8	*Electrocardiograph	direct current voltage	V.R.of Electrocardiograph JJG543	(0.05~5)mV	$U_{rel}=2.1\%$		
		Time		(0.01~10) s	$U_{rel}=1.8\%$		
		Amplitude-frequency characteristics		2 mV, (0.5 Hz~75 Hz)	$U_{rel}=2.1\%$		
9	*sphygmomanometer	Pressure	V.R.of the Sphygmomanometer JJG270	(0~40) kPa	$U=0.2\text{kPa}$		
10	*Hemodialysis Equipment	Conductivity	C.S.for Hemodialysis Equipment JJF1353	(12.5~15.5)mS/cm	$U=0.12\text{mS/cm}$		
		Temperature		(25~40)°C	$U=0.12^{\circ}\text{C}$		
		Pressure		(-40~60)kPa	$U=0.4\text{kPa}$		
		Flow		(200~2000)mL/min	$U_{rel}=2.1\%$		
		acidity		0~14	$U=0.04$		
11	*Electrosurgical Generator	Power	C.S.for Electrosurgical Generator JJF1217	(51~500)W	$U_{rel}=6\%$	合格评定 国家认可 认可证书专用章	
12	*Digital Electroencephalogram Mapping	Voltage	V.R.of Digital Electroencephalographs JJG954	(5~2000) μV	$U_{rel}=1.4\%$		
		Time Interval		(0.05~5)s	$U_{rel}=1.9\%$		
13	*Digital	Voltage	V.R.of Digital	(0.5~5)mV	$U_{rel}=2\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Electrocardiographs	Time	Electrocardiographs JJG1041	(0.01~10) s	$U_{rel}=1.8\%$		
		Amplitude-frequency characteristics		2 mV, (0.5 Hz~75 Hz)	$U_{rel}=2.1\%$		
		Heart rate		(30~200) min ⁻¹	$U_{rel}=1.5\%$		
14	*Ambulatory Electrocardiograph	Voltage	V.R.for Ambulatory Electrocardiograph JJG1042	(0.05~6)mV	$U_{rel}=2.1\%$		
		Time		(0.01~10) s	$U_{rel}=1.8\%$		
		Heart rate		(30~200) min ⁻¹	$U_{rel}=1.5\%$		
15	*Electro cardiac monitor	Voltage	V.R.of Electro cardiac monitors JJG760	(0.5~2)mV	$U_{rel}=2\%$		
16	*Electroencephalographs	Voltage	V.R.of Electroencephalographs JJG1043	(5~2000) μ V	$U_{rel}=3\%$		
17	*Pulse Oximeters	SpO2	C.S.for Pulse Oximeters JJF(Beijing)86	70%~100%	$U=2\%$		
		Pulse rate		(30~250) min ⁻¹	$U=1\text{min}^{-1}$		
18	*Medical Magnetic Resonance Imaging(MRI)	Magnetic field Intensity	V.R.of Medical Magnetic Resonance Imaging(MRI) JJG(su)71	(0.1~2)T	$U_{rel}=3\%$		
19	*Ventilators	Tidal Volume	C.S.for Lung Ventilators JJF1234	(0.05~1)L	$U_{rel}=2.5\%$		
		peep		(0.2~2.0)kPa	$U=0.12\text{kPa}$		
		Frequency		(10~40)min ⁻¹	$U_{rel}=4\%$		
		Oxygen concentration		21%~100%	$U=2.4\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		air peak pressure		(1.0~3.0)kPa	$U=0.2\text{kPa}$		
20	*Baby Incubator	Temperature Departure	C.S.for Baby Incubator JJF1260	(20~40)°C	$U=0.25^{\circ}\text{C}$		
		Relative humidity		40%~70%	$U=4\%$		
		Oxygen concentration		30%~40%	$U=2\%$		
21	*blood oxygen saturation Simulator	blood oxygen saturation	Calibration Specification for SpO2 Simulator JJF 1542	35%~100%	$U=1\%$		
		pulse rate		(30~300) min ⁻¹	$U=2\text{min}^{-1}$		
22	*Impression tonometer	Length	V.R.of Impression tonometer JJG574	(0.1~0.25)mm	$U=0.01\text{mm}$		
				(0.25~1.00)mm	$U=0.02\text{mm}$		
23	*Buoy type oxygen inhaler	Pressure	V.R.of Buoy type oxygen inhaler JJG913	(0~16)MPa	$U=0.2\text{MPa}$		
		flow		(1~10)L/min	$U=0.2\text{L/min}$		
24	*Syringe Pumps and Infusion Pumps	flow	C.S.for Syringe Pumps and Infusion Pumps JJF1259	5mL/h~1000mL/h	$U_{\text{rel}}=1.2\%$		
		Pressure		(0~200)kPa	$U=2.6\text{kPa}$		
25	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Sound Power	V.R.of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JJG639	(1~20)mW/cm ²	$U_{\text{rel}}=12\%$		
		Length		(0~200)mm	$U=0.4\text{mm}$		
26	*Ultrasonic Source for Ultrasonic Doppler Fetal Monitor	Sound Power	V.R.of Ultrasonic Source for Ultrasonic Doppler Fetal Monitor JJG394	(1~20)mW/cm ²	$U_{\text{rel}}=11\%$		
		Heart rate		(50~250) min ⁻¹	$U_{\text{rel}}=1.0\%$		
		Frequency		(1.5~5)MHz	$U_{\text{rel}}=1.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
27	*Ultrasonic Source of Ultrasonic Doppler Foetal Meters	Sound Power	V.R.ofUltrasonic Source of Ultrasonic Doppler Foetal Meters JJG893	(1～20)mW/cm ²	<i>U</i> _{rel} =11%		
		Frequency		(1.5～5)MHz	<i>U</i> _{rel} =1.5%		
28	*Color Doppler Ultrasonic Diagnosis Apparatus	Intensity	V.R.of Color Doppler Ultrasonic Diagnosis Apparatus JJG(su)173	(1～20)mW/cm ²	<i>U</i> _{rel} =12%		
		Velocity		(1～100)cm/s	<i>U</i> _{rel} =10%		
		Length		(0～300)mm	<i>U</i> =0.4mm		
(3) Special measuring instrument for textile							
1	*Wrap Reelers	length	Calibration Specification for Wrap Reelers JJF(spin)019	(0～1000)mm	<i>U</i> =0.4mm		
				(0～200)mm	<i>U</i> =0.05mm		
		Force		1cN～50N	<i>U</i> _{rel} =1.2%		
		Time		(0～3600)s	<i>U</i> =0.16s		
		Rotational speed		(30～250)r/min	<i>U</i> _{rel} =0.2%		
2	*Fabrics Bursting Tester	Rotational speed	Calibration Specification for Fabrics Bursting Tester JJF(spin)036	(10～1000)r/min	<i>U</i> _{rel} =0.13%		
		Quality		(0～500)g	<i>U</i> =0.6g		
				(500～2000)g	<i>U</i> =1.1g		
				(2000～30000)g	<i>U</i> =1.5g		
		Displacement		(0～200)mm	<i>U</i> =0.04mm		
3	*Fabrics Bursting Tester	Length	Calibration Specification for Fabrics Bursting Tester JJF(spin)048	直径：(1～200)mm	<i>U</i> =0.04mm		
		Pressure		(100～2500)kPa	<i>U</i> _{rel} =0.14%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Time		(0~3600)s	<i>U</i> =0.18s		
4	*Scorch and Sublimation Tester	length	Calibration Specification for Scorch and Sublimation Tester JJF(spin)029	(0~200)mm	<i>U</i> =0.05mm		
		Force		(5~50)N	<i>U</i> _{rel} =0.13%		
		Time		(0~3600)s	<i>U</i> =0.16s		
		Temperature		(0~250)℃	<i>U</i> =0.6℃		
5	*Fiber Cutter	length	Calibration Specification for Fiber Cutter JJF(spin)022	(0~50)mm	<i>U</i> =0.005mm		
6	*Electronic Fabric Strength Machines	Force	Calibration Specification for Electronic Fabric Strength Machines JJF(spin)062	1cN~10000N	<i>U</i> _{rel} =0.35%		
		Coaxiality		直径：（2~20）mm	<i>U</i> =0.3mm		
				(0~50)%	<i>U</i> =1.4%		
		length		(0~300)mm	<i>U</i> =0.06mm		
		Speed		(0.1~10)mm/min	<i>U</i> =0.03mm/min		
				10mm/min~45m/min	<i>U</i> _{rel} =0.3%		
		Time		(0~3600)s	<i>U</i> =0.16s		
		mass		(0~500)g	<i>U</i> =0.6g		
				(500~2000)g	<i>U</i> =1.1g		
				(2000~30000)g	<i>U</i> =1.5g		
7	*Fabrics Tearing Tester	length	Calibration Specification for Fabrics Tearing Tester JJF(spin)049	(0~300)mm	<i>U</i> =0.06mm		
		Force		(0.2~128)N	<i>U</i> _{rel} =0.6%		
8	*Corlour Fastness to Friction Testers	Rotational speed	Calibration Specification for Corlour Fastness to Friction	(1~10)r/min	<i>U</i> =0.02r/min		



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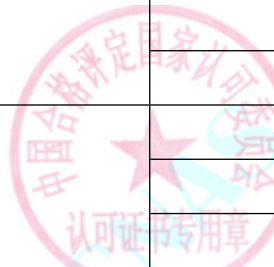
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
			Testers JJF(spin)027	(10~200)r/min	<i>U</i> _{rel} =0.2%		
		Force		(1~10)N	<i>U</i> _{rel} =0.24%		
		Displacement		(0~150)mm	<i>U</i> =0.5mm		
9	*Fabric Shrinkage Testers	length	Calibration Specification for Fabric Shrinkage Testers JJF(spin)052	(10~600)mm	<i>U</i> =0.9mm		
		Temperature		(0~100)℃	<i>U</i> =0.7℃		
		Rotational speed		(10~1000)r/min	<i>U</i> =1.0r/min		
		Time		(0~3600)s	<i>U</i> =0.17s		
10	*Perspiration Fastness Instruments	length	Calibration Specification for Perspiration Fastness Instruments JJF(spin)028	(1~200)mm	<i>U</i> =0.05mm		
		Force		(10~150)N	<i>U</i> _{rel} =0.13%		
11	*Yarn Twist Test	Length	Calibration Specification for Yarn Twist Test JJF(spin)010	(0~500)mm	<i>U</i> =0.10mm		
		Force		(10~500)cN	<i>U</i> _{rel} =0.3%		
		Rotational speed		(1~10)r/min	<i>U</i> =0.02r/min		
				(10~200)r/min	<i>U</i> _{rel} =0.2%		
12	*Circle Sample Cutters	length	Calibration Specification for Circle Sample Cutters JJF(spin)061	(1~150)mm	<i>U</i> =0.3mm		
13	*Fabric Thickness Instrument	Length	Calibration Specification for Fabric Thickness Instruments JJF(Textile) 020	(0.5~10)mm	<i>U</i> =0.006mm		
		Time		(0~40)s			
		Weight		(0~200)g	<i>U</i> =0.1g		
		Length		(0~150)mm	<i>U</i> =0.06mm		



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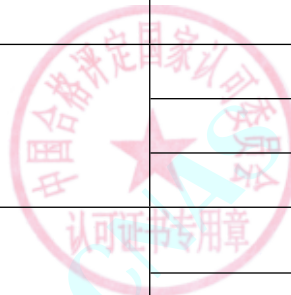
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
14	*Silk Length Measuring Machine	Length	Calibration Specitication for Silk Length Measuring Machine JJF(Textile) 043	(0~1500)mm	<i>U</i> =0.7mm		
		Rotate speed		(200~400)r/min	<i>U</i> _{rel} =0.4%		
15	*Silk Blackboard Shake Machine	Rotate speed	Calibration Specification for Silk Blackboard Shake Machine JJF(Textile)046	(1~300)r/min	<i>U</i> =1r/min		
		Length		Length、Width:(0~1500)mm	<i>U</i> =0.7mm		
				Thickness:(0~50)mm	<i>U</i> =0.3mm		
16	*Wool Fiber Comb Stapling Sorter	Length	Calibration Specificaion for Wool Fiber Comb Stapling Sorter JJF(Textile)025	(0~150)mm	<i>U</i> =0.06mm		
		Comb plate density		14pieces/cm	<i>U</i> =0.3pieces/cm		
17	*Winding Black Board Tester	Winding density	Calibration Specification for the Winding Black Board Tester JJF(Textile)012	(7~19)root/cm	<i>U</i> _{rel} =1.2%		
		Tension tablet weight		(1~50)cN	<i>U</i> _{rel} =5%		
		Length		(0~500)mm	<i>U</i> =0.1mm		
18	*Traveling Counting Glasses	Length	Calibration Specificaion for Traveling Counting Glasses JJF(Textile) 023	(0~150)mm	<i>U</i> =0.08mm		
19	*Textile Yarn Length Tester	Length	Calibration Specification for Textile Yarn Length Tester JJF(Textile)021	(0~1000)mm	<i>U</i> =0.13mm		
				(1~200)cN	<i>U</i> _{rel} =0.5%		
20	*capillary effect instrument	Length	Calibration Specification for capillary effect instrument JJF(Textile)056	(0~300)mm	<i>U</i> =0.11mm		
		Weight		(0~10)g	<i>U</i> =0.1g		
		Time		(0~30)min	<i>U</i> =0.2s		
21	*strip length gauge	Drum circumference	Calibration Specification for sliver and roving length	(0~1000)mm	<i>U</i> =0.44mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Weight	sampler JJF(Textile)001	(0~5000)g	U=0.2g		
		Drum rotate speed		(1~20)r/min	U=1r/min		
22	*roller type digital display fabric length measuring instrument	Length	Calibration specification for roller type digital display fabric length measuring instrument JJF(Textile)066	(0~300)mm	U=0.01mm		
23	*Down Filing Power Tester	Length	Calibration Specificaion for Down Filing Power Tester JJF（Textile）074	Diameter:(0~300)mm	U=0.05mm		
				Height:(0~1000)mm	U=0.7mm		
		Weight		(0~100)g	U=0.2g		
24	*Colour Fastness to Washing Testers	Length	Calibration Specification for Colour Fastness to Washing Testers JJF(spin)026	(1~200)mm	U=0.05mm		
		Rotational speed		(1~10)r/min	U=0.02r/min		
				(10~200)r/min	U _{rel} =0.2%		
		Time		(0~3600)s	U=0.2s		
		Temperature		(0~150)℃	U=0.6℃		
(4) Special measuring instruments for construction and traffic							
1	Static Loading Test System on Piling Foundation	PressUre	V.R.of Static Loading Test System on Piling Foundation JJG(Su)152	(5~80)MPa	U _{rel} =0.06%		
		Force		(500~5000)kN	U _{rel} =0.22%		
		Displacement		(0.01~50)mm	U _{rel} =0.02mm		
2	*Concrete Test Hammer	rate constant value	V.R. of Rebound test Hammer JJG817	72~90	U _{rel} =2.4%		
		Length		(20~135)mm	U=0.05mm		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Force		(0.2~1)N	$U=0.05N$		
		Elastic tension spring stiffness		(50~1000)N/m	$U_{rel}=2.6\%$		
3	reinforced concrete covermeter and floorslab thickness tester	Length	C.S.of reinforced concrete covermeter and floorslab thickness tester JJF1224	(5~330)mm	$U=0.7mm$		
(5) Special measuring instruments for electrical and electronic appliances							
1	*Spark tester	voltage	V.R.of Spark tester JJG(su)74	AC: (1~25)kV,(50Hz)	$U_{rel}=1.3\% \sim 1.2\%$		
				DC: (1~25)kV	$U_{rel}=1.3\% \sim 1.2\%$		
2	*Electrical Fast Transient/Burst Simulators	Peak of pulse voltage	Calibration Specification for Electrical Fast Transient/Burst Simulators JJF1672	(0.1~4.4)kV	$U_{rel}=5\%$		
		Rise time of pulse		4ns~200ns	$U_{rel}=9\%$		
		Pulse width		20ns~1 μs	$U_{rel}=4\%$		
		Pulse Repetition Frequency		5kHz~300kHz	$U_{rel}=1.3\%$		
		Burst Duration		0.5ms~500ms	$U_{rel}=2\%$		
		Burst Period		100ms~10s	$U_{rel}=1.4\%$		
3	*High Voltage Switch Mechanical Properties	Closing Time	C.S.of High Voltage Switch Mechanical Properties tester JJG1120	10 ms~100 ms	$U=0.2ms$		
				500ms	$U=0.6ms$		
		Opening time		10 ms~100 ms	$U=0.2ms$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				500ms	$U=0.6\text{ms}$		
4	*Surge Simulators	Peak open-circuit voltage	Calibration Specification for Surge Simulators JJF1741	(0.1~12)kV	$U_{\text{rel}}=4\%$		
		open-circuit voltage					
		Wavefront time		$0.5\mu\text{s} \sim 50\mu\text{s}$	$U=0.07\mu\text{s}$		
		Open-circuit voltage duration		$10\mu\text{s} \sim 1\text{ms}$	$U=0.6\mu\text{s}$		
		Peak short-circuit current		(0.25~3)kA	$U_{\text{rel}}=2.0\%$		
		Short-circuit current wavefront time		$0.5\mu\text{s} \sim 50\mu\text{s}$	$U=0.12\mu\text{s}$		
		Short-circuit current duration		$10\mu\text{s} \sim 1\text{ms}$	$U=0.5\mu\text{s}$		
		Phase		($0^\circ \sim 360^\circ$)	$U=1.2^\circ$		
5	Harmonious and Flicker Analysis System	Current	Calibration Specification for Harmonious and Flicker Analysis System JJF1205	(1~80)A,(45Hz~65Hz)	$U_{\text{rel}}=0.3\%$		
		Voltage		(50~1000)V,(45Hz~65Hz)	$U_{\text{rel}}=0.3\%$		
		Flicker		$P_{\text{st}}=1, P_{\text{st}}=5$	$U=0.03$		
		Harmonic Voltage		(1~50)V,(100Hz~3kHz)	$U_{\text{rel}}=0.5\%$		
		Harmonic Current		(1~6)A,(100Hz~3kHz)	$U_{\text{rel}}=0.5\%$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Power		50W~10kW, (45Hz~65Hz)	$U_{rel}=0.5\%$		
6	*Partial Discharge Tester Based Pulse Current Method	Up-down cut-off frequency	Calibration Specification for Partial Discharge Testers Based Pulse Current Method JJF1616	10kHz~500kHz	$U_{rel}=2.6\%$		
		Apparent charge magnitude		5pC~5nC	$U_{rel}=6\%$		
		Shift pulse response gain		5pC~5nC, (1kHz)	$U_{rel}=9\%$		
		The polarity response of positive and negative pulses is asymmetrical		5pC~5nC, (1kHz)	$U_{rel}=6\%$		
		Low repetition rate pulse response		5pC~5nC, (50Hz)	$U_{rel}=6\%$		
7	*Data Acquisition System	DC voltage	C.S. of Data Acquisition System JJF1048	1mV~10mV	$U_{rel}=0.05\%$		
				10mV~220mV	$U_{rel}=0.005\%$		
				220mV~2.2V	$U_{rel}=0.0015\%$		
				2.2V~220V	$U_{rel}=0.001\%$		
				220V~1000V	$U_{rel}=0.0012\%$		
		Acquisition rate		30Sa/s~15MSa/s	$U_{rel}=5 \times 10^{-6}$		
8	Electrostatic Discharge	Output Voltage	Calibration Specification for Electrostatic Discharge	1kV	$U_{rel}=5.0\%$		



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No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Generators		Simulators JJF1397	2kV	$U_{rel}=2.7\%$		
				2kV~30kV	$U_{rel}=2.1\%$		
		Contact Discharge Current		3.5A~30A	$U_{rel}=6\%$		
		Current Rising Time		(0.7~1)ns	$U_{rel}=13\%$		
9	*Cable Testers	AC Voltage	Calibration Specification for Cable Testers JJF1457	10V~1000V	$U_{rel}=0.6\%$		
				1000V~1500V	$U_{rel}=1.2\%$		
		DC Resistance		1 Ω ~ 100k Ω	$U_{rel}=1\%$		
				10k Ω ~ 1M Ω	$U_{rel}=0.7\%$		
		Insulation Resistance		1M Ω ~ 10M Ω	$U_{rel}=0.9\%$		
				10M Ω ~ 200M Ω	$U_{rel}=1.4\%$		
10	*Voltage Dips,Short Interruptions and Voltage Variations Test Generators	Output Voltage	Calibration Specification for Voltage Dips,Short Interruptions and Voltage Variations Test Generators JJF1673	(0.1~300)V	$U_{rel}=0.5\%$		



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		Time Interval		1ms~60s	$U_{rel}=1.4\%$		
11	*Oscilloscope Voltage Probes	DC Voltage Attenuation Ratio	Calibration Specification for Oscilloscope Voltage Probes JJF1437	1:1~1000:1	$U_{rel}=0.7\%$		
		Frequency Response		0dB~-6dB,(50kHz~1GHz)	$U=1.1dB$		
		RiseTime		700ps~70ns	$U_{rel}=12\%$		
		Input Resistance		50 Ω ~ 100M Ω	$U_{rel}=0.6\%$		
12	Static Friction Coefficient Tester of Enamelled Winding Wire	Angle	Calibration Specification for Static Friction Coefficient Tester of Enamelled Winding Wire JJF (Su) 161	(0~30)°	$U=0.1^\circ$		
		Weight		(0~1000)g	$U=1.2g$		
13	Elongation Tester of Enamelled Winding Wire	Length	Calibration Specification for Elongation Tester of Enamelled Winding Wire JJF (Su) 160	(0~300)mm	$U=0.06mm$		
		Elongation		(10~50)%	$U=0.22\%$		
		Speed		(0~500)mm/min	$U=4.4mm/min$		
14	Jerk Tester of Enamelled Winding Wire	Length	Calibration Specification for Jerk Tester of Enamelled Winding Wire JJF (Su) 162	(0~300)mm	$U=0.12mm$		
		Elongation		(10~50)%	$U=0.22\%$		
		Speed		(0.01~10)m/s	$U_{rel}=2.4\%$		
15	Battery Internal Resistance Tester	DC Voltage	C.S. for Battery Internal Resistance Testers JJF1620	(0.1~0.5)V	$U_{rel}=0.02\%$		
				(0.5~800)V	$U_{rel}=0.006\%$		
		AC Resistance		1m Ω ~ 3000 Ω	$U_{rel}=0.12\%$		
16	*Proof Tracking Index Tester	Voltage	C.S. for Proof Tracking Index Testers JJF(Su)194	(100~600)V	$U_{rel}=(0.8\sim0.5)\%$		



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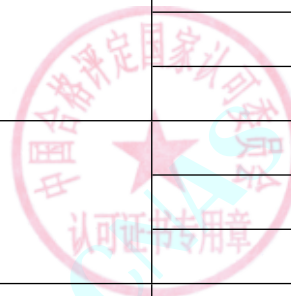
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Current		(0.2~1)A	$U_{rel}=(1.8\sim1.2)\%$		
		Time Interval		30s	$U=0.4s$		
17	Vertical Combustion Tester	Length	Calibration Specification for Vertical Combustion Testers JJF(Textile) 068	(0~800)mm	$U=0.05mm$		
		time		(0~120)s	$U=0.2s$		
		Velocity		(0~100)mm/s	$U=0.2mm/s$		
		Angel		(0~90)°	$U=6'$		
		Mass		(10~500)g	$U_{rel}=0.2\%$		
18	*Soil Number Measuring Instrument	Number of circles	Calibration specification for soil number measuring instrument JJF(Su)193	(1~1000)circle	$U=1circle$		
				(1000~21110)circle	$U_{rel}=0.12\%$		
19	*Electrostatic Decay Tester	Electrostatic Voltage	Calibration Specification for Electrostatic Decay Tester JJF(WXJL)005	(0.005~0.1)kV	$U=0.001kV$		
				(0.1~1)kV	$U=0.002kV$		
				(1~2)kV	$U=0.009kV$		
				(2~3)kV	$U=0.02kV$		
				(3~5)kV	$U=0.04kV$		
		Electrostatic Decay Time		(1~600)s	$U=0.1s$		
20	*on line widing temperature rise tester	Resistance	C.S. for on line widing temperature rise tester JJF1540	0.1 Ω ~ 1 Ω			
				1 Ω ~ 10 Ω			
				10 Ω ~ 10k Ω			



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
21	*GalvaPluse Corrosion Rate System	Voltage measurement	C.S. for GalvaPluse Corrosion Rate System JJF1341	±(0.1~2)V	<i>U</i> =1mV		
		Output voltage		±(0.1~2)V	<i>U</i> =1mV		
		Output current		(-200~-20)mA	<i>U</i> =0.2mA		
				(-20~-2)mA	<i>U</i> =0.02mA		
				(-2~-0.2)mA	<i>U</i> =0.002mA		
				(0.2~2)mA	<i>U</i> =0.002mA		
				(2~20)mA	<i>U</i> =0.02mA		
				(20~200)mA	<i>U</i> =0.2mA		
22	*Resistive Current Testers for Zinc- oxide Surge	Voltage	C.S. for Resistive Current Testers for Zinc-oxide Surge JJF(zhe)1082	(10~500)V,(45~65)Hz	<i>U</i> _{rel} =0.2%		
		Total current		(0.1~0.5)mA,(45~65)Hz	<i>U</i> _{rel} =1.9%		
				(0.5~20)mA,(45~65)Hz	<i>U</i> _{rel} =0.5%		
		Resistive Current		(0.1~0.5)mA,(45~65)Hz	<i>U</i> _{rel} =1.9%		
				(0.5~10)mA,(45~65)Hz	<i>U</i> _{rel} =0.5%		
		Phase Angle		0°	<i>U</i> =0.12°		
23	Needle-flame Tester	Time	C.S.for Needle-flame Tester JJF(WXJL)010	(5~600)s	<i>U</i> =0.5s		
		Length		(0~100)mm	<i>U</i> =0.04mm		
		angle		(0~360)°	<i>U</i> =6′		
24	*Oscilloscope	AC current	Calibration Specification of Oscilloscope Current Probes	(0.01~2000)A(50Hz)	<i>U</i> _{rel} =0.7%		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		DC current	JJF (DZ) 0036	(0.01~2000) A	$U_{rel}=0.7\%$		
		Output voltage ratio		1V/1A~1mV/1A (1~1000)	$U_{rel}=0.6\%$		
		frequency bandwidth		50kHz~100MHz	$U_{rel}=5\%$		
		rise/fall time		17.5ns~3.5μs	$U_{rel}=2.8\%$		
25	*Verifying Meter for pH Meters	DCV	Verification Regulation of Verifying Meter for pH Meters JJG 919	1mV~10mV	$U_{rel}=0.012\%$		
				10mV~2V	$U_{rel}=0.002\%$		
26	*current problem and injection proble	transfer impedance	Calibration specification for current probes and current injection clamps JJF(TX) 030	(-34~+20)dB Ω , (9kHz~1GHz)	$U=1.1\text{dB}$		
27	*AC Electronic Load	AC Voltage	Calibration specification for AC electronic loads JJF (DZ) 0002	(0.1~300)V,(40Hz~1kHz)	$U_{rel}=0.05\%$		
		AC Current		(1~30)A,(40Hz~1kHz)	$U_{rel}=0.2\%$		
		Frequency		40Hz~1kHz	$U_{rel}=0.02\%$		
		Resistance		1Ω~1kΩ,(45Hz~65Hz)	$U_{rel}=0.2\%$		
		Power		1W~3kW,(45Hz~65Hz)	$U_{rel}=0.3\%$		
		Power Factor		0.01~1,(45Hz~65Hz)	$U=0.002$		
28	Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	Voltage	Calibration specification for insulating oil dielectric dissipation factor and volume resistivity testers JJF1618	(1~5)kV	$U_{rel}=1.6\%$		
		Capacity		100pF	$U_{rel}=1\%$		
		Dielectric Dissipation Factor		0~0.05	$U=0.0006$		
				0.05~0.1	$U=0.0003$		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Insulating Oil Volume Resistivity		$1 \times 10^6 \Omega \cdot \text{m} \sim 1 \times 10^{12} \Omega \cdot \text{m}$	$U_{\text{rel}}=1.7\%$		
		Temperature		(0~120) °C	$U=0.08^\circ\text{C}$		
29	*Test Devices for Action Characteristics of Low Voltage Circuit Breakers	AC Current	Calibration Specification for Test Devices for Action Characteristics of Low Voltage Circuit Breakers JJF 1799	100A~10kA, (45Hz~ 65Hz)	$U_{\text{rel}}=2.0\%$		
				10kA~20kA, (45Hz~ 65Hz)	$U_{\text{rel}}=3.0\%$		
		Time		(1~100)ms	$U_{\text{rel}}=1.2\%$		
		Distortion		0.1%~10%	$U_{\text{rel}}=4.0\%$		
30	*Wire and Cable Spark Tester	DC Voltage	Calibration Specification for Wire and Cable Spark Tester JJF(JX) 1047	(0.5~30)kV	$U_{\text{rel}}=1.5\%$		
		AC Voltage		(0.5~30)kV, (45Hz~ 65Hz)	$U_{\text{rel}}=1.5\%$		
				(0.5~20)kV, (65Hz~ 1MHz)	$U_{\text{rel}}=2.7\%$		
		Frequency		45Hz~1MHz	$U_{\text{rel}}=0.2\%$		
31	*Standard Residual Voltage Testers	DC Voltage	Calibration Specification for Standard Residual Voltage Testers JJF(DZ) 0091	(1~60)V	$U_{\text{rel}}=2.0\%$		
				(60~200)V	$U_{\text{rel}}=0.5\%$		
		AC Voltage		(10~50)V, (45Hz~ 65Hz)	$U_{\text{rel}}=0.8\%$		
				(50~250)V, (45Hz~ 65Hz)	$U_{\text{rel}}=0.4\%$		
		Time		Duration: (0.1~10)s	$U_{\text{rel}}=0.8\%$		
				Duration: (10~99.9)s	$U_{\text{rel}}=0.27\%$		



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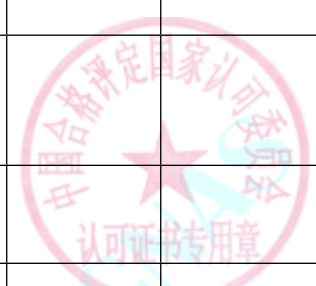
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date	
				Power-off Time Difference: (-5~5)ms	U=0.3ms			
				Test Time: (1~5)s	U _{rel} =0.3%			
				Test Time: (5~10)s	U _{rel} =0.15%			
		Input Impedance		100MΩ~10GΩ	U _{rel} =1.5%			
32	*DC Electronic Loads	DC Voltage	Calibration Specification for DC Electronic Loads JJF 1462	0.1V~10V	U _{rel} =0.02%			
				10V~1000V	U _{rel} =0.03%			
		DC Current		1mA~100mA	U _{rel} =0.6%			
				0.1A~1A	U _{rel} =0.10%			
				1A~10A	U _{rel} =0.06%			
				10A~1000A	U _{rel} =0.07%			
		DC Power		10mW~1W	U _{rel} =0.8%			
				1W~10kW	U _{rel} =0.12%			
				500W~30kW	U _{rel} =0.2%			
				DC Resistance	0.1Ω~1Ω			U _{rel} =0.8%
		1Ω~100kΩ			U _{rel} =0.08%			
33	*Lightning Protection Component Testers	DC Voltage	Calibration Specification for Lightning Protection Component Testers JJF 2177	5V~75V	U _{rel} =0.3%			
				75V~2000V	U _{rel} =0.1%			
		Constant current		1mA	U=5 μA			



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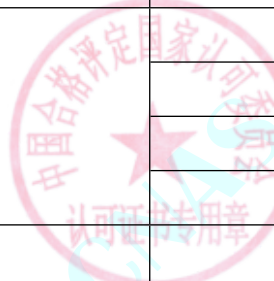
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		DC leakage current		1μA~20μA	U=0.15μA		
34	*Electric Spark Leak Detector	DC Voltage	Calibration Specification for Electric Spark Leak Detector JJF(Su) 284	(0.1~35)kV	U _{rel} =1%		
		Pulse Voltage		(0.1~35)kV	U _{rel} =2.5%		
(6) Measuring instruments for motor vehicles							
1	*Platform Brake Tester	Force	V.R.of Platform Brake Tester JJG1020	(0.5~50)kN	U _{rel} =0.44%~0.15%		
		Mass		(1000~4000)kg	U=6kg		
				(>4000~20000)kg	U _{rel} =0.2%		
2	*resonant-aUtomotive sUSpension tester	Mass	Calibration Specification for AUtomotive SUSpension TesterJJF1192-2008 JJF1192	(500~5000)kg	U _{rel} =0.58%~0.12%		
3	*Bump Testing Machines	Acceleration	Verification Regulation of Shock&Bump Testing Machines JJG1174	(1~1000)m/s ²	U _{rel} =5%		
4	*Special Axle (Wheel) Load Scale for Motor Vehicle Test	Mass	V.R.of Special Axle (Wheel) Load Scale for Motor Vehicle Test JJG1014	(1000~4000)kg	U=6kg		
				(>4000~40000)kg	U _{rel} =0.2%		
5	The AUtomobile Engine Crankcase Force Tester	Flow	V.R.of The AUtomobile Engine Crankcase Force Tester JJG(Traffic) 012	(10~150)L/min	U _{rel} =2.0%		
6	*Roller Opposite Forces Type Brake Tester	Force	V.R.of Roller Opposite Forces Type Brake Tester JJG906	(100~3000)N	U _{rel} =0.24%		
7	*Chassis Dynamometers for Automobile	TorqUe	C.S.for Chassis Dynamometers for Automobile Emissions	(0.1~25000)N	U _{rel} =0.6%~0.2%		



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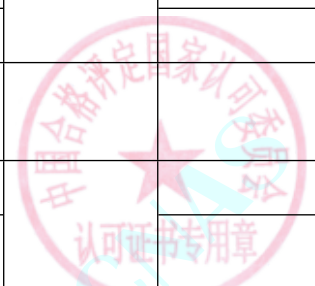
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Emissions Testing	Speed	Testing JJF1221	(5~180)km/h	<i>U</i> =0.06km/h		
8	Motor vehicle testers for steering force and steering angle	Force	Calibration Specification of Motor Vehicle Testers for Steering Force and Steering Angle JJF1196	(100~500)N	<i>U</i> =(1.2~3.1)N		
		Angle		(0~360)°	<i>U</i> =20'		
9	*Headlamp tester for motor vehicle	Intension of the Light	V.R.of Headlamp Testers for Motor Vehicle JJG745	(5~60)kcd	<i>U</i> _{rel} =6.2%		
		Optical axis offset		(0~35)cm/dam	<i>U</i> =1.8cm/dam		
10	*Transmittance Meter of Automobile	Transmittance Ratio	C.S. for transmittance Meter of automobile JJF1225	9.5%~95%	<i>U</i> _{rel} =0.8%		
11	*Filter-type smoke-meter	Smoke intensity	V.R. of Filter-Type Smokemeters JJG847	(1~10)BSU	<i>U</i> =0.3BSU		
12	*Opacimeters	absorbance ratio	V.R.of Opacimeters JJG976	30%~80%	<i>U</i> _{rel} =0.8%		
13	*Manipulating Force Tester for Automotive Brake	Force	C.S.for Manipulating Force Tester for Automotive Brake JJF1169	(100~1000)N	<i>U</i> _{rel} =0.86%~0.21%		
14	*Automobile Side Slip Testers	Displace-ment	V.R. of Automobile Side Slip Testers JJG 908	(0~15)m/km	<i>U</i> =0.04m/km		
15	Non-contact Automotive Speedmeter	Speed	Calibration Specification for Non-contact Automotive Speedmeter JJF1193	(5~50)km/h	<i>U</i> =0.2km/h		
				(>50~180)km/h	<i>U</i> _{rel} =0.3%		
		Displacement		(1.00~30.00)m	<i>U</i> =0.2m		
				(>30.00~999.99)m	<i>U</i> _{rel} =0.3%		
16	*Four-wheel Alignmerter	Angle	C.S.for Four-wheel Alignmerter JJF1154	(0~15)°	<i>U</i> =1.8'		



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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
17	*Wheel Dynamic Balancers	Dynamic Unbalance QUANTITY	C.S.for Wheel Dynamic Balancers JJF1151	(80~200)g • mm/kg	$U_{rel}=3.1\%$		
		Phase		(0~360)°	$U=6^\circ$		
18	*Vehicle exhaust emission measuring instrument	Concentration	V.R. of Vehicle Exhaust Emission Measuring Instruments JJG688	O ₂ :(0.5~25)×10 ⁻²	$U_{rel}=1.6\%$		
				CO:(0.5~10)×10 ⁻²	$U_{rel}=1.6\%$		
				HC:(100~2000)×10 ⁻⁶	$U_{rel}=1.2\%$		
				CO ₂ :(3~16)×10 ⁻²	$U_{rel}=1.9\%$		
				NO:(300~4000)×10 ⁻⁶	$U_{rel}=1.1\%$		
19	*Devices of Four-wheel Aligner	angle	Calibration Specification for Calibration Devices of Four-wheel Aligner JJF1489	Camber Angle:-10° ~ 10°	$U=30''$		
				Wheel toe-in Angle:-3° ~ 3°	$U=30''$		
				Kkingpin Inclination Angle:-5° ~ 23°	$U=30''$		
				caster angle:-15° ~ 15°	$U=30''$		
				Parallelism:0' ~ 5'	$U=30''$		
20	*Tyre Pressure Gauge	pressure	Verification Regulation of Tyre Pressure Gauges JJG 927	(0~2.5)MPa	$U=0.004\text{MPa}$		
21	*Motor Vehicle Engine Speed Measuring Instrument	Rotate Speed	Calibration Specification for Motor Vehicle Engine Speed Measuring Instruments JJF1375	(500~6000)r/min	$U_{rel}=0.3\%$		
		Time		(0~10)s	$U=1\text{s}$		
22	*Zero Gas Generators	Concentration	Calibration Specification for Zero Gas Generators JJF	CO:(0~1)×10 ⁻⁶ mol/mol	$U=0.052 \times 10^{-6}\text{mol/mol}$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			2159	CO: $(1 \sim 20) \times 10^{-6}$ mol/mol	$U=0.22 \times 10^{-6}$ mol/mol		
				NO: $(0 \sim 1) \times 10^{-6}$ mol/mol	$U=0.093 \times 10^{-6}$ mol/mol		
				NO: $(1 \sim 20) \times 10^{-6}$ mol/mol	$U=0.23 \times 10^{-6}$ mol/mol		
				NO ₂ : $(0 \sim 1) \times 10^{-6}$ mol/mol	$U=0.048 \times 10^{-6}$ mol/mol		
				NO ₂ : $(1 \sim 20) \times 10^{-6}$ mol/mol	$U=0.28 \times 10^{-6}$ mol/mol		
				C ₃ H ₈ : $(0 \sim 1) \times 10^{-6}$ mol/mol	$U=0.22 \times 10^{-6}$ mol/mol		
				C ₃ H ₈ : $(1 \sim 40) \times 10^{-6}$ mol/mol	$U=0.29 \times 10^{-6}$ mol/mol		
				CO ₂ : $(0 \sim 2) \times 10^{-6}$ mol/mol	$U=0.099 \times 10^{-6}$ mol/mol		
				CO ₂ : $(2 \sim 40) \times 10^{-6}$ mol/mol	$U=0.40 \times 10^{-6}$ mol/mol		
				O ₂ : $(0 \sim 25) \times 10^{-2}$ mol/mol	$U=0.14 \times 10^{-2}$ mol/mol		



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