

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: 2024-12-10 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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No. CNAS L0260

第 1 页 共 155 页

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

№	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	$U=0.001mm$		



No. CNAS L0260

第 2 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	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	$U=0.03\text{mm}$		



No. CNAS L0260

第 3 页 共 155 页

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

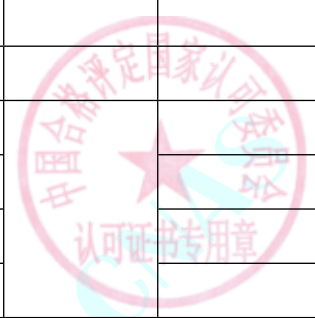
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1500mm~2000mm	$U=0.04\text{mm}$		
20	*Micrometer	Length	V.R. of Micrometer JJG21, C.S. for Large Dimension Outside Micrometers JJF1088	(0~100) mm	$U=1\text{ }\mu\text{m}$		
				100mm~500mm	$U=2\text{ }\mu\text{m}$		
				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)	$U=1.2\text{ }\mu\text{m}$		



No. CNAS L0260

第 4 页 共 155 页

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

№	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	$U=4 \mu m$		



No. CNAS L0260

第 5 页 共 155 页

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

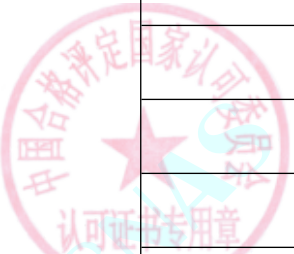
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				30mm~50mm	$U=6\text{ }\mu\text{m}$		
				50mm~100mm	$U=9\text{ }\mu\text{m}$		
27	Gauge Blocks	Length	V.R.of Gauge Blocks JJG146	(0.5~1000)mm	$U=0.07\text{ }\mu\text{m}+0.7\times 10^{-6}L$		
28	*Snap 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	$U=2\text{ }\mu\text{m}$		



No. CNAS L0260

第 6 页 共 155 页

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

№	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)	$U=9 \mu m$		



No. CNAS L0260

第 7 页 共 155 页

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

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



No. CNAS L0260

第 8 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				±10mm/m (division value: 0.005mm/m)	U=0.005mm/m		
				±10mm/m (division value: 0.01mm/m)	U=0.01mm/m		
36	Coincidence level	Angle	V.R. of Electronic levels and Coincidence levels JJG103	(-5~5)mm/m	U=0.003mm/m		
37	Angle gauge blocks	Angle	V.R. of Angle gauge blocks JJG70	(0~90)°	U=2.5"		
38	Square	Verticality	V.R. of squares JJG7	column square: 200mm~500mm	U=0.5 μm		
				square of wide seat: 63mm~500mm	U=1 μm		
				blade square: 50mm~ 200mm	U=1 μm		
				rectangle square: 125mm~200mm	U=0.3 μm		
				Graduated steel square: 150mm~500mm	U=0.04mm		
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	75mm~175mm	U=0.3 μm		
				175mm~300mm	U=0.5 μm		
				300mm~500mm	U=0.7 μm		
41	Frame Levels and Shaft Levels	Angle	Calibration Specification for Frame Levels and Shaft Levels JJF1084	(0.02~0.10)mm/m	U _{rel} =4%		
42	Level ruler	Angle	C.S. for Level Rules JJF1085	(0.5~10)mm/m	U _{rel} =7%		



No. CNAS L0260

第 9 页 共 155 页

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

№	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"		



No. CNAS L0260

第 10 页 共 155 页

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

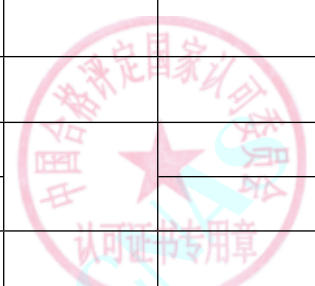
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(0~360)° (division value 3")	U=2.0"		
				(0~360)° (division value 5")	U=3.1"		
				(0~360)° (division value 10")	U=5.4"		
51	Auto-collimator	Angle	V.R. of Autocollimator JJG202	-120" ~ 120" (division value 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 μm		
				160mm	U=2.6 μm		
				200mm	U=2.9 μm		
				250mm	U=3.1 μm		
				315mm	U=3.5 μm		
				400mm	U=4.3 μm		
53	*Square tester	Verticality	C.S. for Square tester JJF1140	(0~500)mm	U=0.8 μm		
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		



No. CNAS L0260

第 11 页 共 155 页

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

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55	*Calibration Specification for Angular-Position Transducers/Sensors	Angle	C.S.for Angular-Position Transducers/Sensors JJF1352	$(0\sim 360)^\circ$	$U=1''$		
56	*Calibration Specification for Photoelectric Shaft Encoders	Angle	C.S.for Photoelectric Shaft Encoders JJF1115	$(0\sim 360)^\circ$	$U=1''$		
57	Optical theodolite	Angle	V.R.of Optical theodolites JJG414	$(0\sim 360)^\circ$	$U=0.4''$		
58	Water level	Angle	V.R.of Water Levels JJG425	$-25'' \sim 25''$	$U=3''$		
59	*Digital Display Height Measuring Instrument	Length	C.S.for Digital Display Height Measuring Instrument JJF1254	$(0\sim 1000)\text{mm}$	$U=0.16\text{ }\mu\text{m}+1.6\times 10^{-6}L$		
60	Plumb Instruments	Angle	C.S.for Plumb Instruments JJF1081	$-100'' \sim 100''$	$U=0.6''$		
61	*Concen-tricity Testers	Length	C.S.for Concentricity Testers JJF1109	$(0\sim 20)\text{ }\mu\text{m}$	$U=3\text{ }\mu\text{m}$		
62	*Bearing Inside and Outside Diameter Testers	Length	V.R.of Bearing Inside and Outside Diameter Testers JJG 471	$\phi(3\sim 230)\text{mm}$	$U=0.6\text{ }\mu\text{m}$		
63	*Gear tooth caliper	Length	C.S. for Gear Tooth Calipers JJF1072	$M(1\sim 26)$	$U=0.01\text{mm}$		
64	*Common normal micrometer	Length	V.R.of the Common Normal Micrometer JJG82	$(0\sim 50)\text{mm}$	$U=1\text{ }\mu\text{m}$		
				$50\text{mm}\sim 200\text{mm}$	$U=2\text{ }\mu\text{m}$		
65	Screw Templates	Length	V.R.of Screw Templates JJG60	$P: (0.4\sim 6)\text{mm}$	$U=3\text{ }\mu\text{m}$		
	Instruments of		C.S.for Instruments of Thread Inspection of Casing, Tubing,	monomial parameter gauges: $(0\sim 25)\text{mm}$	$U=5\text{ }\mu\text{m}$		

No. CNAS L0260

第 12 页 共 155 页

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



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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 $\times$)	$U=0.2 \mu\text{m}$		
				-15 μm ~15 μm (Buoy type 5000 $\times$)	$U=0.3 \mu\text{m}$		
				-40 μm ~40 μm (Buoy type 2000 $\times$)	$U=0.4 \mu\text{m}$		



No. CNAS L0260

第 13 页 共 155 页

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

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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	$U=0.16 \mu\text{m} + 1.0 \times 10^{-6}L$		
76	*Coordinate Measuring Machines	Length	C.S.for Coordinate Measuring Machines JJF1064	(0 ~ 1)m	$U=0.2 \mu\text{m} + 8 \times 10^{-7}L$		
				(> 1 ~ 2.5)m	$U=0.3 \mu\text{m} + 7 \times 10^{-7}L$		



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No. CNAS L0260

第 14 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				($>2.5\sim4$)m	$U=0.3\ \mu\text{m}+1.2\times10^{-6}L$		
				($>4\sim10$)m	$U=1\ \mu\text{m}+1.5\times10^{-6}L$		
77	*Magnetic and eddy current measuring instrument for coating thickness	Length	V.R of Magnetic and eddy current measuring instrument for coating thickness JJG818	($0\sim8000$) μm	$U=0.15\ \mu\text{m}+4.4\times10^{-3}H$		
78	*Measure-ment Standard Instrument of Roundness	Roundness	V.R.of Measurement Standard Instrument of Roundness and Cylindricity JJG429	($0.5\sim10$) μm	$U=0.04\ \mu\text{m}$		
79	Calibrator of Extensometer	Length	C.S.for Calibrator of Extensometer JJF1096	($0\sim1/3$)mm	$U=0.10\ \mu\text{m}$		
				($>1/3\sim25$)mm	$U_{\text{rel}}=0.03\%$		
80	*the Tool Presetting Instrument	Length	V.R.of The Tool Presetting Instrument JJG938	($0\sim1000$)mm	$U=0.38\ \mu\text{m}+2.7\times10^{-6}L$		
81	*Grating Micro-meter	Length	Calibration Specification for Grating Micrometers JJF1682	($0\sim25$)mm (Level: $0.2\ \mu\text{m}$)	$U=0.1\ \mu\text{m}$		
				($0\sim50$)mm (Level: $0.5\ \mu\text{m}$)	$U=0.2\ \mu\text{m}$		
				($0\sim100$)mm (Level: $1\ \mu\text{m}\sim10\ \mu\text{m}$)	$U=0.3\ \mu\text{m}$		
82	Plug gauges	Length	V.R. of Plain limit gauges JJG343	1mm $\sim$ 10mm	$U=0.4\ \mu\text{m}$		
				10mm $\sim$ 50mm	$U=0.5\ \mu\text{m}$		
				50mm $\sim$ 500mm	$U=0.3\ \mu\text{m}+4\times10^{-6}L$		
83	Ring gauges	Length	V.R. of Plain limit gauges	1mm $\sim$ 20mm	$U=0.7\ \mu\text{m}$		



No. CNAS L0260

第 15 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
			JJG343	20mm～500mm	<i>U</i> =0.5 μ m+4×10 ⁻⁶ <i>L</i>			
84	Snap gauges	Length	V.R. of Plain limit gauges JJG343	3mm～20mm	<i>U</i> =0.7 μ m			
				20mm～500mm	<i>U</i> =0.5 μ m+4×10 ⁻⁶ <i>L</i>			
85	Feeler gauges	Length	V.R. of Feeler gauges JJG62	0.02mm～0.10mm	<i>U</i> =1.5 μ m			
				0.10mm～3.00mm	<i>U</i> =2.5 μ m			
86	Thread Measuring Wires	Length	C.S. for Cylindrical measuring pin JJF1207	φ (0.118～6.585)mm	<i>U</i> =0.13 μ m			
87	*Welding measuring rulers	Angle	V.R. of Callipers for Welding inspection JJG704	ruler for measuring angle(0～60)°	<i>U</i> =8′			
				angle gauge(0～60)°	<i>U</i> =8′			
		Length		undercut depth ruler: (0～60)mm	<i>U</i> =0.03mm			
				dge linear guage of main ruler: (0～60)mm	<i>U</i> =0.06mm			
				height ruler: (0～60)mm	<i>U</i> =0.1mm			
				width ruler: (0～60)mm	<i>U</i> =0.1mm			
				clearance ruler: (0～60)mm	<i>U</i> =0.04mm			
88	Roughness comparison specimens	rough-ness	C.S. for Roughness comparison specimens JJF1099	Ra: (0.012～25) μ m	<i>U</i> _{rel} =7%			
89	Optical flat	Flatness	V.R. of Optical Flat JJG28	φ (30～60)mm	<i>U</i> =0.010 μ m			
				φ 80mm	<i>U</i> =0.012 μ m			
				φ (100～150)mm	<i>U</i> =0.016 μ m			



No. CNAS L0260

第 16 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
90	Cylindrical Screw Thread Gauges	Length	C.S. for Cylindrical Thread Gauges JJF1345	(3~400)mm Thread ring gauge pitch diameter	$U=1.8 \mu m + 1.5 \times 10^{-5}L$		
				(3~400)mm Thread ring gauge pitch	$U=1.0 \mu m + 5 \times 10^{-6}L$		
				(1~400)mm Thread plug pitch diameter	$U=1.5 \mu m + 1.5 \times 10^{-5}L$		
				(1~400)mm Thread plug pitch	$U=1.0 \mu m + 5 \times 10^{-6}L$		
91	Radius Gauge	Length	V.R. of Radius Gauge JJG58	R: (1~25)mm	$U=7 \mu m$		
92	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	$U=0.04mm$		
93	Pin gauge	Length	C.S. for Cylindrical measuring pin JJF1207	ϕ (0.1~25)mm	$U=0.2 \mu m$		
94	Standard ring gauge	Length	V.R. of Standard ring gauge JJG894	1mm~300mm	$U=0.5 \mu m + 4 \times 10^{-6}L$		
95	Electronic Plug Gauges	Length	Calibration Specification for Electronic Plug Gauges JJF1310	ϕ (6~130)mm	$U=1.5 \mu m$		
96	*Length measuring institute	Length	C.S. of Length measuring institute 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	$U=0.3 \mu m + 2 \times 10^{-6}L$		
97	*Inductive Micro- meters	Length	C.S. for Inductive Micrometers JJF1331	(-1000~+1000) μm	$U=(0.02 \sim 2.0) \mu m$		
98	*Contact type interferometer	Length	V.R. of Contact type interferometer JJG101	-50 $\mu m \sim +50 \mu m$	$U=0.012 \mu m$		



No. CNAS L0260

第 17 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
99	*Flat plate	Degree of the Plate	V.R.of Flat plate JJG117	160mm×100mm~4000mm×2500mm	$U=0.8 \mu\text{m}+0.7\times 10^{-6}L$		
100	*Flat edge	Straight ness	Calibration Specification for Straight Edges JJF1097	(0~5000)mm	$U=0.3 \mu\text{m}+4\times 10^{-7}L$		
101	Inter-ference micro-scope	Roughness	V.R. of Interference microscope JJG77	$H(0.05\sim 0.20) \mu\text{m}$	$U_{\text{rel}}=8\%$		
				$H(>0.20\sim 1.00) \mu\text{m}$	$U_{\text{rel}}=2.2\%$		
102	*ThicStirs up the flash ranging diameter meterkness table	Length	C.S.for ThicStirs up the flash ranging diameter meterkness table JJF1250	(0.1~30)mm	$U=0.26 \mu\text{m}$		
103	*Measuring System of Coordinate Position	angle	C.S.for Measuring System of Coordinate Position JJF1251	$(0\sim 360)^{\circ}$	$U=2.8''$		
		Length		(0~40)m	$U=1.9 \mu\text{m}+1.6\times 10^{-6}L$		
104	*X-Ray Fluorescence Coating Thickness Instrument	Length	C.S.for X-Ray Fluorescence Coating Thickness Instrument JJF1306	$0.05 \mu\text{m}$	$U_{\text{rel}}=10\%$		
				$(>0.05\sim 50) \mu\text{m}$	$U_{\text{rel}}=5.5\%$		
105	Mould	Length	C.S.for Moulds JJF1307	(0~300)mm	$U=0.05\text{mm}$		
				$(>300\sim 600)\text{mm}$	$U=0.1\text{mm}$		
106	*Metallographic Microscope	Length	Calibration Specification for Metallographic Microscope JJF1914	(0~100)mm	$U=1.5 \mu\text{m}$		
107	Standard Thickness Pieces Of X-Ray Fluorescence Coating Thickness Instrument	Length	C.S.for X-Ray Fluorescence Coating Thickness Instrument JJF1306	$(0.1\sim 50) \mu\text{m}$	$U_{\text{rel}}=6.2\%$		



No. CNAS L0260

第 18 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
108	*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	$U=20\text{ }\mu\text{m}$		
109	High-precision Line Scale	Length	V.R.of High-precision Line Scale JJG73	(0~1000)mm	$U=0.1\text{ }\mu\text{m}+0.4\times 10^{-6}L(k=3)$		
110	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	$U=1.3\text{ }\mu\text{m}$		
111	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	$U_{\text{rel}}=4.6\%$		
				H: 20 μm ~30 μm	$U_{\text{rel}}=2.4\%$		
				H: 30 μm ~50 μm	$U_{\text{rel}}=1.4\%$		
112	*Micrometers of Measuring Inside Dimension	Length	Calibration Specification for Micrometers of Measuring Inside Dimension JJF1411	Tri diameter: (6~300)mm	$U=0.9\text{ }\mu\text{m}+8\times 10^{-6}L$		



No. CNAS L0260

第 19 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Inside: (5~150)mm	$U=1.9 \mu m+6 \times 10^{-6}L$		
				Digital Inside: (5~200)mm	$U=0.9 \mu m+8 \times 10^{-6}L$		
113	Film Cross-cut Tester	Length	Calibration specification for Film Cross-cut Tester JJF(su)196	(1~3)mm	$U=0.003mm$		
114	Calibration Specification for Surface Profile Gauges		C.S.for Surface Profile Gauges JJF1476	Digital: (0~6.5)mm/1 μm	$U=2 \mu m$		
				Digital: (0~6.5)mm/0.1 μm	$U=1.1 \mu m$		
				Pointer: (0~6.5)mm/0.002mm	$U=2 \mu m$		
				Pointer: (0~6.5)mm/0.01mm	$U=6 \mu m$		
115	Wet Film Thickness Gauges	Length	C.S.for Wet Film Thickness Gauges JJF1484	comb gauge: (5~100) μm	$U=1 \mu m$		
				comb gauge: (>100~3000) μm	$U=3 \mu m$		
				wheel gauge: (0~125) μm	$U=0.6 \mu m$		
				wheel gauge: (>125~1500) μm	$U=2.0 \mu m$		
116	Calibration Specification for Blocks used in Ultrasonic Testing	Length	C.S.for Blocks used in Ultrasonic Testing JJF1487	(0~600)mm	$U=6 \mu m+1.2 \times 10^{-5}L$		
117	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	$U=0.01mm$		



No. CNAS L0260

第 20 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				CMM: R(>2~20)mm	<i>U</i> =0.005mm		
		Angle		CMM: 0° ~360°	<i>U</i> =3'		
		length		IPMM: (0~300)mm	<i>U</i> =0.01mm		
				IPMM: R(0.5~2)mm	<i>U</i> =0.02mm		
				IPMM: R(>2~20)mm	<i>U</i> =0.01mm		
		Angle		IPMM: 0° ~360°	<i>U</i> =13'		
		Quality		(0~5)kg	<i>U</i> =0.7g		
118	Access Probe	length	Calibration Specification for Access Probe JJF(WXJL)003	CMM: (0~300)mm	<i>U</i> =0.002mm		
				CMM: R(0.5~2)mm	<i>U</i> =0.01mm		
				CMM: R(>2~20)mm	<i>U</i> =0.005mm		
		Angle		CMM: 0° ~360°	<i>U</i> =3'		
		length		IPMM: (0~300)mm	<i>U</i> =0.01mm		
				IPMM: R(0.5~2)mm	<i>U</i> =0.02mm		
				IPMM: R(>2~20)mm	<i>U</i> =0.01mm		
		Angle		IPMM: 0° ~360°	<i>U</i> =13'		
		Force		(1~200)N	<i>U</i> _{rel} =0.6%		
119	Spline Gauge	length	Calibration Specification for Straight Cylindrical Involute Spline Gauges JJF1557	Major diameter, minor diameter: (0~180)mm	<i>U</i> =1 μ m+1×10 ⁻⁵ <i>L</i>		
				Tooth thickness, measurement over two pins: (0~180)mm	<i>U</i> =1.2 μ m+1×10 ⁻⁵ <i>L</i>		



No. CNAS L0260

第 21 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Space width, measurement between two pins: (0-180)mm	$U=1.5 \mu m+1 \times 10^{-5}L$		
120	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	$U=0.01mm$		
121	Length Meter with Laser-based	length	Calibration Specification for Length Meter with Laser- based Measurement JJF (Su) 195	(0.1~9999)m	$U_{rel}=0.013\%$		
122	Roundness Flick	length	Calibration Specification for Roundness Flick Calibration Standard JJF1485	Chord Height(1~50) μm	$U_{rel}=5.6\%$		
123	*Fiber Diameter	length	Calibration Specification for Fiber Diameter Analyzer JJF (textile) 065	(0~1000) μm	$U=1.7 \mu m$		
124	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 $\mu m \sim 10mm$	$U_{rel}=0.4\%$		
125	*Indication Snap Gauge	(length)	Verification Regulation of Micrometers with Dial Comparator Indication Snap Gauge JJG26	(0~200)mm	$U=0.4 \mu m$	合格评定国家认可 认证证书专用章	
126	Fiber Tapes And Measuring Ropes	length	Verification Regulation of Fiber Tapes And Measuring Ropes JJG5	(0~200)m	$U=0.1mm+1.4 \times 10^{-4}L$		
127	*Center Distance Calipers	length	Calibration Specification for Center Distance Calipers JJF(Su)199	(0~500)mm	$U=0.02mm$		
				(500~1000)mm	$U=0.03mm$		



No. CNAS L0260

第 22 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
128	*Step Gauges	length	Calibration Specification for Step Gauges JJF(Yi)154	(-100~100)mm	$U = (3 \sim 10) \mu m$		
129	*Calipers and Gauges of Chamfer	length	Calibration Specification for Calipers and Gauges of Chamfer JJF(Su)211	Calipers of Chamfer: (0~10)mm	$U=0.02mm$		
				Gauges of Chamfer: (0~10)mm	$U=0.017mm$		
130	Wedge-Shape Filler Gauges	length	Calibration Specification for Wedge-Shape Filler Gauges JJF1548	(0~60)mm	$U=0.010mm$		
131	*Detecting The Notch of Test Sample	Magnification	Calibration Specification for Projectors for Detecting The Notch of Test Sample JJF(zhe) 1133	$5\times \sim 100\times$	$U_{rel}=0.34\%$		
132	*X-Ray thickness gauge	Length	X-Ray thickness gauge JJG480	(0~30)mm	$U=0.002mm$		
133	*Solder Paste Inspector	Length	Calibration Specification for Solder Paste Inspector JJF (Su) 191	(0~500) μm	$U=2 \mu m$		
134	*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) $^{\circ}$	$U=0.3^{\circ}$		
135	Hand-held Laser Distance Meters	Length	Verification Regulation of hand-held laser distance meters JJG966	(0~60)m	$U=0.8mm$		
136	Laser Micrometers	Length	Calibration specification for Laser Micrometers JJF1663	(-30~30)mm	$U=0.011\%FS$		
137	Electronic Tachometer Total Station	Angle	Verification Regulation of Electronic Tachometer Total Station JJG 100	(0~360) $^{\circ}$	$U=0.3''$		



No. CNAS L0260

第 23 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
138	*optical Clinometers	Angle	Calibration Specification for Clinometers JJF1915	(0~360)°	U=6"		
139	*Atomic Force Microscope	Length	Calibration Specification for Atomic Force Microscope JJF (Su) 236	Z-direction t (20~500)nm	U=(3~5)nm		
140	*Scanning Electron Microscope	Length	Calibration specification for Scanning Electron Microscopes (SEM) JJF1916	(100~2000)nm	U=(3~8)nm		
141	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	(760~860)mm	U=0.05mm		
142	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		
143	Construction Quality Tester sets	length	Calibration Specification for Construction Quality Tester sets JJF1110	Diagonal detection ruler: (0~100)mm	U=0.2mm		
				Feeler Gauges: (0~15)mm	U=0.04mm		
				Hundred grid: (10~300)mm	U _{rel} =0.1%		
		Angle		Verticality detection ruler: (0~15)mm/2m	U=0.2mm/2m		



No. CNAS L0260

第 24 页 共 155 页

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

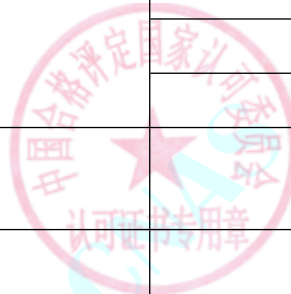
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				Inside and outside right angle detection ruler: (0~10)mm/150mm	U=0.2mm/150mm		
				Slope ruler: (0~30)mm/m	U=0.1mm/m		
144	Borehole Clinometers	Angle	Calibration Specification for Borehole Clinometers JJF1550	(-30° ~ +30°)	U=0.008%FS		
145	*Brick Calipers	length	Calibration Specification for Brick Calipers JJF(Zhe)1109	Bending ruler: (-15~30)mm	U=0.05mm		
				Main ruler: (45~500)mm	U=0.2mm		
146	*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=0.01mm		
				run-out: (0~0.1)mm	U=5 μ m		
147	Critical Flow Venturi Nozzle	Length	V.R.of Critical Flow Venturi Nozzle JJG620	(50~75)mm	U=3 μ m		
				(>75~500)mm	U=4 μ m		
148	*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=0.008mm		
149	*Gear Measuring Centers	length	Specification for the calibration of gear measuring centers JJF1561	Tooth Profile: r _b (30~197)mm	U=1.8 μ m		
				Spiral Line: r _b (29~33)mm、β : (0~30)°	U=1.8 μ m		
				Tooth Pitch: m4、z25	U=1.8 μ m		



No. CNAS L0260

第 25 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
150	Coordinate Measuring Spheres	length	Calibration Specification for Coordinate Measuring Spheres JJF 1422	diameter: (0~50)mm	$U=0.21\text{ }\mu\text{ m}+0.6\times 10^{-6}L$				
				Roundness: (0~50)mm	$U=0.03\text{ }\mu\text{ m}$				
151	*Rubber and Plastic Film Gage	Length	Calibration Specification for Rubber and Plastic Film Gage JJF 1488	Rubber and Film Gage: (0~30) mm	$U=1.2\text{ }\mu\text{ m}$				
				Plastic Film Gage: (0~1) mm	$U=1.2\text{ }\mu\text{ m}$				
152	*Micropattern Standards	Length	Calibration Specification for Micropattern Standards JJF 1917	(0~50) mm	$U=0.5\text{ }\mu\text{ m}$				
		Angle		0~360°	$U=1.5'$				
153	*Thread Gauge Scanners	Length	Calibration Specification for Thread Gauge Scanners JJF 1950	Plain diameter: (0~160) mm	$U=0.4\text{ }\mu\text{ m}+5\times 10^{-6}L$				
				Plain diameter: (160~360) mm	$U=1.0\text{ }\mu\text{ m}+5\times 10^{-6}L$				
				Thread diameter: (0~360) mm	$U=2.5\text{ }\mu\text{ m}+3\times 10^{-6}L$				
				pitch: (0~6) mm	$U=1\text{ }\mu\text{ m}$				
		Angle		Flank Angle: (0~40°)	$U=3'$				
				Smooth taper: 0~20°	$U=2''$				
				Taper of thread: 1:16	$U=0.00030$				
154	*Auto Tester For Steel Rule	Length	Calibration Specification of Auto Tester For Steel Rule JJF (浙) 1129	(0~1000) mm	$U=0.005\text{mm}+4\times 10^{-6}L$				
155	*Solder Paste Inspection Instruments	Length	Calibration Specification for Solder Paste Inspection Instruments JJF 1965	(10~500) μ m	$U=1.6\text{ }\mu\text{ m}$				



No. CNAS L0260

第 26 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
156	Standard Ball Bars	Length	Calibration Specification for Standard Ball Bars JJF 1859	CMM: (0~1000)mm	$U=1\text{ }\mu\text{ m}+3\times10^{-6}L$			
				CMM: (>1000~2500)mm	$U=2.5\text{ }\mu\text{ m}+3.5\times10^{-6}L$			
				Laser Tracker System: (>2500~4000)mm	$U=3.2\text{ }\mu\text{ m}+3\times10^{-6}L$			
157	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	$U=0.10\text{m}$			
		Angle		Straight Edge Squares:90°	$U=1.0''$			
				cone mandrel Conical Half-angle: (2~45)°	$U=2.4''$			
				four-sided iron: 90°	$U=0.4''$			
		Length		standard mandrel: (0~500)mm	$U=0.4\text{ }\mu\text{ m}$			
				cross-wire mandrel: (0~200)mm	$U=2.0\text{ }\mu\text{ m}$			
				eccentric shaft Eccentricity: (20~30) μ m	$U=0.8\text{ }\mu\text{ m}$			
				Line Scale: (0~1000)mm	$U=2.0\text{ }\mu\text{ m}+2\times10^{-6}L$			
158	*Optical Shaft Measuring Instrument	Length	Calibration Specification for Optical Shaft Measuring Instrument JJF 1933	Shaft Diameter <i>d</i> : (8~100)mm	$U=0.8\text{ }\mu\text{ m}+4.4\times10^{-6}d$			
				Shaft length <i>l</i> : (0~400)mm	$U=1.6\text{ }\mu\text{ m}+5.8\times10^{-6}l$			
159	Copper Clad Thickness Measuring	Length	Calibration Specification for Copper Clad Thickness Measuring Instrument	(4~10) μ m	$U_{\text{rel}}=9\%$			
				(>10~50) μ m	$U=0.6\text{ }\mu\text{ m}$			



No. CNAS L0260

第 27 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Instrument		JJF(su)258	(>50~500) μm	$U_{rel}=1.2\%$		
				standard thickness sheet: (0~50) μm	$U=0.3 \mu m$		
				standard thickness sheet: (>50~500) μm	$U_{rel}=0.6\%$		
160	Metallographic Microscope	Length	Standard Guide for Calibrating Reticles and Light Microscope Magnifications ASTM E1951-14	(0~100)mm	$U=1.3 \mu m$		
		Magnification		magnification of objective lens: $2.5 \times \sim 100 \times$	$U_{rel}=1.2\%$		
161	*Tire Tread Depth Gauges	Length	Calibration Specification for Tire Tread Depth Gauges JJF1477	(0~100) mm	$U=0.002mm$		
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	$U=0.7^{\circ}C$		
2	Working Noble Metal Thermocouples	Temperature	V.R.of Working Noble Metal Thermocouples JJG141	S:(300~1100)°C	$U=0.8^{\circ}C$	Accredited only for double-poles method	
				R:(300~1100)°C	$U=0.8^{\circ}C$		
				B:(1100~1600)°C	$U=2.8^{\circ}C$		
3	Base Metal Thermocouples	Temperature	C.S. for Base Metal Thermocouples JJF1637	(-40~300)°C	$U=0.3^{\circ}C$		
				(>300~1200)°C	$U=1.0^{\circ}C$		
4	Standard Mercury-in-Glass Thermometers	Temperature	V.R.of Standard Mercury-in-Glass Thermometers JJG161	(-30~0)°C	$U=0.04^{\circ}C$		
				(>0~100)°C	$U=0.03^{\circ}C$		
				(>100~200)°C	$U=0.05^{\circ}C$		



No. CNAS L0260

第 28 页 共 155 页

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

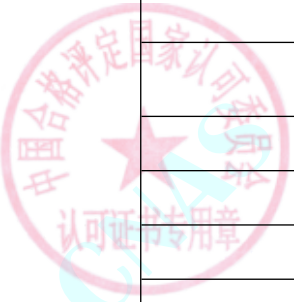
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(>200\sim 300)^{\circ}\text{C}$	$U=0.06^{\circ}\text{C}$		
5	Thermistor Thermometers	Temperature	C.S. of Thermistor Thermometers JJF1379	$(-50\sim -30)^{\circ}\text{C}$	$U=0.07^{\circ}\text{C}$		
				$(>-30\sim 100)^{\circ}\text{C}$	$U=0.06^{\circ}\text{C}$		
				$(>100\sim 200)^{\circ}\text{C}$	$U=0.07^{\circ}\text{C}$		
6	Liquid-in-Glass Thermometers for Working	Temperature	V.R. of Liquid-in-Glass Thermometers for Working JJG130	$(-80\sim -30)^{\circ}\text{C}$	$U=0.08^{\circ}\text{C}$		
				$(>-30\sim 100)^{\circ}\text{C}$	$U=0.06^{\circ}\text{C}$		
				$(>100\sim 200)^{\circ}\text{C}$	$U=0.07^{\circ}\text{C}$		
				$(>200\sim 300)^{\circ}\text{C}$	$U=0.09^{\circ}\text{C}$		
				$(>300\sim 500)^{\circ}\text{C}$	$U=0.6^{\circ}\text{C}$		
				$(>500\sim 600)^{\circ}\text{C}$	$U=0.8^{\circ}\text{C}$		
7	Bimetallic thermometer	Temperature	C.S. of Bimetallic thermometer JJF1908	$(-80\sim -30)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
				$(>-30\sim 100)^{\circ}\text{C}$	$U=0.2^{\circ}\text{C}$		
				$(>100\sim 300)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
				$(>300\sim 500)^{\circ}\text{C}$	$U=1^{\circ}\text{C}$		
8	Filled System Thermometers	Temperature	C.S. of Filled System Thermometers JJF1909	$(-80\sim -30)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
				$(>-30\sim 100)^{\circ}\text{C}$	$U=0.2^{\circ}\text{C}$		
				$(>100\sim 300)^{\circ}\text{C}$	$U=0.4^{\circ}\text{C}$		
				$(>300\sim 500)^{\circ}\text{C}$	$U=1^{\circ}\text{C}$		
				$(-80\sim 0)^{\circ}\text{C}$	$U=0.03^{\circ}\text{C}$	Accredited only for	



No. CNAS L0260

第 29 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Resistance Thermometers		Thermometers JJG229	(-0~100)°C	U=0.04°C	Industrial Platinum Resistance Thermometer	
				(>100~200)°C	U=0.05°C		
				(>200~300)°C	U=0.06°C		
				(>300~420)°C	U=0.6°C		
10	Surface Thermometers	Temperature	C.S. for the Surface Thermometers JJF1409	(50~400)°C	U=(0.5~0.7)°C		
11	Surface Platinum Resistance Thermometer	Temperature	V.R. of Surface Platinum Resistance Thermometer JJG684	(-30~300)°C	U=0.3°C		
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		



No. CNAS L0260

第 30 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Tc E Input(-200~1000) °C	$U=(0.3\sim0.4)^{\circ}\text{C}$		
15	*Self-balance Display Instruments	Temperature	V.R.of Recorders for Industrial-Process Measurement JJG74	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	$U=(0.3\sim0.4)^{\circ}\text{C}$		
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	$U=0.4^{\circ}\text{C}$		



No. CNAS L0260

第 31 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				With sensor(>300~1100) °C	U=1.5°C		
				Without sensor(4~ 20)mA	U=0.016mA		
18	*Data Acquisition System	Temperature	C.S.of Data Acquisition System JJF1048	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		
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		



No. CNAS L0260

第 32 页 共 155 页

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

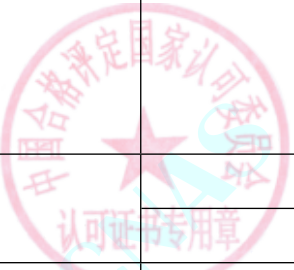
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
22	*Thermostatic Bath	Temperature	Measurement and Test Norm of Thermostatic Bath's Metrological Characteristics JJF1030	Temperature Uniformity(-80~300)℃	U=0.004℃		
				Temperature Flutuuation(-80~300)℃	U=0.006℃		
23	*Thermocouple Calibration Furnaces	Temperature	Testing Specification of Temperature Uniformity in Thermocouple Calibration Furnaces JJF1184	(300~1100)℃	U=0.25℃		
				(>1100~1300)℃	U=0.3℃		
24	*Temperature Block Calibrators	Temperature	Calibration Guideline of the Temperature Block Calibrators JJF1257	(-80~300)℃	U=0.32℃		
				(>300~1100)℃	U=1.4℃		
25	*Salt Mist Testing Chambers	Tempera-ture	C.S.for Salt Mist Testing Chambers JJF(liao)75	35℃	U=0.4℃		
		precipitation rate of salt spray		50℃	U=0.4℃		
					0.5mL/h*80cm ² ~3mL/h*80cm ²		U=0.2mL/h*80cm ²
26	Radiation Thermometers	Temperature	V.R.of Radiation Thermometers JJG856	(-30~100)℃	U=0.3℃		
				(>100~300)℃	U=0.5℃		
				(>300~600)℃	U=1.5℃		
				(>600~1000)℃	U=2.5℃		
				(>1000~1200)℃	U=4.5℃		
				(>1200~1600)℃	U=6.0℃		
27	Thermal Imagers	Temperature	C.S. for Thermal Imagers JJF1187	(-20~20)℃	U=(0.5~0.3)℃		
				(>20~100)℃	U=(0.3~0.6)℃		



No. CNAS L0260

第 33 页 共 155 页

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

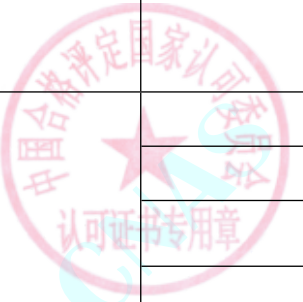
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(\geq 100 \sim 500)^{\circ}\text{C}$	$U=(0.6 \sim 1.6)^{\circ}\text{C}$		
				$(> 500 \sim 1600)^{\circ}\text{C}$	$U=(2.1 \sim 6.0)^{\circ}\text{C}$		
28	Infrared Thermometers for Measurement of Human Temperature	Temperature	C.S of Infrared Thermometers for Measurement of Human Temperature JJF1107	$(22 \sim 42)^{\circ}\text{C}$	$U=0.1^{\circ}\text{C}$		
29	Mechanical Thermo hygrometers	Temperature	V.R.of Mechanical Thermo hygrometers JJG205	$(5 \sim 50)^{\circ}\text{C}$	$U=0.5^{\circ}\text{C}$		
		Moisture		$30\%\text{RH} \sim 95\%\text{RH}$	$U=2\%\text{RH}$		
30	Precision Dew-point Hygrometers	Dew-point Temperature	V.R. of Precision Dew-point Hygrometers JJG499	dew-point temperature($-70 \sim 20$) $^{\circ}\text{C}$	$U=(0.39 \sim 0.25)^{\circ}\text{C}$		
31	Resistance and Capacitance Dew Point Hygrometer	Dew-point Temperature	C.S. for Resistance and Capacitance Dew Point Hygrometer JJF1272	dew-point temperature($-70 \sim 20$) $^{\circ}\text{C}$	$U=(0.7 \sim 0.5)^{\circ}\text{C}$		
32	Digital Temperature-hygrometers	Humidity	C.S. for Digital Temperature-hygrometers JJF 1076	$5\%\text{RH} \sim 95\%\text{RH}$	$U=(1.3 \sim 2.0)\%\text{RH}$		
		Temperature		$(-20 \sim 60)^{\circ}\text{C}$	$U=0.3^{\circ}\text{C}$		
33	Temperature Calibration Devices for Polymerase Chain Reaction Analyzers	Temperature	C.S. for Temperature Calibration Devices for Polymerase Chain Reaction Analyzers JJF 1821	$(0 \sim 120)^{\circ}\text{C}$	$U=0.04^{\circ}\text{C}$		
34	*On-line Temperature Measuring System	Temperature	C.S. for On-line Temperature Measuring System JJF(chuan)143	$(-100 \sim 400)^{\circ}\text{C}$	$U=0.32^{\circ}\text{C}$		
				$(> 400 \sim 700)^{\circ}\text{C}$	$U=1.4^{\circ}\text{C}$		
35	*Temperature Indicators	Temperature	C.S. for Temperature Indicators JJF1664	IPRT Input($-200 \sim 850$) $^{\circ}\text{C}$	$U=(0.2 \sim 0.4)^{\circ}\text{C}$		



No. CNAS L0260

第 34 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				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		
36	Working Copper/Copper-Nickel Thermocouple	Temperature	V.R. of Working Copper/Copper-Nickel Thermocouple JJG 368	(-80~300)°C	U=0.3°C		
37	Temperature Data Acquisition Instruments	Temperature	Calibration Specification of Temperature Data Acquisition Instruments JJF 1366	(-80~100)°C	U=0.03°C		
				(100~200)°C	U=(0.03~0.04)°C		
				(200~300)°C	U=0.04°C		
38	*Constant Temperature Heating Platform	Temperature	Calibration Specification for Constant Temperature Heating Platform JJF (JUNGONG) 256	(50~400)°C	U=1.2°C		
39	*Disintegration Analyzers	Temperature	Calibration Specification for Disintegration Analyzers JJF 1449	37.0 °C	U=0.2°C		
		Length		55mm	U=0.2mm		
		Disintegration time		(2~1800)s	U _{rel} =11%		
		timing time		(0.1~1800)s	U _{rel} =0.2%		



No. CNAS L0260

第 35 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
40	*Liquid Constant Temperature Testing Equipment	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF2019	(-80~300)℃	U=(0.26~0.89)℃		
41	*Carbon Dioxide Incubator	Temperature	Calibration Specification for Carbon Dioxide Incubator JJF (LIAO) 463	(15~55)℃	U=0.2℃		
		Carbon dioxide Deviation		(0~20)%	U=3.2%		
III Mechanical measuring instrument							
(1) mass							
1	*Table balance	Mass	V.R.of Table Balances JJG156	(0~5)kg	U=(0.03~1.3)g		
2	*Analogue indication weighing instrument	Mass	V.R.of Analogue Indication Weighing Instruments JJG13	(0~10) kg	U=0.6g~3g		
				(>10~140) kg	U=6g~59g		
3	*Non-self-indication weighing instrument	Mass	V.R.of Non-self-indication Weighing Instruments JJG14	(0~50) kg, e= (2~20) g, (0~500) e	U=0.23g~2.6g		
				(0~50) kg, e= (2~20) g, (>500~2000) e	U=0.24g~2.9g		
				(0~50) kg, e= (2~20) g, (>2000~10000) e	U=0.34g~3.7g		
				(>50~1000) kg, e= (20~500) g, (0~500) e	U=2.3g~0.06kg		



No. CNAS L0260

第 36 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(>50~1000) kg, e= (20~500) g, (>500~ 2000) e	U=2.4g~0.08kg		
				(>50~1000) kg, e= (20~500) g, (>2000~ 10000) e	U=3.3g~0.08kg		
				(>1~10) t, e= (1~ 5) kg, (0~500) e	U=0.12kg~0.21kg		
				(>1~10) t, e= (1~ 5) kg, (>500~ 2000) e	U=0.13kg~1.3kg		
				(>1~10) t, e= (1~ 5) kg, (>2000~ 10000) e	U=0.27kg~1.3kg		
				(>10~50) t, e= (10~20) kg, (0~ 500) e	U=1.2kg~2.6kg		
				(>10~50) t, e= (10~20) kg, (>500~2000) e	U=1.3kg~5.2kg		
				(>10~50) t, e= (10~20) kg, (>2000~10000) e	U=5.2kg~7.9kg		
4	*Digital indicating weighing instrument	Mass	V.R.of Digital Indicating Weighing Instrument JJG539	(0~30) kg, e= (1~ 10) g, (0~500) e	U=0.12g~1.2g		
				(0~30) kg, e= (1~ 10) g, (>500~2000) e	U=0.12g~1.7g		



No. CNAS L0260

第 37 页 共 155 页

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

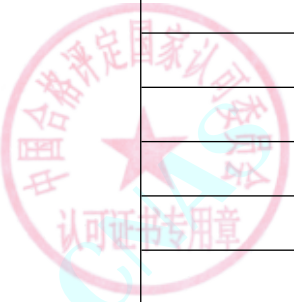
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(0~30) kg, $e=$ (1~10) g, (>2000~10000) e	$U=0.17\text{g}\sim 2.2\text{g}$		
				(>30~1000) kg, $e=$ (20~500) g, (0~500) e	$U=2.3\text{g}\sim 0.06\text{kg}$		
				(>30~1000) kg, $e=$ (20~500) g, (>500~2000) e	$U=2.4\text{g}\sim 0.08\text{kg}$		
				(>30~1000) 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	$U=0.27\text{kg}\sim 1.3\text{kg}$		
				(>10~150) t, $e=$ (10~50) kg, (0~500) e	$U=1.2\text{kg}\sim 6.5\text{kg}$		
				(>10~150) t, $e=$ (10~50) kg, (>500~2000) e	$U=1.3\text{kg}\sim 13\text{kg}$		



No. CNAS L0260

第 38 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				($>10\sim150$) t, $e=$ ($10\sim50$) kg, ($>2000\sim10000$) e	$U=5.2\text{kg}\sim20\text{kg}$		
5	*Electronic conveyor belt scale	Mass	V.R.of Continuous Totalizing Automatic Weighing Instruments JJG195	($0.5\sim3000$) t/h	$U_{\text{rel}}=0.09\%\sim0.12\%$		
6	Retail appliance for vegetable oil	Mass	V.R.of Retail Appliance for Vegetable Oil JJG615	($50\sim2500$) g	$U=(0.4\sim19)\text{g}$		
7	*Discontinuous totalizing automatic weighing instrument	Mass	V.R.of Discontinuous Totalizing Automatic Weighing Instruments(Totalizing Hopper Weighers) JJG648	50kg $\sim$ 100t	$U=(0.016\sim45)\text{kg}$		
8	*Quantitative automatic weighing instrument	Mass	V.R.of Automatic Gravimetric Filling Instruments JJG564	100g $\sim$ 1000kg	$U_{\text{rel}}=0.04\%\sim0.4\%$		
9	Weights	Mass	V. R. of Weights JJG 99	$F_1: 1\text{mg}\sim500\text{mg}$	$U=(0.005\sim0.017)\text{mg}$		
				$F_1: 1\text{g}\sim500\text{g}$	$U=(0.02\sim0.4)\text{mg}$		
				$F_1: 1\text{kg}\sim20\text{kg}$	$U=(0.7\sim13)\text{mg}$		
				$F_2: 1\text{mg}\sim500\text{mg}$	$U=(0.01\sim0.04)\text{mg}$		
				$F_2: 1\text{g}\sim500\text{g}$	$U=(0.05\sim1.3)\text{mg}$		
				$F_2: 1\text{kg}\sim20\text{kg}$	$U=(2\sim37)\text{mg}$		
				$M_1: 1\text{mg}\sim1000\text{mg}$	$U=(0.01\sim0.10)\text{mg}$		
				$M_1: 1\text{g}\sim1000\text{g}$	$U=(0.10\sim5)\text{mg}$		



No. CNAS L0260

第 39 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				M ₁ : 1kg~50kg	U=(0.005~0.21)g		
				M ₁ : 50kg~100kg	U=(0.21~0.41)g		
10	*Electronic balance	Mass	Electronic Balance Measuring Instruments JJG 1036	(1mg~200g)	U=(0.023~0.11) mg		
				(200~5000)g	U=(0.30~2.6)mg		
				(5~40)kg	U=(15~29)mg		
(2) density							
1	Working Glass Hydrometer	Density	V.R of Working Glass Hydrometer JJG42	Density meter:(650~1800)kg/m ³	U=(0.2~0.4) kg/m ³	only for direct comparison method	
				Alcohol meter:(0~100)%	U=0.04%		
				BaUme meter:(0~64)Bh	U=0.04 Bh		
2	Laboratory Oscillation-type Liquid Density meter	Density value	V.R.of Laboratory Oscillation-type Liquid Density Meters JJG 1058	(650~1800)kg/m ³	U=0.046 kg/m ³		
3	*Thermogravimetric Moisture Meter	Mass	Verification Regulation of Thermogravimetric Moisture Meters JJG 658	1mg~500g	U=(0.2~0.6)mg		
		Content of water		(94.5~95.5)%	U=0.10%		
(3) capacity							
1	General Volumetric Glass	volume	V.R.General Volumetric Glass JJG196	(0.1~1)mL	U=0.002mL		
				(>1~10)mL	U=0.003mL		
				(>10~25)mL	U=0.008mL		
				(>25~100)mL	U=0.011mL		



No. CNAS L0260

第 40 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(>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	$U_{\text{rel}}=0.19\%$		
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	*metallchorizontal tank	volume	V.R.of metallchorizontal 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	$U_{\text{rel}}=0.6\%$		



No. CNAS L0260

第 41 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(40~100) μ L	$U_{rel}=0.3\%$		
				(100~500) μ L	$U_{rel}=0.2\%$		
				(500~2500) μ L	$U_{rel}=0.2\%$		
				(2500~10000) μ L	$U_{rel}=0.1\%$		
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	$U_{rel}=0.28\%$		



No. CNAS L0260

第 42 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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	$U_{rel}=1.4\%$		
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	$U_{rel}=0.6\%$		
				(4~4000)m ³ /h	$U_{rel}=0.44\%$		
7	Differential Pressure Flowmeters	flow	V.R.of Differential Pressure Flowmeters JJG640	Water medium, , DN (15~100) : (0.3~100)m ³ /h	$U_{rel}=0.26\%$		
				Air medium : 5mL/min~4m ³ /h	$U_{rel}=0.60\%$		
				Air medium : (4~4000)m ³ /h	$U_{rel}=0.44\%$		
8	*Liquefied Natural Gas Dispensers	flow	V.R.Liquefied Natural Gas Dispensers JJG1114	(10~80)kg/min	$U_{rel}=0.41\%$		
9	Gas	flow	V.R.of Gas Displacement	(0.016~4)m ³ /h	$U_{rel}=0.78\%$		



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No. CNAS L0260

第 43 页 共 155 页

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

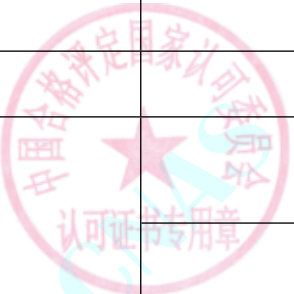
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Displacement Meters		Meters JJG633	(4~4000)m ³ /h	$U_{rel}=0.56\%$		
10	*Thermal Mass Gas Flowmeters	flow	V.R.of Thermal Mass Gas Flowmeters JJG1132	(0.167~5) mL/min	$U_{rel}=1.2\%$		
				>5mL/min~1m ³ /h	$U_{rel}=0.60\%$		
				(1~120)m ³ /h	$U_{rel}=0.32\%$		
				(120~4000)m ³ /h	$U_{rel}=0.46\%$		
11	Diaphragm Gas Meters	Flow	Diaphragm Gas Meters JJG577	(0.016~120)m ³ /h	$U_{rel}=0.50\%$		
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	$U_{rel}=0.05\%$		



No. CNAS L0260

第 44 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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	$U_{rel}=0.44\%$		
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	$U_{rel}=0.82\%$		



No. CNAS L0260

第 45 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				soap film flow meter: (>1000~4000)mL	<i>U</i> _{rel} =0.60%		
25	Gasoline Vapor Recovery Detectors	Flow	Calibration Specification for Gasoline Vapor Recovery Detectors JJF 1948	(1~100) L/min	<i>U</i> _{rel} =0.8%		
		Pressure		(-2.5~2.5) kPa	<i>U</i> =0.12%FS		
				(-5~5) kPa	<i>U</i> =0.06%FS		
(5) pressure							
1	Liquid-medium Piston Gauge	Pressure	V.R.of Liquid-medium Piston Gauges JJG59	(0.06~60)MPa	<i>U</i> _{rel} =0.02%		
		Mass		(0.1~5)kg	<i>U</i> _{rel} =0.002%		
		speed		(0.1~1)mm/min	<i>U</i> _{rel} =0.2%		
2	*Compensated Micro-manometer	Pressure	V.R.of Compensated Micro- manometer JJG158	(-2.5~2.5)kPa	<i>U</i> =(0.5~0.6)Pa		
3	*Tilting Tube Micromanometers	Pressure	V.R.of Tilting Tube Micromanometers JJG172	(-2000~2000)Pa	<i>U</i> =2.1Pa		
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	<i>U</i> =0.31%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	<i>U</i> =0.11%FS~0.14%FS		
6	*Digital Pressure Gauges	Pressure	V.R.of Digital Pressure Gauges JJG875	(-0.1~800)MPa	<i>U</i> =0.014%FS		



No. CNAS L0260

第 46 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		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	$U=0.06\%FS$		
8	*Liquid Manometer for Working	Pressure	V.R. of Liquid Manometer for Working JJG540	(0~2.5)kPa	$U=5Pa$		
				(2.5~15) kPa	$U=7Pa$		
				(15~250) kPa	$U=(0.01\sim0.15)kPa$		
9	*Liquid Level Gauges	Length	V.R. of Liquid Level Gauges JJG971	(0~1)m	$U=1.1mm$		
				(1~30)m	$U=13mm$		
		Pressure		1kPa~6MPa	$U_{rel}=0.12\%\sim0.06\%$		
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	$U_{rel}=2.2\%$		



No. CNAS L0260

第 47 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
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) MΩ	U _{rel} =2.2%		
17	Vacuum Helium Leaks	Leak Rate	Calibration Specification for Vacuum Helium Leaks JJF 1833	(1×10 ⁻¹⁰ ~1×10 ⁻⁴)Pa·m ³ ·s ⁻¹	U _{rel} =13%~23%		
(6) vacuum							
1	Piezoresistive Vacuum Gauge	Pressure	V.R.of Piezoresistive Vacuum Gauge JJG932	(1×10 ² ~1×10 ⁵)Pa	U _{rel} =7%		
		Insulation resistance		(10~500) MΩ	U _{rel} =2.2%		
2	Industrial Thermal Conductivity Vacuum Gauge	Pressure	C.S.of Industrial Thermal Conductivity Vacuum Gauge JJF1050	(1×10 ⁻¹ ~1×10 ⁵)Pa	U _{rel} =7%		
3	Ionization Vacuum Gauge	Pressure	C.S.of Ionization Vacuum Gauge JJF1062	(1×10 ⁻⁴ ~1×10 ⁻²)Pa	U _{rel} =15%		
		Insulation resistance		(10~500) MΩ	U _{rel} =2.2%		
(7) Force							
1	*Mechanical Balance	Mass	V.R.of Mechanical Balance JJG98	Max:(0~200)g,d=0.1mg	U=(0.016~0.11)mg		
				Max:(0~1)kg,d=0.5mg	U=(0.19~0.73)mg		
				Max:(0~5)kg,d=2.5mg	U=(0.49~4.0)mg		



No. CNAS L0260

第 48 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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	(0.2~10)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 balance	Mass	Calibration Specification for Electronic Balances JJF1847	(1mg~20g),d=0.001mg	$U=(0.005\sim 0.048)\text{mg}$		
				(20~200)g,d=0.01mg	$U=(0.06\sim 0.17)\text{mg}$		
				(200g~5kg),d=0.1mg	$U=(0.3\sim 2.6)\text{mg}$		
				(5~40)kg,d=1mg	$U=(5.6\sim 50)\text{mg}$		
5	*Torsion balance	Mass	V.R.of torsion balance JJG46	(0~500)mg	$U=(0.002\sim 0.092)\text{mg}$		
6	*Working Dynamo-meter	Force	V.R.of Working Dynamometer JJG455	1cN~10kN	$U_{\text{rel}}=0.05\%\sim 0.3\%$		
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	$U=6\mu\text{m}$		
		Clamping force		10kN	$U=0.02\text{kN}$		
		Roughness		Ra: (0.012~6.3) μm	$U_{\text{rel}}=10\%$		
		Length		(0~70)mm	$U=0.03\text{mm}$		



No. CNAS L0260

第 49 页 共 155 页

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

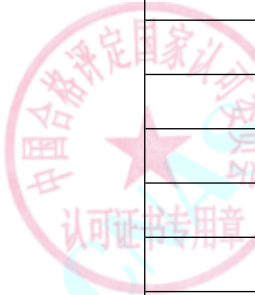
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
10	*hydraulic jack	Force	V.R.of hydraulic jack JJG621	10kN~10MN	<i>U</i> _{rel} =0.9%~1.7%		
11	*Ball pressure test device	Force	V.R.of Working Dynamometer JJG455	20N	<i>U</i> =0.03N		
12	*Building Material Testing Machine Of Constant Loading Speed	force	V.R.of Building Material Testing Machine Of Constant Loading Speed JJG1025	5N~1000kN	<i>U</i> _{rel} =0.13%		
		(1000~3000)kN		<i>U</i> _{rel} =0.36%			
		Loading Speed		(0.01~30)kN/s	<i>U</i> _{rel} =3.6%		
13	*Material testing machine	Force	Standard Practices for Force 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 Verification of Speed for Material Testing Machines ASTM E2658,Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012	1N~1000kN	<i>U</i> _{rel} =0.13%		
				(1000~3000)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		
				(300~1000)mm	<i>U</i> _{rel} =0.13%		
		Speed		(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%		
14	*Axial force fatigue testing machines	Static force	Verification Regulation of Axial Force Fatigue Testing Machines JJG556	1N~1000kN	<i>U</i> _{rel} =0.13%		
		Cyclic force		100N~500kN	<i>U</i> _{rel} =0.4%		
		Coaxiality		(0~50)%	<i>U</i> =1.4%		



No. CNAS L0260

第 50 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				直径：（2～20）mm	<i>U</i> =0.3mm		
15	*High-Temperature Creep and Strength-Rupture Testing Machines	Force	High-Temperature Creep and Strength-Rupture Testing Machines JJG276	1N～1000kN	<i>U</i> _{rel} =0.13%		
				(1000～3000)kN	<i>U</i> _{rel} =0.36%		
		Temperature		(0～300)℃	<i>U</i> =0.5℃		
				(300～1200)℃	<i>U</i> =1.5℃		
16	*Spring tension and compression testing machine	Force	C.S.for working force measureing machines for special purposes JJF1134	1cN～10kN	<i>U</i> _{rel} =0.14%		
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		



No. CNAS L0260

第 51 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				(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			
				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%			
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	Qualite	C.S.for Drop-weight Impact Testing Machine JJF 1445	(0~32200)g	<i>U</i> =1.4g			

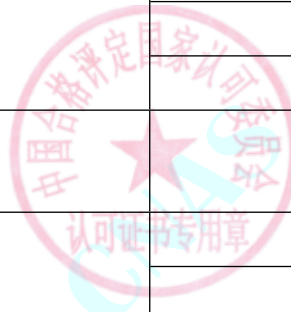


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No. CNAS L0260

第 52 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Machine	Length		(0~5)m	<i>U</i> =1.0mm		
		speed		(0~10)m/s	<i>U</i> _{rel} =1.2%		
(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%		
		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		



No. CNAS L0260

第 53 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(1000~40000)r/min	$U_{rel}=0.02\%$		
9	*Static Torque Measuring Devices	Torque	V. R. of Static Torque Measuring Devices JJG 995	0.2cNm~20000Nm	$U_{rel}=0.07\%$		
10	*Standard Torque-meters	Torque	V. R. of Standard Torque-meters JJG 557	(0.1~20000)Nm	$U_{rel}=0.05\%$		
11	Standard Torque Wrench	Torque	V. R. of Standard Torque Wrench JJG 1103	(0.1~5000)Nm	$U_{rel}=0.05\%$		
(9) hardness							
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	(20~95)HRC、(20~95)HRA、(20~95)HRB	$U=0.6HR$		
		force		(50~1500)N	$U_{rel}=0.2\%$		



No. CNAS L0260

第 54 页 共 155 页

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

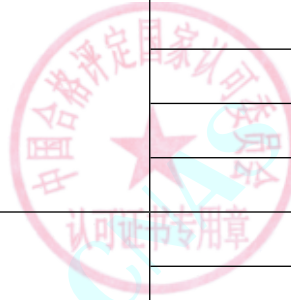
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		length	A,B,C,D,E,F,G,H,K,N,T) JJG112,Standard Test	(0~10) mm	U=0.002mm		
		Angle	Method for Rockwell	(0~90) °	U=0.1°		
		time	Hardness of Materials Annexes A1. Verification of Rockwell Hardness Testing machines ASTM E18 Annexes A1	(0~60) s	U=0.3s		
4	*Metal Vickers hardness tester	Hardness	V.R.of Metal Vickers hardness tester	(5~1000)HV	U _{rel} =1.7%		
		Force	JJG151,Standard test method for Vickers hardness and	5mN~1500N	U _{rel} =0.2%		
		Length	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 μ 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~ 8.4)HLD		
7	*Shore A Durometers	Hardness	V.R.of Shore A Durometers JJG304	(0~100)HA	U=(0.3~0.4)HA		
		Length		(0~8)mm	U=0.003mm		
		force		(1~10)N	U=0.04N		
		Angle		35°	U=0.2°		
8	*D type Shao surname rubber hardness	Hardness	V.R.of Shore D Durometer	(0~100)HD	U=0.5HD		
		Length	JJG 1039	(0~8)mm	U=0.003mm		



No. CNAS L0260

第 55 页 共 155 页

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

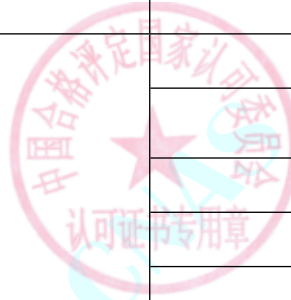
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		force		(1~50)N	U=0.04N		
		Angle		30°	U=0.2°		
9	*Webster Hardness Testing Machine	Hardness	V.R.of Metallic Webster Hardness Testing Machine JJG944	(5~18)HW	U=0.4HW		
10	*Brinell hardness tester	Length	Standard Test Method for Brinell Hardness of Metallic Materials Annexes A1.Verification of Brinell Hardness Testing Machines ASTM E10 Annexes A1	(0.1~10)mm	U=3 μ m		
		Force		5N~1kN	U _{rel} =0.40%		
				(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°		



No. CNAS L0260

第 56 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
14	Plastic Rock Well Hardness Testing Machine	Hardness	V.R.of Plastic Rock Well Hardness Testing Machine	(70~125) HRE (L、M、 R)	<i>U</i> =0.8HR		
		Force	JJG 884	(60~1500)N	<i>U</i> _{rel} =0.2%		
15	Ultrasonic Hardness Testers	Hardness	Calibration Specification Ultrasonic Hardness Testers	(175~800) HV	<i>U</i> _{rel} =3.7%		
		Force	JJF 1436	(1~100)N	<i>U</i> _{rel} =0.2%		
(10) Vibration, shock, acceleration							
1	*Standard Vibrator	Frequency	V.R.of Standard Vibrator in Middle Frequency Band(Comparison Method) JJG298	(20~2000)Hz	<i>U</i> _{rel} =0.06%		
		Acceleration		(0.5~1000)m/s ² ,(20~2000)Hz	<i>U</i> _{rel} =4%		
		Harmonic Distortion		0.1%~30%	<i>U</i> _{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	<i>U</i> =(0.04~0.03)m/s ²		
3	*Dynamic Balance Machine	Unbalancedness	V.R. of Dynamic Balance Machine JJG(su)68	(0.1~10000)g • mm/kg	<i>U</i> _{rel} =0.9%		
		Phase		(0~360)°	<i>U</i> =1.2°		
4	*Pendulum impact testing machine	Energy	V.R.of Pendulum impact testing machine JJG145	Direct Method:(1~300)J	<i>U</i> _{rel} =0.3%		
				Indirect Method:(25~300)J	<i>U</i> _{rel} =2.5%		
		length		(1~1000) mm	<i>U</i> =0.2mm		
		Angle		(0~180) °	<i>U</i> =0.1°		
		time		(0~300) s	<i>U</i> =0.3s		



No. CNAS L0260

第 57 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		moment		(1~300) Nm	$U_{rel}=0.13\%$		
5	*Cantilever-Beam(Izod-Type) Impact Testing Machine	Energy	V. R. of Cantilever-Beam(Izod-Type) Impact Testing Machine JJG608	(0.1~100)J	$U_{rel}=1.1\%\sim 0.5\%$		
		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	$U_{rel}=0.13\%$		
6	*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	$U=(0.04\sim 0.3)\text{mm}$		
7	*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	$U_{rel}=4\%$		
8	*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	$U_{rel}=4\%$		
9	*Electrodynamic Vibration Testing	Frequency	V.R.of Electrodynamic Vibration Testing Systems	(5~5000)Hz	$U_{rel}=0.06\%$		



No. CNAS L0260

第 58 页 共 155 页

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

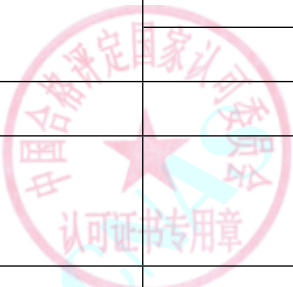
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Systems	Acceleration	JJG948	(0.5~1000)m/s ² , (5~5000)Hz	$U_{rel}=4\%$		
		Distortion		0.1%~30%	$U_{rel}=3\%$		
		Pulse duration		(0.01~100) ms	$U_{rel}=6\%$		
		Velocity change		(0.01~100) m/s	$U_{rel}=6\%$		
10	*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	$U_{rel}=4\%$		
		Distortion		0.1%~30%	$U_{rel}=3\%$		
11	*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	$U_{rel}=6\%$		
12	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	$U_{rel}=0.22\%$		
13	*Impact machine	energy	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials ASTM E23	(1~300)J	$U_{rel}=2.5\%$		
	*Temperature/Hu	Temperature	C. S. for Temperature/Humidity/Vibrat	(-80~300)°C	$U=0.3^{\circ}\text{C}$		



No. CNAS L0260

第 59 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Combined Environmental Testing System	Relative humidity	ion Combined Environmental Testing System JJF 1270	5%~95%	U=2%~3%		
		Vibration		(0.5~1000)m/s², (5~5000)Hz	U _{rel} =4%		
		Wind speed		(0.5~20)m/s	U=0.30m/s		
(11) Rotating speed							
1	*Roller Type Speedometer Tester	Speed	V.R.of Roller Type Speedometer Tester JJG909	(30~120)km/h	U _{rel} =0.44%~0.16%		
		Length		(0~500)mm	U=0.07mm		
2	*Fixed Radar Vehicle Speed Measurement Devices	Speed	V.R.of Fixed Radar Vehicle Speed Measurement Devices JJG527	(20~180)km/h	U=(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	U _{rel} =(0.5~0.2)%		
		Acceleration		(1~100000)m/s²	U _{rel} =(0.8~0.2)%		
4	*Medical Centrifuge	Rotate Speed	Calibration Specification of Medical Centrifuge JJF2004	(30~100000)r/min	U _{rel} =0.3%		
		Temperature		(-10~60) °C	U=0.5℃		
		Noise		(30~130)dB	U=0.2dB		
IV Acoustic measuring instrument							
1	*Ultrasonic Flaw Detectors	Electricity Ultrasonic Electricity Calm	V.R.of Ultrasonic Flaw Detectors JJG746	(0.1~70)dB	U=0.2dB		
2	sound wave belt tension meter	Frequency	C.S.of sound wave belt tension meter JJF1216	(0~100)Hz	U=0.2Hz		



No. CNAS L0260

第 60 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(>100~1000)Hz	U=2.0Hz		
		Acoustic signal sensitivity		(50~90)dB	U=1.5dB		
		strain		(0.01~1000000)N	U _{rel} =0.8%		
V Electromagnetic measuring instrument							
1	Potentiometer	Voltage	V.R.of DC potentiometer JJG123	10 μ V~0.01V	U=0.5 μ V		
				0.01V~2.1111110V	U _{rel} =0.007%		
2	Standard battery	Voltage	V.R.of Standard battery JJG153	(1.01855~1.01868)V	U=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 _n	U=0.06%		
				(0.1~5000)A/5A,(5~5000)A/1A,20%I _n	U=0.03%		
				(0.1~5000)A/5A,(5~5000)A/1A,100%I _n	U=0.12%		
				(0.1~5000)A/5A,(5~5000)A/1A,120%I _n	U=0.12%		
				(0.6~60)A/(1~50)mA,1%I _n	U=0.05%		
				(0.6~60)A/(1~50)mA,5%I _n	U=0.03%		
				(0.6~60)A/(1~50)mA,20%I _n	U=0.03%		
		Angle error		0.01' ~900.0' ,1%I _n	U=1.5'		
				0.01' ~900' ,5%I _n	U=1.9'		



No. CNAS L0260

第 61 页 共 155 页

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

№	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%		



No. CNAS L0260

第 62 页 共 155 页

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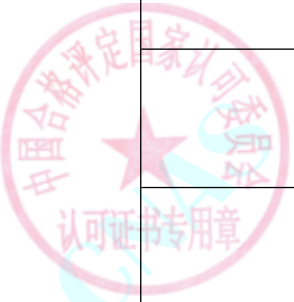
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	voltmeter		JJG494	DC: (1~100)kV	$U_{\text{rel}}=0.88\%\sim 0.17\%$		
9	*Single-phase phasometer	phase	V.R.of 50Hz single-phase phasometer JJG440	$-90^{\circ} \sim +90^{\circ}$	$U=0.2^{\circ}$		
		power factor		0~1	$U=0.002$		
10	*DC standard voltage source	DC Voltage	Calibration Specification for Multifunction Standard Sources JJF1638	10mV~200mV	$U_{\text{rel}}=2.0\times 10^{-5}$		
				200mV~2V	$U_{\text{rel}}=1.0\times 10^{-5}$		
				2V~20V	$U_{\text{rel}}=1.0\times 10^{-5}$		
				20V~200V	$U_{\text{rel}}=1.0\times 10^{-5}$		
				200V~1000V	$U_{\text{rel}}=1.0\times 10^{-5}$		
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	$U=0.14\text{m} \Omega$		
				100 Ω	$U=1.4\text{m} \Omega$		
				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	$U_{\text{rel}}=1.2\%$		
				(1.0~1000) Ω	$U_{\text{rel}}=0.7\%$		



No. CNAS L0260

第 63 页 共 155 页

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

№	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), [$\cos \phi=0.25(L)$]	$U_{rel}=0.31\%$		



No. CNAS L0260

第 64 页 共 155 页

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

№	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 $\phi=1.0$)	$U_{rel}=0.06\%$		



No. CNAS L0260

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				(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%			



No. CNAS L0260

第 66 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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)	$U_{rel}=0.4\%$		

No. CNAS L0260

第 67 页 共 155 页



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

№	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)	$U_{rel}=0.06\%$		



No. CNAS L0260

第 68 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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)	$U_{rel}=0.07\%$		



No. CNAS L0260

第 69 页 共 155 页

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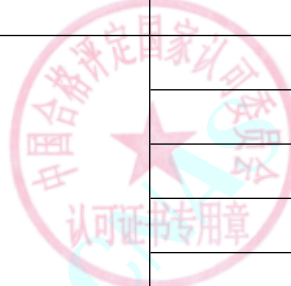
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				2.2mA~22mA,(1kHz~5kHz)	$U_{rel}=0.05\%$		
				22mA~220 mA,(1kHz~5kHz)	$U_{rel}=0.04\%$		
				220mA~2.2A,(1kHz~5kHz)	$U_{rel}=0.09\%$		
				2.2A~11A,(1kHz~5kHz)	$U_{rel}=0.17\%$		
				11A~20A,(1kHz~5kHz)	$U_{rel}=3.2\%$		
				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	$U_{rel}=0.007\%$		



No. CNAS L0260

第 70 页 共 155 页

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

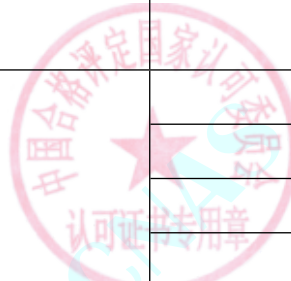
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				3.3M Ω ~ 11M Ω	<i>U</i> _{rel} =0.015%			
				11M Ω ~ 33M Ω	<i>U</i> _{rel} =0.058%			
				33M Ω ~ 110M Ω	<i>U</i> _{rel} =0.36%			
18	*Withstanding Voltage tester	voltage	V.R.of Withstanding Voltage 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%			



No. CNAS L0260

第 71 页 共 155 页

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

No	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%		



No. CNAS L0260

第 72 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Input impedance		100 Ω ~ 3k Ω (10Hz ~ 1kHz)	<i>U</i> _{rel} =0.4%		
		100 Ω ~ 3k Ω (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	1000 Ω ~ 10M Ω	<i>U</i> _{rel} =0.24%		
				10M Ω ~ 100M Ω	<i>U</i> _{rel} =0.58%		
				100M Ω ~ 1G Ω	<i>U</i> _{rel} =1.16%		
24	*AC current Source	AC Current	AC Standard Current Source JJG(JG)70	10 μ A ~ 200 μ A,(10Hz ~ 2kHz)	<i>U</i> _{rel} =0.7%		
				200 μ A ~ 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 VOltagE Source JJG(JG)71	10mV ~ 200mV,(10Hz ~ 100Hz)	<i>U</i> _{rel} =0.06%		
				200mV ~ 1000V,(10Hz ~ 100Hz)	<i>U</i> _{rel} =0.02%		



No. CNAS L0260

第 73 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		frequency		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)	$U_{rel}=0.10\%$		



No. CNAS L0260

第 74 页 共 155 页

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

№	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)	$U_{rel}=0.07\%$		
		voltage		(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)	$U_{rel}=0.05\%$		
		Power		(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)	$U_{rel}=0.14\%$		



No. CNAS L0260

第 75 页 共 155 页

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

No	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	$U_{rel}=0.2\%$		



No. CNAS L0260

第 76 页 共 155 页

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

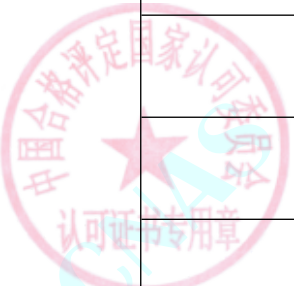
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		AC Current	JJF1075	(0.1~2000)A, (40Hz~400Hz)	<i>U</i> _{rel} =0.2%			
29	*Digital Calibration Device for Amperemeters Volt meters and Ohmmeters	DC Voltage	C.S.of calibrators for electrical meters JJF1284	(1~200)mV	<i>U</i> _{rel} =0.018%			
				200mV~200V	<i>U</i> _{rel} =0.015%			
		AC Voltage		(200~1000)V	<i>U</i> _{rel} =0.02%			
				10mV~100mV(40Hz~10kHz)	<i>U</i> _{rel} =0.06%			
		DC Current		100mV~1000V(40Hz~10kHz)	<i>U</i> _{rel} =0.03%			
				10 μ A~200 mA	<i>U</i> _{rel} =0.018%			
				200mA~2A	<i>U</i> _{rel} =0.024%			
				2A~20A	<i>U</i> _{rel} =0.05%			
				AC Current	10 μ A~200 μ A(40Hz~2kHz)		<i>U</i> _{rel} =0.26%	
					200 μ A~2mA(40Hz~2kHz)		<i>U</i> _{rel} =0.08%	
		2mA~2A(40Hz~2kHz)			<i>U</i> _{rel} =0.07%			
		2A~20A(40Hz~2kHz)			<i>U</i> _{rel} =0.06%			
		Resistance		1 Ω ~20k Ω	<i>U</i> _{rel} =0.02%			
				20k Ω ~100M Ω	<i>U</i> _{rel} =0.05%			
30	*DC Stabilized power Supplies	voltage	C.S.for DC Stable Power Supply JJF1597	(0.1~1000)V	<i>U</i> _{rel} =0.01%~0.1%			
		current		100 μ A~20A	<i>U</i> _{rel} =0.12%~0.047%			



No. CNAS L0260

第 77 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(20~1000)A	$U_{rel}=0.02\%\sim 0.2\%$		
				0.01%~1%	$U=0.01\%$		
				0.01%~1%	$U=0.01\%$		
				0.005%~0.5%	$U=0.002\%$		
				0.01%~1%	$U=0.01\%$		
				0.01%~0.5%	$U=0.002\%$		
				0.01%~1%	$U=0.002\%$		
31	High-Voltage Divider at Power Frequency	Voltage	V.R.of High Voltage Divider at Power Frequency JJG496	(1~100)kV	$U_{rel}=0.12\%$		
32	DC High Voltage Divider	Voltage	V.R.of DC High Voltage Dividers JJG1007	(1~100)kV	$U_{rel}=0.12\%$		
33	*Resistance Strain Gauge Indicator	Strain	V.R.of Resistance Strain Gauge Indicators JJG623	$(10\sim 10^5)\mu\epsilon$	$U=(1\sim 58)\mu\epsilon$		
34	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% U_n	$U=0.05\%$		
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,50% U_n	$U=0.04\%$		
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,80% U_n	$U=0.03\%$		
				(3~35)kV/(100,100/3,100/3 ^{1/2})V,100% U_n	$U=0.03\%$		



No. CNAS L0260

第 78 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Angle error		(3~35)kV/(100,100/3,100/3) ^{1/2}	$U=0.03\%$		
				$V_s, 120\%U_n$			
				0.01' ~ 900', 20% U_n	$U=2.2'$		
				0.01' ~ 900', 50% U_n	$U=1.5'$		
				0.01' ~ 900', 80% U_n	$U=1.0'$		
				0.01' ~ 900', 100% U_n	$U=1.0'$		
35	flux mete	Magnetic flux	C.S. for Fluxmeter JJF1905	(0.1~0.5)mWb	$U_{rel}=0.4\%$		
				(0.5~10000)mWb	$U_{rel}=0.2\%$		
36	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	$U_{rel}=0.13\%$		
37	*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	$U_{rel}=0.14\% \sim 0.12\%$		
38	*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	$U_{rel}=0.15\% \sim 0.06\%$		
39	*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	$U_{rel}=3\%$		



No. CNAS L0260

第 79 页 共 155 页

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

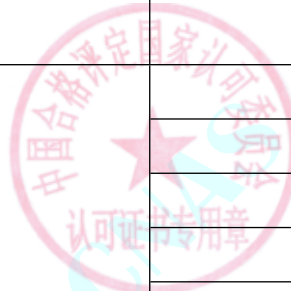
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
40	*DC Shunts	Voltage	V.R.of DC Shunts JJG1069	(45~100)mV/(1~50)A	$U_{rel}=2.0 \times 10^{-3}$		
				(45~100)mV/(50~100)A	$U_{rel}=2.0 \times 10^{-3}$		
				(45~100)mV/(100~200)A	$U_{rel}=8 \times 10^{-4}$		
				(45~100)mV/(200~5000)A	$U_{rel}=4 \times 10^{-4}$		
41	*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	$U= (0.3 \sim 2.1) \Omega$		
42	*Burden Box of Instrument Transformers	Impedance	C.S.for Burden box of Instrument Transformer JJF1264	Active(0.1~100) Ω	$U_{rel}=0.9\%$		
				reactive(0.1~100) Ω	$U_{rel}=1.0\%$		
		admittance		active(0.1~100)mS	$U_{rel}=0.9\%$		
				reactive(0.1~100)mS	$U_{rel}=1.0\%$		
43	*Transformers Test Set	in-phase	V.R.of Instrument Transformer Test Set JJG169	2.00‰~20.00‰	$U=0.03\% \sim 0.24\%$		
		orthogonality		(10.00~100.00) ′	$U=0.12' \sim 1.2'$		
		Impedance		1.999 $\Omega \sim 19.99 \Omega$	$U_{rel}=0.3\%$		
		Admittance		1.999mS~19.99mS	$U_{rel}=0.3\%$		
44	*Power Frequency A.C.Electrical Quantities Measuring	AC Voltage	V.R.of Power Frequency A.C.Electrical Quantities Measuring Transducers JJG126	(10~600)V,(45Hz~65Hz)	$U_{rel}=0.1\%$		
		AC Current		(0.1~20)A,(45Hz~65Hz)	$U_{rel}=0.1\%$		



No. CNAS L0260

第 80 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
	Transducers	AC Active Power		(10~600)V,(0.1~20)A,PF:(0.5~1),(45Hz~65Hz)	<i>U</i> _{rel} =0.1%		
45	*Electronic Insulating Resistance Meters	resistance	V.R. of Electronic Insulating Resistance Meters JJG1005	100 Ω ~ 10M Ω	<i>U</i> _{rel} =0.3%		
				10M Ω ~ 100M Ω	<i>U</i> _{rel} =0.3%~0.6%		
				100M Ω ~ 1G Ω	<i>U</i> _{rel} =0.6%~1.1%		
				1G Ω ~ 1T Ω	<i>U</i> _{rel} =1.1 % ~ 2.4%		
		open-circuit voltage		(50~5000)V	<i>U</i> _{rel} =1.8%		
46	Contactless electrostatic voltage measuring instrument	Electrostatic voltage	C.S.for Contactless electrostatic voltage measuring instrument JJF1517	(0.1~15)kV	<i>U</i> _{rel} =2%		
47	*Magnetic Particle Flaw Detectors	Magnetization Current	C.S. for Magnetic Particle Flaw Detectors JJF1273	(100~5000)A(Circumferential Magnetization Current)	<i>U</i> _{rel} =0.8%		
				(100~5000)A(Portrait Magnetization Current)	<i>U</i> _{rel} =1.2%		
48	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%		
49	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%		
		DC Current Output		10 μ A~30 μ A	<i>U</i> _{rel} =0.006%		
				30 μ A~20mA	<i>U</i> _{rel} =0.002%		
				20 mA~30 mA	<i>U</i> _{rel} =0.008%		



No. CNAS L0260

第 81 页 共 155 页

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

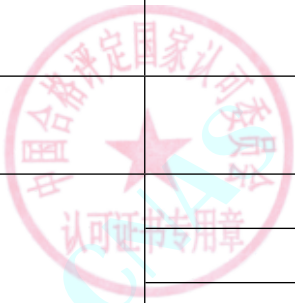
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				30 mA ~ 100 mA	$U_{rel}=0.006\%$		
				100 mA ~ 200 mA	$U_{rel}=0.005\%$		
				0.2A ~ 2A	$U_{rel}=0.03\%$		
		Resistance output		1 Ω ~ 3 Ω	$U_{rel}=0.010\%$		
				3 Ω ~ 2M Ω	$U_{rel}=0.006\%$		
		Frequency output		10Hz ~ 100kHz	$U_{rel}=0.01\%$		
		Temperature(Thermocouple analog output)		(-200 ~ 1800)°C	$U=0.3^{\circ}\text{C}$		
		Temperature(Thermal resistance analog output)		(-200 ~ 800)°C	$U=0.2^{\circ}\text{C}$		
		DC Voltage measurement		1mV ~ 10mV	$U_{rel}=0.02\%$		
				10mV ~ 20V	$U_{rel}=0.003\%$		
				20V ~ 30V	$U_{rel}=0.037\%$		
				30V ~ 200V	$U_{rel}=0.011\%$		
				200V ~ 300V	$U_{rel}=0.18\%$		
				300V ~ 1000V	$U_{rel}=0.052\%$		
		AC Voltage measurement		10mV ~ 22mV(45Hz ~ 1kHz)	$U_{rel}=0.3\%$		
				22mV ~ 1000V(45Hz ~ 1kHz)	$U_{rel}=0.1\%$		



No. CNAS L0260

第 82 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		DC Current measurement	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	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)		(-200 ∼ 1800) °C	<i>U</i> =0.3 °C		
Temperature(Thermal resistance analog output Thermal resistance measurment)	(-200 ∼ 800) °C	<i>U</i> =0.2 °C					
50	Magnetometers Based Magnetic Force	magnetic induction	Calibration Specification for Magnetometers Based Magnetic Force JJF1656	(0.05 ∼ 10)mT	<i>U</i> _{rel} =1.7%		
51	*Alternating Current Resistance Box	Resistance	C.S.for Alternating Current Resistance Box JJF1636	(1 ∼ 10) Ω (1kHz)	<i>U</i> _{rel} =2%		
				(10 ∼ 100) Ω (1kHz)	<i>U</i> _{rel} =0.3%		
				100 Ω ∼ 100k Ω (1kHz)	<i>U</i> _{rel} =0.03%		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
52	*Impulse Voltage Testers for Winding Interturn Insulation	Shock Voltage	C.S.for Impulse Voltage Testers for Winding Interturn Insulation JJF1691	(0.5～15)kV	<i>U</i> _{rel} =2.2%		
		Wave Front Time		0.2 μ s	<i>U</i> _{rel} =10%		
				1.2 μ s	<i>U</i> _{rel} =4%		
53	*High-Voltage Generator	Voltage	Calibration Specification for (20~200)kV High-Voltage Generator JJF(WXJL)006	(20～200)kV (DC)	<i>U</i> _{rel} =0.7%		
				(20～200)kV (50Hz,60Hz)	<i>U</i> _{rel} =0.7%		
		Current		(10～5000) μ A (50Hz,60Hz)	<i>U</i> _{rel} =0.2%		
				(10～5000) μ A (DC)	<i>U</i> _{rel} =0.2%		
54	*Multifunction Standard Sources	DC Voltage	Calibration Specification for Multifunction Standard Sources JJF1638	10mV～200mV	<i>U</i> _{rel} =1.2×10 ⁻⁴ ～7×10 ⁻⁶		
				200mV～2V	<i>U</i> _{rel} =7×10 ⁻⁶ ～6×10 ⁻⁶		
				2V～20V	<i>U</i> _{rel} =6×10 ⁻⁶ ～4×10 ⁻⁶		
				20V～200V	<i>U</i> _{rel} =4×10 ⁻⁶ ～7×10 ⁻⁶		
				200V～1000V	<i>U</i> _{rel} =7×10 ⁻⁶		
		DC Current		10 μ A～2mA	<i>U</i> _{rel} =7×10 ⁻⁵ ～1.8×10 ⁻⁵		
				2mA～20mA	<i>U</i> _{rel} =1.8×10 ⁻⁵ ～2×10 ⁻⁵		
				20mA～200mA	<i>U</i> _{rel} =2×10 ⁻⁵ ～5×10 ⁻⁵		
				200mA～2A	<i>U</i> _{rel} =5×10 ⁻⁵ ～1.9×10 ⁻⁴		
				2A～20A	<i>U</i> _{rel} =1.9×10 ⁻⁴ ～5×10 ⁻⁴		
		DC Resistance		1 Ω ～1G Ω	<i>U</i> _{rel} =2.0×10 ⁻⁵ ～2.6×10 ⁻⁴		



No. CNAS L0260

第 84 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		AC Voltage		(10~200) mV (10Hz~40Hz)	$U_{rel}=6 \times 10^{-4}$		
				200mV~2V (10Hz~40Hz)	$U_{rel}=1.6 \times 10^{-4}$		
				(2~20) V (10Hz~40Hz)	$U_{rel}=1.5 \times 10^{-4}$		
				(20~200) V (10Hz~40Hz)	$U_{rel}=1.5 \times 10^{-4}$		
				(200~1000) V (10Hz~40Hz)	$U_{rel}=1.6 \times 10^{-4}$		
				(10~200) mV (40Hz~100Hz)	$U_{rel}=6 \times 10^{-4}$		
				200mV~2V (40Hz~100Hz)	$U_{rel}=1.3 \times 10^{-4}$		
				(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)	$U_{rel}=1.1 \times 10^{-4}$		

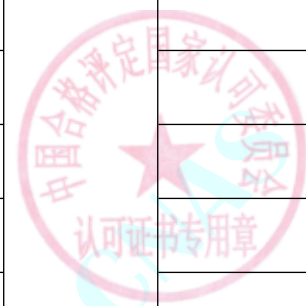


No. CNAS L0260

第 85 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(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)	$U_{rel}=1.2 \times 10^{-3}$		
				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)	$U_{rel}=1.0 \times 10^{-3}$		



No. CNAS L0260

第 86 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(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)	$U_{rel}=4\%$		
				(20~200) V (300kHz~1MHz)	$U_{rel}=6\%$		
		AC Current		(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)	$U_{rel}=3 \times 10^{-3}$		



No. CNAS L0260

第 87 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
55	*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	$U_{rel}=0.20\%$		
56	*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	$U_{rel}=0.20\%$		
57	AC Peak Voltmeter	Voltage	V.R.of AC Peak Voltmeters JJG1168	1V~1414V,(10Hz~5kHz)	$U_{rel}=0.15\%$		
58	*Eddy Current Conductivity Meter	Conductivity	C.S. for Eddy Current Conductivity Meters JJF1692	0.58MS/m~58MS/m	$U=0.10MS/m\sim0.36MS/m$		
59	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	$U=0.06s/d$		
60	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	$U_{rel}=1\%$		
61	*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	$U_{rel}=1.6\%$		

No. CNAS L0260

第 88 页 共 155 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		degree of distortion		0.01%~20%,(50Hz, 60Hz)	$U_{rel}=12\%$		
62	*Instantaneous Discontinuity Testing Instruments	Instantaneous Discontinuity Resistance Instantaneous Time	Calibration Specification of Instantaneous Discontinuity Testing Instruments JJF (DZ) 0042	1 Ω ~ 99.99 Ω 0.1 μs ~ 99.99 μs	$U_{rel}=3\%$ $U=0.05 \mu s$		
63	*Hall Current(Voltage) Transducer	Alternating current DC current AC voltage DC voltage	Verification Regulation of Hall Current(Voltage) Transducer JJG (Chuan) 136	100mA~2000A,(45Hz~400Hz) 100mA~5000A 1V~600V,(45Hz~1000Hz) 1V~600V	$U_{rel}=0.08\%$ $U_{rel}=0.01\%$ $U_{rel}=0.05\%$ $U_{rel}=0.03\%$		
64	*High Current Generator	Alternating current	Calibration Specification of High Current Generator JJF (JX) 1037	5A~5000A,(50Hz)	$U_{rel}=0.5\%$		
65	*charge & discharge of battery test system	DCV Direct current Resistance Time Rise time	Calibration specification for battery charging and discharging testers JJF2039	1V~1000V 1mA~100mA 100mA~20A 20A~1000A 10 Ω ~ 1000 Ω 10s~12h 12h~24h 10 μs ~ 10ms	$U_{rel}=0.03\%$ $U_{rel}=0.2\%$ $U_{rel}=0.05\%$ $U_{rel}=0.07\%$ $U_{rel}=0.2\%$ $U=0.3s$ $U=0.6s$ $U_{rel}=1.6\%$		

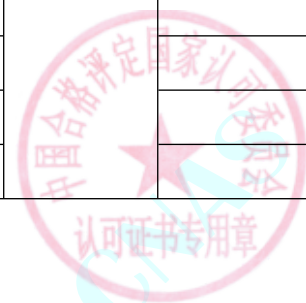


No. CNAS L0260

第 89 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Pulse current		100A~1000A	<i>U</i> _{rel} =1.9%		
		Discharge capacity		0.1Ah~1kAh	<i>U</i> _{rel} =0.6%		
		power		1mW~1W 1W~30kW	<i>U</i> _{rel} =0.4% <i>U</i> _{rel} =0.2%		
66	*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		
67	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′		



No. CNAS L0260

第 90 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
68	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% U_n ~120% U_n	$U=0.3\%$		
		phase displacement		(0.01~900)' , 80% U_n ~120% U_n	$U=1.0'$		
69	*Calibration Specification	DC resistance	Calibration specification for equipotential testers JJF(Ji) 3022	100 $\mu\Omega$ ~ 3k Ω	$U_{rel}=0.2\%$		
70	*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;	$U_{rel}=0.6\%$		
		welding current		(10~2000)A	$U_{rel}=1.5\%$		
71	*Medical Leakage Current Testers	Leakage current	Verification regulation of medical leakage current testers JJG1188	10 μ A~20mA, (50Hz,60Hz)	$U_{rel}=0.5\%$		
		DC input resistance		100 Ω ~ 3000 Ω	$U_{rel}=0.4\%$		
		Impedance		(100~2200) Ω , 10Hz~1kHz	$U_{rel}=0.4\%$		
		Transmission impedance		(100~2200) Ω , 1kHz~1MHz	$U_{rel}=0.8\%$		
		frequency response characteristics		100Hz~1kHz	$U_{rel}=0.07dB$		
		Testing Voltage		1kHz~1MHz	$U_{rel}=0.16dB$		
				50V~380V, (50Hz,60Hz)	$U_{rel}=0.3\%$		



No. CNAS L0260

第 91 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
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%		
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		



No. CNAS L0260

第 92 页 共 155 页

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

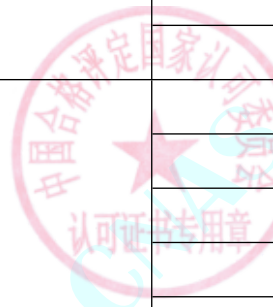
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Distortion		0.03%~10%,(20Hz~20kHz)	<i>U</i> _{rel} =3%		
5	*Semiconductor Device Curve Tracers	Current	Calibration Specification for Semiconductor Device Curve Tracers JJF 1236	100μA~0.5A	<i>U</i> _{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%		
				1%~100%,(10kHz~100kHz)	<i>U</i> _{rel} =1.0%		
				0.1%~0.3%,(100kHz~200kHz)	<i>U</i> _{rel} =12%		



No. CNAS L0260

第 93 页 共 155 页

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

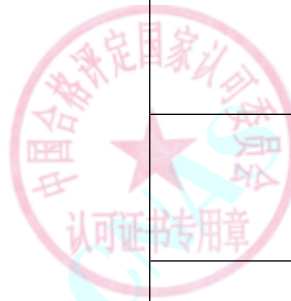
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				0.3%~1%,(100kHz~200kHz)	<i>U</i> _{rel} =5%		
				1%~100%,(100kHz~200kHz)	<i>U</i> _{rel} =3%		
7	*Oscilloscope Calibrator	square wave voltage	V.R.of Oscilloscope Calibrator JJG 278	10mV~200V,(1kHz)	<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%		
		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%		



No. CNAS L0260

第 94 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		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		
		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		



No. CNAS L0260

第 95 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(10~80)dB, (10dB/div, 10MHz~1GHz)	U=0.2dB		
		Input Frequency Response		(-10~10)dB, (100kHz~26.5GHz)	U=0.3dB		
		Absolute Magnitude		(-30~10)dBm, (10MHz~1GHz)	U=0.3dB		
10	*Signal Generator	Frequency	Calibration Specification for Signal Generators JJF 1931	100kHz~26.5GHz	U _{rel} =1×10 ⁻⁷		
		Power		20dBm~ 30dBm,(30MHz~2GHz)	U=0.22dB		
				-110dBm~ 20dBm,(30MHz~2GHz)	U=0.13dB		
				-127dBm~- 110dBm,(30MHz~2GHz)	U=0.6dB		
				20dBm~ 30dBm,(2GHz~18GHz)	U=0.26dB		
				-110dBm~ 20dBm,(2GHz~18GHz)	U=0.18dB		
				-127dBm~- 110dBm,(2GHz~18GHz)	U=0.7dB		
				20dBm~ 30dBm,(18GHz~26.5GHz)	U=0.29dB		
				-110dBm~ 20dBm,(18GHz~26.5GHz)	U=0.23dB		

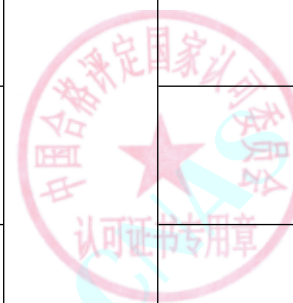
No. CNAS L0260

第 96 页 共 155 页



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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				-127dBm~- 110dBm,(18GHz~ 26.5GHz)	$U=0.7\text{dB}$		
				-100dBc~- 25dBc,(10MHz~3GHz)	$U=0.8\text{dB}$		
		Harmonic		-100dBc~- 25dBc,(3GHz~6.6GHz)	$U=1.1\text{dB}$		
				-100dBc~- 25dBc,(6.6GHz~ 13.2GHz)	$U=1.3\text{dB}$		
				5%~99%,(Carrier frequency:100kHz~ 10MHz,Moduiation frequenc:1kHz)	$U_{\text{rel}}=0.9\%$		
				5%~20%,(Carrier frequency:10MHz~ 3GHz,Moduiation frequency:1kHz)	$U_{\text{rel}}=2.9\%$		
		AM		20%~99%,(Carrier frequency:10MHz~ 3GHz,Moduiation frequenc:1kHz)	$U_{\text{rel}}=0.6\%$		
				5%~20%,(Carrier frequency:3GHz~ 26.5GHz,Moduiation frequenc:1kHz)	$U_{\text{rel}}=6\%$		
				20%~99%,(Carrier frequency:3GHz~ 26.5GHz,Moduiation frequency:1kHz)	$U_{\text{rel}}=1.8\%$		



No. CNAS L0260

第 97 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		FM	ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF A CERTIFICATE	250Hz~400kHz, (Carrier frequency: 100kHz~26.5GHz, Modulation frequency: 1kHz)	$U_{rel}=1.2\%$		
		PM		4rad~400rad, (Carrier frequency: 100kHz~26.5GHz, Modulation frequency: 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)	$U=0.3\text{dB}$	合格评定国家认可委员会 认可证书专用章	
				50dB, (0.3GHz~18GHz)	$U=0.4\text{dB}$		
		Scattering Parameter Phase		$-180^{\circ} \sim 180^{\circ}$, (0.3~8)GHz	$U=0.7^{\circ}$		
				$-180^{\circ} \sim 180^{\circ}$, (8~18)GHz	$U=1.0^{\circ}$		
		Frequency		9kHz~18GHz	$U_{rel}=2 \times 10^{-7}$		
		Power		(-40~20)dBm, (9kHz~18GHz)	$U=0.3\text{dB}$		
		Modulus Dynamic Accuracy		(0~1)dB, (300kHz~18GHz)	$U=0.05\text{dB}$		



No. CNAS L0260

第 98 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Crosstalk		(-150~-70)dB, (300kHz~18GHz)	U=2dB		
		Background Noise		(-140~-70)dBm, (300kHz~18GHz)	U=3dB		
12	*Synthesized Signal Generators	Frequency	V.R.of Synthesized Signal Generators JJG502	5kHz~1MHz	$U_{rel}=1 \times 10^{-8}$		
				1MHz~26.5GHz	$U_{rel}=1 \times 10^{-9}$		
		power		30dBm~ 20dBm,(30MHz~2GHz)	U=0.21dB		
				30dBm~ 20dBm,(2GHz~18GHz)	U=0.25dB		
				30dBm~ 20dBm,(18GHz~ 26.5GHz)	U=0.29dB		
				20dBm~ 0dBm,(30MHz~2GHz)	U=0.12dB		
				20dBm~0dBm,(2GHz~ 18GHz)	U=0.18dB		
				20dBm~ 0dBm,(18GHz~ 26.5GHz)	U=0.23dB		
				0dBm~- 30dBm,(30MHz~2GHz)	U=0.14dB		
				0dBm~- 30dBm,(2GHz~18GHz)	U=0.19dB		
				0dBm~- 30dBm,(18GHz~ 26.5Hz)	U=0.24dB		



No. CNAS L0260

第 99 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Attenuation (relative level)		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)	$U=0.5\text{dB}$		
		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%~20%,(Carrier frequency:10MHz~3GHz,Modulation frequency:1kHz)	$U_{\text{rel}}=2.9\%$		
				20%~99%,(Carrier frequency:10MHz~3GHz,Modulation frequency:1kHz)	$U_{\text{rel}}=0.6\%$		



No. CNAS L0260

第 100 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			ilac-MRA CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	5%~20%, (Carrier frequency: 3GHz~26.5GHz, Modulation frequency: 1kHz)	$U_{rel}=5\%$		
				20%~99%, (Carrier frequency: 3GHz~26.5GHz, Modulation frequency: 1kHz)	$U_{rel}=1.8\%$		
		PM		4rad~400rad, (Carrier frequency: 30MHz~26.5GHz, Modulation frequency: 1kHz)	$U_{rel}=1.2\%$		
		FM		200Hz~400kHz, (Carrier frequency: 30MHz~26.5GHz, Modulation frequency: 1kHz)	$U_{rel}=1.2\%$		
13	*Function Generators	Frequency	V.R. of Function Generators JJG840	0.1Hz~250MHz	$U_{rel}=3 \times 10^{-9}$	合格评定国家认可委员会 认可证书专用章	
		Amplitude		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)	$U_{rel}=0.6\%$		



No. CNAS L0260

第 101 页 共 155 页

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

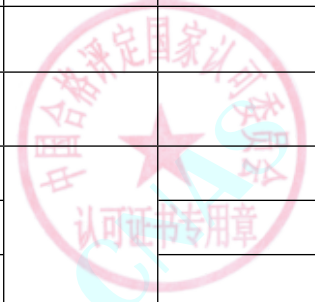
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
14	*Audio Analyzer	Frequency Measurement	Calibration Specification for Audio Analyzer JJF1395	10Hz~200kHz	$U_{rel}=5 \times 10^{-4}$		
		Voltage Measurement		100mV~300V,(1kHz)	$U_{rel}=0.8\%$		
		Distortion 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 μ F,(1kHz)	$U_{rel}=0.06\%$		
				10 μ F~100 μ F,(100Hz)	$U_{rel}=0.12\%$		
		Inductance		100 μ H,(1kHz)	$U_{rel}=0.06\%$		
				1mH~1H,(1kHz)	$U_{rel}=0.03\%$		
				1 Ω ~10 Ω ,(1kHz)	$U_{rel}=0.12\%$		
		Resistance		10 Ω ~100k Ω ,(1kHz)	$U_{rel}=0.06\%$		
				Loss	0.0001,(1kHz)		$U=0.00028$
		0.001,(1kHz)			$U=0.00028$		
		0.01,(1kHz)			$U=0.00028$		



No. CNAS L0260

第 102 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				0.1,(1kHz)	$U=0.00052$		
				0.2,(1kHz)	$U=0.0008$		
				0.5,(1kHz)	$U=0.0014$		
				1,(1kHz)	$U=0.003$		
16	*Standard Capacitors	Capacitor	V.R.of Standard Capacitors JJG183	10pF~100pF,(1kHz)	$U_{rel}=0.60\%$		
				100pF~1000pF,(1kHz)	$U_{rel}=0.07\%$		
				10nF~1 μ F,(1kHz)	$U_{rel}=0.03\%$		
				10pF~100pF,(100 Hz)	$U_{rel}=0.60\%$		
				100pF~1000pF,(100 Hz)	$U_{rel}=0.13\%$		
				10nF~1 μ F,(100 Hz)	$U_{rel}=0.05\%$		
				10pF~100pF,(10kHz)	$U_{rel}=0.26\%$		
				100pF~1000pF,(10kHz)	$U_{rel}=0.13\%$		
				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)	$U=0.62\text{dB}$		
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	$U_{rel}=6.5\%$		



No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Bandwidth		1MHz~20GHz	<i>U</i> _{rel} =5%		
		Resisance		50Ω , 75Ω , 1MΩ	<i>U</i> _{rel} =0.5%		
		Calibration Signal Amplitude		(0.3~5)V, (1kHz~1MHz)	<i>U</i> _{rel} =0.5%		
		Calibration Signal Frequency		1kHz~1MHz	<i>U</i> _{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	<i>U</i> _{rel} =0.06%		
				10mV~40V	<i>U</i> _{rel} =0.06%		
		DPS Current Parame-ters		-10 μ A~-500mA	<i>U</i> _{rel} =0.06%		
				10 μ A~500mA	<i>U</i> _{rel} =0.06%		
		PMU Set Voltage Measure Current Parame-ters		-10 μ A~-100mA,(- 10mV~-20V)	<i>U</i> _{rel} =0.06%		
				10 μ A~ 100mA,(10mV~20V)	<i>U</i> _{rel} =0.06%		
		PMU Set Current Measure Voltage Parame-ters		-10mV~-20V,(-10 μ A~ -100mA)	<i>U</i> _{rel} =0.06%		
				10mV~20V,(10 μ A~ 100mA)	<i>U</i> _{rel} =0.06%		
		Drive Unit Voltage Setting Parameters		-10mV~-20V	<i>U</i> _{rel} =0.06%		
				10mV~20V	<i>U</i> _{rel} =0.06%		
		Comparing Unit Voltage		-10mV~-20V	<i>U</i> _{rel} =0.07%		



No. CNAS L0260

第 104 页 共 155 页

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

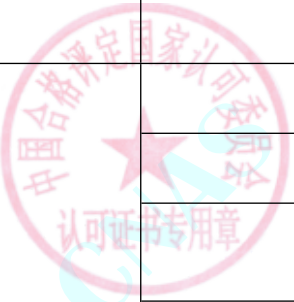
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Measuring Parameters		10mV~20V	<i>U</i> _{rel} =0.07%		
21	*Artificial Mains Networks	Impedance Modulus	Calibration Specification for Artificial Mains Networks JJF1705	5 Ω ~ 100 Ω ,(9kHz~108MHz)	<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		
				-70dB~-40dB,(100kHz~20GHz)	<i>U</i> =0.5dB		
				-40dB~0dB,(100kHz~20GHz)	<i>U</i> =0.4dB		
				-120dB~-100dB,(20GHz~26.5GHz)	<i>U</i> =0.7dB		
				-100dB~-70dB,(20GHz~26.5GHz)	<i>U</i> =0.4dB		



No. CNAS L0260

第 105 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				-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,Moduiation frequenc:400Hz、1kHz)	$U_{\text{rel}}=1.3\%$		
		FM		10kHz~400kHz,(Carrier frequency:100kHz~40GHz,Moduiation frequency:400Hz、1kHz)	$U_{\text{rel}}=1.3\%$		
		PM		4rad~400rad,(Carrier frequency:100kHz~40GHz,Moduiation frequenc:400Hz、1kHz)	$U_{\text{rel}}=1.3\%$		
23	*EMI Testing Receivers	Level	Calibration Specification for EMI Testing Receivers JJF1144	(0~120)dB μV ,(9kHz~1GHz)	$U=0.7\text{dB}$		
		Pulse amplitude		(0~60)dB μV ,(9kHz~1GHz)	$U=1.2\text{dB}$		
		Repetitive frequency response		(0~60)dB μV ,(9kHz~1GHz)	$U=1.1\text{dB}$		
		Frequency		9kHz~100MHz	$U_{\text{rel}}=2 \times 10^{-5}$		

No. CNAS L0260

第 106 页 共 155 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			ilac-MEAS CHINA NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF APPROVED CALIBRATION CERTIFICATE	100MHz~20GHz	$U_{rel}=2 \times 10^{-7}$		
		Attenuation		(0~90)dB, (9kHz~20GHz)	$U=0.4\text{dB}$		
		Indicate Linear		(0~60)dB, (9kHz~1GHz)	$U=0.2\text{dB}$		
		Resolution Bandwidth		200Hz~1MHz	$U_{rel}=2\%$		
24	*Directional Coupler	Optical Return Loss	Calibration Specification for Directional Coupler and SWR Bridges JJF1680	(15~60)dB, (300kHz~8GHz)	$U=0.8\text{dB}$		
		Insertion loss		(0~3)dB, (300kHz~8GHz)	$U=0.26\text{dB}$		
		The coupling coefficient		(10~40)dB, (300kHz~8GHz)	$U=0.33\text{dB}$		
		directional		(20~50)dB, (300kHz~8GHz)	$U=0.52\text{dB}$		
25	*RF&Microwave Power Amplifier	power rating	C.S. for RF&Microwave Power Amplifiers JJF1678	(10~60)dBm, (10kHz~18GHz)	$U=0.6\text{dB}$		
		Gain		(10~80)dB, (10kHz~18GHz)	$U=0.7\text{dB}$		
		power output at 1dB compression		(10~60)dBm, (10kHz~18GHz)	$U=0.8\text{dB}$		
		harmonic distortion		(-60~0)dBc, (10kHz~18GHz)	$U=0.7\text{dB}$		
26	*High Voltage Capacitance Bridge	Capacitance Ratio	V.R.of High Voltage Capacitance Bridges JJG563	0.1~1, (50Hz)	$U=0.0002$		
27	*High Voltage Dielectric Loss Tester	Voltage	V.R.of High Voltage Dielectric Loss Tester JJG1126	(1~10)kV, (50Hz)	$U_{rel}=1.3\%$		
		Capacitance		100pF~500nF, (50Hz)	$U_{rel}=0.2\%$		

No. CNAS L0260

第 107 页 共 155 页



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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
		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%			
		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			



No. CNAS L0260

第 108 页 共 155 页

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

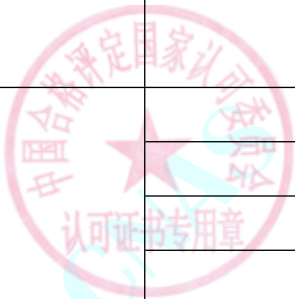
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				10000~65280	$U=2$		
29	*Network Cable Analyzers	DC resistance	Calibration Specification for Network Cable Analyzers JJF1494	(1~1000) Ω	$U_{rel}=1.2\%$		
		Propagation delay		(80~500)ns	$U_{rel}=2\%$		
		insert loss		(0~40)dB,(1MHz~250MHz)	$U=0.4\text{dB}$		
		FEXT		(20~70) dB,(1MHz~250MHz)	$U=0.6\text{dB}$		
		FEXT		(10~60) dB,(1MHz~250MHz)	$U=0.6\text{dB}$		
		Return Loss		(8~26.5) dB,(1MHz~250MHz)	$U=0.8\text{dB}$		
		length		(20~100) m	$U_{rel}=0.4\%$		
30	*RF&Microve Power Sensors	calibration factor	Calibration Specification for RF & Microwave Power Sensors JJF1887	50%~150%,(1MHz~8GHz)	$U=2.2\%$		
		VSWR		1~2,(1MHz~8GHz)	$U=0.01$		
31	*RF and Microwave Power Meters	Reference source power	Calibration Specification for RF and Microwave Power Meters JJF1885	1mW,(50MHz)	$U_{rel}=0.76\%$		
		calibration factor		50%~150%,(1MHz~8GHz)	$U=2.2\%$		
		Linearity		-20dBm~+10dBm,(50MHz)	$U=0.06\text{dB}$		
		VSWR		1~2,(1MHz~8GHz)	$U=0.01$		
32	*High Voltage Standard Capacitors	Capacitance	Verification Regulation of High Voltage Standard Capacitors JJG1075	1pF~10 μF ,(50Hz)	$U_{rel}=0.05\%$		
		Loss factor		0~0.1,(50Hz)	$U=0.00006\sim0.0006$		



No. CNAS L0260

第 109 页 共 155 页

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

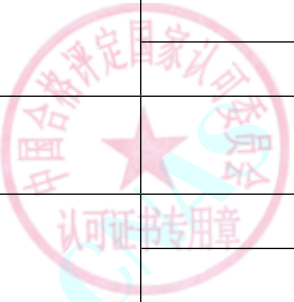
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
VII Time and frequency measuring instrument							
1	Stopwatches	Time Interval	V.R.of Stopwatches JJG 237	Mechanical stopwatches: 2s~3600s	U=0.2s		
				Electronic stopwatches: 2s~3600s	U=0.03s		
				Electronic stopwatches: Daily clock time difference rate: -9.99s~9.99s	U=0.05s		
2	*Universal Counters	Frequency	V.R.of Universal Counters JJG 349	0.1Hz~18GHz	U _{rel} =1×10 ⁻⁷		
		Period		20ns~100s	U _{rel} =2×10 ⁻⁷		
		Time interval		20ns~1ms	U=2ns		
				1ms~10000s	U _{rel} =7×10 ⁻⁷		
3	Crystal Oscillators	Frequency	Specification for calibration of quartz crystal oscillators in electronic measuring instruments JJF 1984	1MHz、5MHz、10MHz	U _{rel} =9×10 ⁻⁸		
4	*Telephone Accounter	time interval	V.R.of Single and Dispersion Controled Centrely Telephone Accounter JJG107	(1~1800)s	U=2s		
5	Time Interval Generator	time interval	V.R.of Time Interval Generator JJG601	0.1ms~1s	U=1 μ s		
				1s~3600s	U=1ms		
				3600s~10000s	U _{rel} =1×10 ⁻⁸		
		Frequency		1MHz、5MHz、10MHz	U _{rel} =1×10 ⁻⁸		



No. CNAS L0260

第 110 页 共 155 页

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

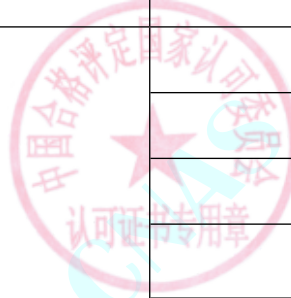
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*Frequency Meters	frequency	V.R.of Frequency Meters JJG603	10Hz~10kHz	$U_{rel}=0.01\%$		
7	*Electronic Time Relay	Time interval	Calibration Specification for Electronic time relay JJF1282	(0.1~10)s	$U=0.01s$		
				(10~100)s	$U=0.04s$		
				(100~9999)s	$U_{rel}=0.4\%$		
8	*Time Interval Meters	Time	V.R.of Time Interval Meters JJG238	20ns~1ms	$U=2ns$		
				1ms~10000s	$U_{rel}=3 \times 10^{-7}$		
9	*Electronic Parking Meters	time	Verification Regulation of Electronic Parking Meters JJG1010	(10~86400)s	$U=3s$		
10	*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	$U=2.6ms$		
		Residued Current		(5~500)mA	$U_{rel}=1\%$		
11	*Pulse Counters	Number of pulses	Calibration Specification for Pulse Counters JJF1686	1~10000	$U=1$		
				10000~100000	$U=2$		
				100000~1000000	$U=4$		
12	*Vibrating Wire Frequency Readout	Frequency	C.S. for Vibrating Wire Frequency Readouts JJF 1401	300Hz~6000Hz	$U=0.1Hz$		
13	*Time Interval Generator	Pulse Period	Calibration Specification for Time Interval Generators JJF 1902	20ns~1s	$U=2ns$		
				1s~1000s	$U_{rel}=2 \times 10^{-9}$		
				1000s~10000s	$U_{rel}=2 \times 10^{-7}$		

No. CNAS L0260

第 111 页 共 155 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
		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%				
14	*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				
15	*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				

No. CNAS L0260

第 112 页 共 155 页



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

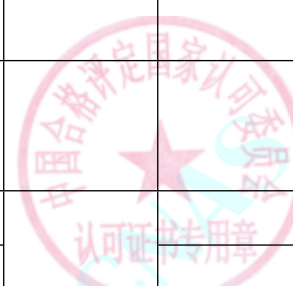
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
VIII Optical measuring instrument							
1	Abbe Refractometer	Abbe	V.R.of Abbe Refractometer JYG625	$n_D(1.4\sim 1.6)$	$U=4.4\times 10^{-5}$		
2	*Focimete	Focimeters	V. R. of Focimeters JYG580	$-25\text{m}^{-1}\sim +25\text{m}^{-1}$	$U=0.03\text{ m}^{-1}$		
3	Trial Case Lense	Focimeters	V. R. of Trial Case Lenses JYG579	$-20\text{m}^{-1}\sim +20\text{m}^{-1}$	$U=0.03\text{ m}^{-1}$		
4	*Eye Refractometer	Focimeters	V. R. of Eye Refractometers JYG892	$-20\text{m}^{-1}\sim +20\text{m}^{-1}$	$U=0.08\text{ m}^{-1}$		
		Length		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 Illuminometer.JYG245-2005 JYG245	(20~3000)lx	$U_{\text{rel}}=1.4\%$		
6	standard light source box	illuminance	C.S.of standard light source box JYG(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	$U=1.6\times 10^2\text{K}$		
7	Whiteness Meter	Whiteness	V.R.for Whiteness Meter JYG512	(60~90)	$U=2.1$		
8	Luminance meter	brightness	V R.of Luminance meter JYG211	(50~500)cd/m ²	$U_{\text{rel}}=3.4\%$		
9	Colorimeters and Colour Difference Meters	Chroma	V.R.of Colorimeters and Colour Difference Meters JYG595	Y:(0~100)	$U=2.1$		
				x:(color domain)	$U=0.0051$		
				y:color domain	$U=0.0051$		



No. CNAS L0260

第 113 页 共 155 页

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

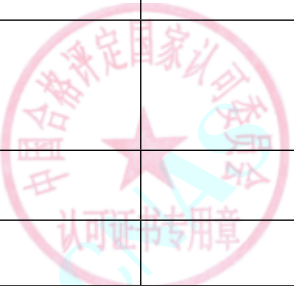
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
10	Specular Gloss Meters	Gloss	V.R.of Specular Gloss Meters and Gloss Plates JJG696	(0~120)GU	$U=1.2GU$		
11	Gloss Plates	Gloss	V.R.of Specular Gloss Meters and Gloss Plates JJG696	(0~120)GU	$U=1.6GU$		
12	Ultraviolet Irradiance Meter	Irradiance	V.R.of Specular Ultraviolet IrradianceMeter JJG879	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 JJG958	(-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 JJG965	(-60~0)dBm (850nm $\pm$ 20nm, 1310nm $\pm$ 20nm, 1550nm $\pm$ 20nm)	$U_{rel}=2.6\%$		
17	*Optical Attenuator for Telecommunications	Attenuator	C.S.of Optical Attenuator for Telecommunications JJF1199	(0~65)dB (1310nm $\pm$ 20nm, 1550nm $\pm$ 20nm)	$U=0.15dB$		
18	*Optical Time Domain Reflectometer	length	V.R.of Optical Time Domain Reflectomete JJG959	(0~40)km (1310nm)	$U=0.2m+1.5 \times 10^{-5}L$		
		Loss scale coefficient		(0~20)dB/dB (1310nm)	$U=0.03 \text{ dB/dB}$		
				(0~20)dB/dB (1550nm)	$U=0.03 \text{ dB/dB}$		



No. CNAS L0260

第 114 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
19	Color analyzers	Color coordinate	C.S.for athord ray tube (CRT) color analyzers JJF1079	x: (0~1)y: (0~1)	$U=0.002$		
		brightness		Y: (10~300) cd/m^2	$U_{\text{rel}}=2.5\%$		
20	*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)	$U=1.8\text{dB}$		
21	Laser Power Meters	Laser Power	0.1mW~200W Laser Power Meters JJG249	0.1mW~500mW(530nm~1600nm)	$U_{\text{rel}}=4\%$		
22	Diffuse Transmission Visual Densitometer	Density	V. R. of Diffuse Transmission Visual Densitometer JJG920	0~2.0	$U=0.020$		
				>2.0~4.0	$U=0.024$		
23	Black and White Step Tablet	Density	V.R.of Black and White Step TabletJJG452-2006 JJG452	0.05~2.0	$U=0.016$		
				> 2.0~4.0	$U=0.017$		
24	Reference Filter for Calibration spectrophotometer	peak wavelength	Verification Regulation of Reference Filter for Calibration Spectrophotometer JJG 1034	(200~700)nm	$U=0.3\text{nm}$		
25	*Fiber Optical Power Meters	Optical Power	V.R. of Fiber Optical Power Meters JJG813	(-60~0)dBm,(1310nm、1550nm)	$U=0.13\text{dB}$		
26	*Reflectometer	Reflectivity	Calibration Specification for Reflectometers JJF 1232	(50~95)%	$U=1.6\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
27	*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%		
28	*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		
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) °C	<i>U</i> =3.4 °C		
				Closed Cup:(111～180) °C	<i>U</i> =4.7 °C		
				Open Cup:(115～170) °C	<i>U</i> =6.2 °C		
				Open Cup: (171～230) °C	<i>U</i> =7.6 °C		
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 Particulate Sampler	Flow	V.R. of Total Suspended Particulate 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%		



No. CNAS L0260

第 116 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
6	*Differential Scanning Calorimeters	Temperature	V.R. of the Differential Scanning Calorimeter JJG936	(150~450)°C	U=1.0°C		
		Caloric		(20~110)J/g	U=1.4 J/g		
7	*pH Meter	Voltage	V.R. of Laboratory pH Meter JJG119	(-2000~2000)mV	U=0.01%FS		
		Acidity		Potentiometer: 0~14 Instrument : 4~10	U=0.01 U=0.01		
		Temperature		(5~60)°C	U=0.1°C		
8	*Polarimeter	Optical Rotation	V.R. of Polarimeter and Saccharimeter JJG536	-45 ° ~+45 °	U=0.005°		
9	*Electrolytic conductivity meter	Conductivity	V.R. of Electrolytic Conductivity Meter JJG376	Potentiometer: (0.05~2 × 10 ⁵) μ S/cm	U _{rel} =0.2%		
		Temperature		Mating: (0.05~2 × 10 ⁵) μ S/cm (15~35)°C	U _{rel} =0.4% U=0.2°C		
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	(220~899)nm	U=0.4 nm		
				(900~2600)nm	U=1.0 nm		



No. CNAS L0260

第 117 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Transmission	JJG178	(5~40)%	$U=0.4\%$		
13	*Atomic Absorption Spectrophotometers	Detection Limit	V.R. of Atomic Absorption Spectrophotometers JJG694	Flame Atomizer(Cu): $\leq 0.02 \mu\text{g/mL}$ Graphite Furnace Atomizer(Cd): $\leq 4\text{pg}$	$U_{\text{rel}}=10\%$ $U_{\text{rel}}=12\%$		
14	*Gas Chromatograph	Sensitivity	V.R. of Gas Chromatograph JJG700	TCD (Benzene): $\geq 800 \text{mV} \cdot \text{mL/mg}$	$U_{\text{rel}}=8.0\%$		
		Detection Limit		FID (n-Hexadecane、methane): $\leq 0.5\text{ng/s}$	$U_{\text{rel}}=12\%$		
				ECD (Lindane): $\leq 5\text{pg/mL}$	$U_{\text{rel}}=12\%$		
				FPD: (S) $\leq 0.5\text{ng/s}$ /(P) $\leq 0.1\text{ng/s}$	$U_{\text{rel}}=12\%$		
				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): $\leq 5 \times 10^{-8} \text{g/mL}$ FLD:(Naphthalene): $\leq 5 \times 10^{-9} \text{g/mL}$ RID:(Cholesterol): $\leq 5 \times 10^{-6} \text{g/mL}$ ELSD:(Cholesterol): $\leq 5 \times 10^{-6} \text{g/mL}$	$U_{\text{rel}}=10\%$ $U_{\text{rel}}=10\%$ $U_{\text{rel}}=12\%$ $U_{\text{rel}}=12\%$		
16	*Melting-Point Measurement Instruments	Melting Point	V.R. of Melting-Point Measurement Instruments JJG 701	(50~300) $^{\circ}\text{C}$	$U=0.3^{\circ}\text{C}$		
17	*Extrusion Plastometer	Melt Flow Rate	V.R. for Extrusion Plastometer JJG878	(1~10)g/10min	$U=(0.18\sim 0.37)\text{g/10min}$		

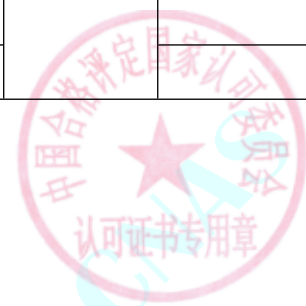


No. CNAS L0260

第 118 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
18	*Alarmer Detectors of Combustible Gas	Concentration	V.R. of Alarmer Detectors of Combustible Gas JJG693	(1~100)%LEL	<i>U</i> _{rel} =2.0%			
		Time		(1~60)s	<i>U</i> =1.0s			
19	*Atomic Fluoreacence Spectrometers	Detection Limit	V.R. of Atomic Fluorescence Spectrometers JJG939	As: ≤0.4 ng; Sb: ≤0.4 ng	<i>U</i> _{rel} =10 %			
20	*Rotational Viscometers	Viscosity	V.R. of Rotational Viscometer JJG1002	(1~1.2×10 ⁵)mPa•s	<i>U</i> _{rel} =1.2%			
21	Flow Cups Viscosimeter	Viscosity	V.R. of Flow Cups Viscometers JJG743	(1~1100)mm ² /s	<i>U</i> _{rel} =1.0%			
22	*Ion Chromatographs	Detection Limit	V.R. of Ion Chromatographs JJG823	Conductivity detector≤ 0.02 μ g/mL	<i>U</i> _{rel} =12%			
				UV visible detector≤0.02 μ g/mL	<i>U</i> _{rel} =12%			
				Electrochemical detector ≤0.02 μ g/mL	<i>U</i> _{rel} =13%			
23	*Ionometers	Voltage	V.R. of Laboratory Ion meters JJG757	(-2000~2000)mV	<i>U</i> =0.01%FS			
		pX		Electrometer pX: (0~ 14)	<i>U</i> =0.001			
				instrument pX: (2~4)	<i>U</i> =0.002			
		Temperature		(5~45)℃	<i>U</i> =0.1℃			



No. CNAS L0260

第 119 页 共 155 页

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

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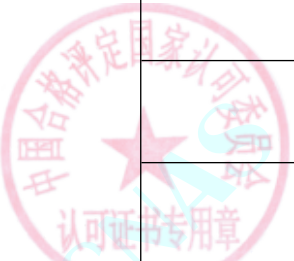
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
24	*Inductively Coupled Plasma-optical Emission Spectrometer	Detection Limit	V.R. of Emission Spectrometer JJG768	Zn213.856nm: $\leq$ 0.003mg/L/Ni231.604nm : $\leq$ 0.01mg/L/Mn257.610nm : $\leq$ 0.002mg/L/Cr267.716nm : $\leq$ 0.007mg/L/Cu324.754nm : $\leq$ 0.007mg/L/Ba455.403nm : $\leq$ 0.001mg/L	$U_{rel}=8.0\%$		
		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	$U_{rel}=0.8\%$		
26	*Chemical Oxygen Demand (COD) Meters	Concentration	V.R. of Chemical Oxygen Demand (COD) Meters JJG975	A:(10~1000)mg/L	$U_{rel}=2.4\%$		
		Temperature		B:(10~1000)mg/L (100~200)°C	$U=1.0\text{mg/L}$ $U=0.6^\circ\text{C}$		
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	$U=1.0\text{ s}$		
29	*Carbon Monoxide Detectors	Concentration	V.R. of Carbon Monoxide Detectors JJG915	(0.1~2000) $\mu\text{ mol/mol}$	$U_{rel}=2.0\%$		
		Time		(1~60)s	$U=1.0\text{ s}$		
30	Engler Viscosimeter	Time	V.R. of Engler Viscosimeter JJG742	(50~52)s	$U=0.50\text{ s}$		



No. CNAS L0260

第 120 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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)°C	$U=1.6^{\circ}\text{C}$		
32	*Automatic Potentiometric Titrators	Voltage	V.R. of Automatic Potentiometric Titrators JJG 814	(-2000~2000)mV	$U=0.20\text{mV}$		
		Concentration		$0.1\text{mol}\cdot\text{L}^{-1}$	$U_{\text{rel}}=0.34\%$		
		capacity		(1~100)mL	$U=(0.003\sim 0.030)\text{mL}$		
33	*Oil Content in Water Analyzer	Concentration	V.R. of Oil Content in Water Analyzer JJG950	(5~1000)mg/L	$U_{\text{rel}}=3.5\%$		
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%	$U=0.004\%$		
				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%	$U=0.002\%$		



No. CNAS L0260

第 121 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				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%	$U=0.002\%$		
				High Speed Automatic Carbon Sulfur Analyzers: S: >0.010%~0.050%	$U=0.003\%$		
				High Speed Automatic Carbon Sulfur Analyzers: S:>0.100%~0.200%	$U=0.005\%$		
35	*Fluorescence Spectrophotometer	Detection Limit	V.R. of Fluorescence Spectrophotometer JJG537	A 类: $\leq 5 \times 10^{-10}$ g/ml	$U_{rel}=11\%$		
				B: $\leq 1 \times 10^{-8}$ g/ml	$U_{rel}=10\%$		



No. CNAS L0260

第 122 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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: $(0.1\sim 10000)\times 10^{-6}\text{mol/mol}$	$U_{\text{rel}}=1.0\%$		
				O ₂ : $(0.01\sim 25)\%$	$U_{\text{rel}}=1.6\%$		
		Time		$(1\sim 90)\text{s}$	$U=1.0\text{s}$		
41	*Ammonia-Nitrogen Automatic Analyzers	Concentration	V.R. of Ammonia-Nitrogen Automatic Analyzers JJG631	$(0.1\sim 100)\text{mg/L}$	$U_{\text{rel}}=2.8\%$		



No. CNAS L0260

第 123 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
42	*Gas Chromatography-Mass Spectrometries	Signal Noise Ratio	C.S. for Gas Chromatography-Mass Spectrometries JJF1164	Ion Trap、Unipolar Quadrupole、Triple Quadrupole: $\geq 10:1$	$U_{rel}=15\%$		
				Time of Flight、Electrostatic Field Orbit Hydrazin: $\geq 50:1$	$U_{rel}=15\%$		
		Mass		(74~300)u	$U=0.04u$		
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 $\leq 10\text{ng/L}$	$U_{rel}=10\%$		
		Sensitivity		Be $\geq 5\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$ 、In $\geq 30\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$ 、Bi $\geq 20\text{ Mcps}/(\text{mg} \cdot \text{L}^{-1})$	$U_{rel}=8\%$		
44	*Static Light Scattering Particle Size Analyzers	Partical Diameter	C.S. for Static Light Scattering Particle Size Analyzers JJF1211	(1~120) μm	$U_{rel}=3\%$		
45	*Liquid-borne Particle Counters	Partical Number	V.R. of Liquid-borne Particle Counters JJG1061	(10~2500)grain/mL	$U_{rel}=5\%$		
46	*Instrument for KF Coulometry Titration	Content of Water	V.R. of Instrument for KF Coulometry Titration JJG1044	(10~5000) μg	$U_{rel}=3\%$		
47	Hand Saccharimeter(Content-meter) and Hand Refractometer	Sugar content	V.R. of Hand Saccharinmeter (Content-meter)and Hand Refractometer JJG820	(0.1~80)%	$U=0.2\%$		
		Refractive index		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)%	$U=0.6\%$		



No. CNAS L0260

第 124 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
49	Airborne Particle Counter	Particle Concentration	C.S. for Airborne Particle Counter JJF1190	(4500~5500)Unit/28.3L	$U=10\%FS$		
				(45000~55000)Unit/28.3L	$U=15\%FS$		
		Particle size		(0.1~10) μm	$U_{rel}=10\%$		
		Flow		(0.1~50)L/min	$U_{rel}=1.5\%$		
		Time		(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	$U_{rel}=3.3\%$		
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) $\mu mol/mol$	$U_{rel}=2\%$		
		Time		(1~60)s	$U=1.0s$		



No. CNAS L0260

第 125 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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	$U=0.004^{\circ}\text{C}$		
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) $\mu\text{g/g}$	$U_{rel}=10\%$		
				H: (1.1~30) $\mu\text{g/g}$	$U_{rel}=11\%$		
				O: (5~200) $\mu\text{g/g}$	$U_{rel}=11\%$		
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	$U_{rel}=4.2\%$		
60	*Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen	Concentration	V.R. of Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen JJG1094	TP: (0.1~10)mg/L	$U_{rel}=3\%$		
				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	$U_{rel}=3\%$		



No. CNAS L0260

第 126 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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: $\leq 0.005\%$	$U=0.001\%$		
				Si: $\leq 0.005\%$	$U=0.0008\%$		
				Mn: $\leq 0.003\%$	$U=0.0007\%$		
				Cr: $\leq 0.003\%$	$U=0.0007\%$		
				Ni: $\leq 0.005\%$	$U=0.0008\%$		



No. CNAS L0260

第 127 页 共 155 页

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

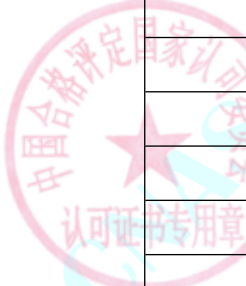
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				V: ≤0.001%	<i>U</i> =0.0005%		
69	*Polymerase Chain Reaction Analyzers	Temperature	C.S. for Polymerase Chain Reaction Analyzers JJF1527	(4~100)℃	<i>U</i> =0.2℃		
		Sample concentration		(1×10 ¹ ~1.1×10 ⁷ Copy/μL	<i>U</i> _{rel} =10%		
70	*On-line pH Meters	Acidity	C.S. for On-line pH Meters JJF1547	Potentiometer: 0~14	<i>U</i> =0.01		
		Voltage		Instrument: 4~10	<i>U</i> =0.02		
				(-2000~2000)mV	<i>U</i> =0.01%FS		
				Temperature	(5~60)℃		
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	<i>U</i> _{rel} =3%		
72	*Osmometer	Osmolarity	V.R. of Osmometers JJG1089	(100~400)mOsmol • kg ⁻¹	<i>U</i> =1.9mOsmol • kg ⁻¹		
				(>400~700)mOsmol • kg ⁻¹	<i>U</i> _{rel} =0.6%		
73	*Flow Analyzers with Spectrophotography	Detection Limit	C.S. for Flow Analyzers with Spectrophotography JJF1568	CN ⁻ 、VHB: ≤0.002mg/L	<i>U</i> _{rel} =48%		
				Cr ⁶⁺ : ≤0.004mg/L	<i>U</i> _{rel} =48%		
				Sulphide: ≤0.005mg/L	<i>U</i> _{rel} =48%		
				TP: ≤0.01mg/L	<i>U</i> _{rel} =48%		
				TN、NH ₄ ⁺ -N: ≤0.04mg/L	<i>U</i> _{rel} =48%		



No. CNAS L0260

第 128 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date		
				Anionic Detergent: $\leq 0.05\text{mg/L}$	$U_{\text{rel}}=48\%$				
74	*Industrial Analyzers	Weight	V.R. of Industrial Analyzers JJG1140	1g	$U=0.3\text{mg}$				
		Temperature		107℃	$U=1.4^{\circ}\text{C}$				
				815℃	$U=2.8^{\circ}\text{C}$				
				900℃	$U=3.0^{\circ}\text{C}$				
		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	$U_{\text{rel}}=3\%$				
		Time		(1~180)s	$U=1.0\text{s}$				
76	*Thermogravimetric Analyzers	Curie Temperature Point	V.R. for Thermogravimetric Analyzers JJG1135	Curie Point of Alumel Alloy: 153.8℃	$U=1.1^{\circ}\text{C}$				
				Ni: 358.6℃	$U=1.2^{\circ}\text{C}$				
				Fe: 772.0℃	$U=2.2^{\circ}\text{C}$				
				In: 156.52℃	$U=0.40^{\circ}\text{C}$				
		Melting Point		Sn: 231.81℃	$U=0.50^{\circ}\text{C}$				
				Pb: 327.77℃	$U=0.70^{\circ}\text{C}$				



No. CNAS L0260

第 129 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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	$U_{\text{rel}}=1.3\%$		
				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) $^{\circ}\text{C}$	$U=4.4^{\circ}\text{C}$		
				Cloud Point: (-21~0.5) $^{\circ}\text{C}$	$U=2.2^{\circ}\text{C}$		



No. CNAS L0260

第 130 页 共 155 页

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

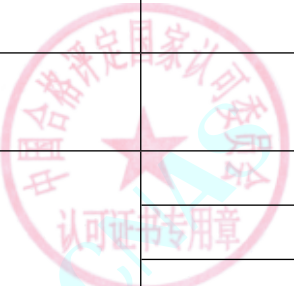
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
84	*Nonmethane Hydrocarbons Detectors	Nonmethane total hydrocarbon concentration	Calibration Specification for Nonmethane Hydrocarbons Detectors JJF (Su) 225	Methane channel: (10~500) μ mol/mol	$U_{rel}=2.2\%$		
				Total hydrocarbon channel: (10~500) μ mol/mol	$U_{rel}=2.3\%$		
85	Dust Concentration Measuring Instruments	Dust Concentration	Dust Concentration Measuring Instruments JJG 846	(0.1~50) mg/m^3	$U_{rel}=6\%$		
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) μ mol/mol	$U_{rel}=1.6\%$ (As methane)		
		Benzene compound concentration		(1~50) μ mol/mol	$U_{rel}=2.1\%$ (Benzene compound)		
87	Samplers for Stack Dust	Flow	Samplers for Stack Dust JJG 680	(5~80) L/min	$U_{rel}=1.3\%$		
		Pressure		(0~2.5)kPa	$U=0.38\%$		
		Pressure		-50kPa~50kPa	$U=0.06\%$		
		Temperature		(0~300) $^{\circ}\text{C}$	$U=0.64\%$		
		Time		(0~3600)s	$U=0.32\%$		
88	*Micro-spectrophotometer	Concentration	Calibration Specification for Micro-spectrophotometers JJF 1836	(10~1100) mg/kg	$U_{rel}=3.0\%$		
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	$U_{rel}=6\%$		
		Time		(1~120)s	$U=1.0\text{s}$		



No. CNAS L0260

第 131 页 共 155 页

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

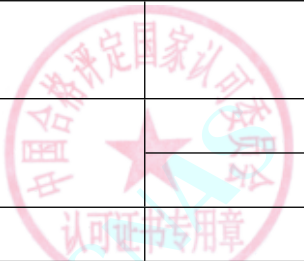
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
90	*Silicate Analyzer	Concentration	Calibration Specification for Silicate Analyzers JJF 1539	(0.1~100) μ g/mL	$U_{rel}=2.1\%$		
91	*Phosphate Analyzer	Concentration	Calibration Specification for Phosphate Analyzers JJF 1567	(0.1~50)mg/L	$U_{rel}=2.2\%$		
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	$U_{rel}=3\%$		
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 ²	$U_{rel}=1.0\%$		
		Bone mineral content		(0.3~2.0)g/cm	$U_{rel}=1.0\%$		



No. CNAS L0260

第 132 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Transverse diameter of bone		(0.8~1.6)cm	U _{rel} =1.0%		
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		
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%~0.12%		
		Length		(0~500)mm	U=0.07mm		
		Speed		(1~10)mm/min	U=0.03mm/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%~0.12%		
		Speed		12.5mm/min	U=0.04mm/min		
4	*Bursting Strength Testers for Paper(Board)	Pressure	Calibration Specification for Bursting Strength Testers for Paper(Board) JJF 1811	(100~6000)kPa	U=5kPa		
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 μ m		
		Parallelism		(0~0.1)mm	U=0.2 μ 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%		



No. CNAS L0260

第 133 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				WBC:(2~15)×10 ⁹ /L	<i>U</i> _{rel} =3.1%		
				HDB:(71~166)g/L	<i>U</i> _{rel} =2.1%		
				PLT:(106~503)×10 ⁹ /L	<i>U</i> _{rel} =3.1%		
2	*Pulmonary Function Measuring Instrument	vital capacity	C.S.for the Pulmonary Function Measuring Instrument JJF1213	(0.1~10)L	<i>U</i> _{rel} =0.7%		
		Flow		Peak Expiratory Flow: (2~14)L/s	<i>U</i> _{rel} =3%		
				Maximum minute ventilation: (30~ 250)L/min	<i>U</i> _{rel} =3%		
		Concentration		Oxygen: 6%~25%	<i>U</i> _{rel} =1.2%		
				Carbon dioxide: 4%~ 16%	<i>U</i> _{rel} =1.3%		
3	*Urine Analyzers	Concentration	C.S.of UrineAnalyzers JJF1129	GLU:(5.6~56)mmol/L	<i>U</i> _{rel} =3%		
				PRO:(0.30~3)g/L	<i>U</i> _{rel} =5%		
				RBC:(10~300)个/ μ L	<i>U</i> _{rel} =13%		
				WBC:(5~280)个/ μ L	<i>U</i> _{rel} =9%		
		pH Value		5.0~8.0	<i>U</i> _{rel} =6%		
		SG		0.995~1.030	<i>U</i> =0.005		
4	*ELISA Analytical Instruments	Absorbance	V. R. of ELISA Analytical Instruments JJG861	0.1~1.5	<i>U</i> =0.006		
		Wavelength		(405~620) nm	<i>U</i> =0.8nm		



No. CNAS L0260

第 134 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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	$U_{\text{rel}}=2.3\%$		
		voltage		(0.1~4.0) mV	$U_{\text{rel}}=2.1\%$		
		Scan speed		25 mm/s	$U_{\text{rel}}=1.1\%$		
		Amplitude-frequency characteristics		1 mV, (1 Hz~25 Hz)	$U_{\text{rel}}=2.1\%$		
		Heart rate		(30~200) min^{-1}	$U_{\text{rel}}=1.5\%$		
8	*Electrocardiograph	direct current voltage	V.R.of Electrocardiograph JJG543	(0.05~5)mV	$U_{\text{rel}}=2.1\%$		
		Time		(0.01~10) s	$U_{\text{rel}}=1.8\%$		
		Amplitude-frequency characteristics		2 mV, (0.5 Hz~75 Hz)	$U_{\text{rel}}=2.1\%$		
9	*sphygmomanometer	Pressure	V.R.of the Sphygmomanometer JJG270	(0~40) kPa	$U=0.2\text{kPa}$		



No. CNAS L0260

第 135 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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	$U_{\text{rel}}=2.1\%$		
		acidity		0~14	$U=0.04$		
11	*Electrosurgical Generator	Power	C.S.for Electrosurgical Generator JJF1217	(51~500)W	$U_{\text{rel}}=6\%$		
12	*Digital Electroencephalogram Mapping	Voltage	V.R.of Digital Electroencephalographs JJG954	(5~2000) μV	$U_{\text{rel}}=1.4\%$		
		Time Interval		(0.05~5)s	$U_{\text{rel}}=1.9\%$		
13	*Digital Electrocardiographs	Voltage	V.R.of Digital Electrocardiographs JJG1041	(0.5~5)mV	$U_{\text{rel}}=2\%$		
		Time		(0.01~10) s	$U_{\text{rel}}=1.8\%$		
		Amplitude-frequency characteristics		2 mV, (0.5 Hz~75 Hz)	$U_{\text{rel}}=2.1\%$		
		Heart rate		(30~200) min^{-1}	$U_{\text{rel}}=1.5\%$		
14	*Ambulatory Electrocardiograph	Voltage	V.R.for Ambulatory Electrocardiograph JJG1042	(0.05~6)mV	$U_{\text{rel}}=2.1\%$		
		Time		(0.01~10) s	$U_{\text{rel}}=1.8\%$		
		Heart rate		(30~200) min^{-1}	$U_{\text{rel}}=1.5\%$		
15	*Electro cardiac monitor	Voltage	V.R.of Electro cardiac monitors JJG760	(0.5~2)mV	$U_{\text{rel}}=2\%$		
16	*Electroencephalographs	Voltage	V.R.of Electroencephalographs JJG1043	(5~2000) μV	$U_{\text{rel}}=3\%$		



No. CNAS L0260

第 136 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
17	*Pulse Oximeters	SpO2	C.S.for Pulse Oximeters	70%~100%	$U=2\%$		
		Pluse rate	JJF(Beijing)86	(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	$U_{\text{rel}}=3\%$		
19	*Ventilators	Tidal Volume	C.S.for Lung Ventilators JJF1234	(0.05~1)L	$U_{\text{rel}}=2.5\%$		
		peep		(0.2~2.0)kPa	$U=0.12\text{kPa}$		
		Frequency		(10~40)min ⁻¹	$U_{\text{rel}}=4\%$		
		Oxygen concentration		21%~100%	$U=2.4\%$		
		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	$U=0.2\text{MPa}$		



No. CNAS L0260

第 137 页 共 155 页

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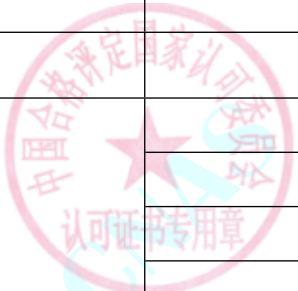
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		flow		(1～10)L/min	<i>U</i> =0.2L/min		
24	*Syringe Pumps and Infusion Pumps	flow	C.S.for Syringe Pumps and Infusion Pumps JJF1259	5mL/h～1000mL/h	<i>U</i> _{rel} =1.2%		
		Pressure		(0～200)kPa	<i>U</i> =2.6kPa		
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	<i>U</i> _{rel} =12%		
		Length		(0～200)mm	<i>U</i> =0.4mm		
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	<i>U</i> _{rel} =11%		
		Heart rate		(50～250) min ⁻¹	<i>U</i> _{rel} =1.0%		
		Frequency		(1.5～5)MHz	<i>U</i> _{rel} =1.5%		
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		

No. CNAS L0260

第 138 页 共 155 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Rotational speed		(30~250)r/min	$U_{rel}=0.2\%$		
2	*Fabrics Bursting Tester	Rotational speed	Calibration Specification for Fabrics Bursting Tester JJF(spin)036	(10~1000)r/min	$U_{rel}=0.13\%$		
		Quality		(0~500)g	$U=0.6g$		
				(500~2000)g	$U=1.1g$		
				(2000~30000)g	$U=1.5g$		
		Displacement		(0~200)mm	$U=0.04mm$		
3	*Fabrics Bursting Tester	Length	Calibration Specification for Fabrics Bursting Tester JJF(spin)048	直径： (1~200)mm	$U=0.04mm$		
		Pressure		(100~2500)kPa	$U_{rel}=0.14\%$		
		Time		(0~3600)s	$U=0.18s$		
4	*Scorch and Sublimation Tester	length	Calibration Specification for Scorch and Sublimation Tester JJF(spin)029	(0~200)mm	$U=0.05mm$		
		Force		(5~50)N	$U_{rel}=0.13\%$		
		Time		(0~3600)s	$U=0.16s$		
		Temperature		(0~250)℃	$U=0.6℃$		
5	*Fiber Cutter	length	Calibration Specification for Fiber Cutter JJF(spin)022	(0~50)mm	$U=0.005mm$		
6	*Electronic Fabric Strength Machines	Force	Calibration Specification for Electronic Fabric Strength Machines JJF(spin)062	1cN~10000N	$U_{rel}=0.35\%$		
		Coaxiality		直径： (2~20) mm	$U=0.3mm$		
				(0~50)%	$U=1.4\%$		
		length		(0~300)mm	$U=0.06mm$		



No. CNAS L0260

第 139 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		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		
		(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 Testers JJF(spin)027	(1～10)r/min	<i>U</i> =0.02r/min		
		Force		(10～200)r/min	<i>U</i> _{rel} =0.2%		
				(1～10)N	<i>U</i> _{rel} =0.24%		
				Displacement	(0～150)mm		
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		

No. CNAS L0260

第 140 页 共 155 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Force		(10~500)cN	$U_{rel}=0.3\%$		
		Rotational speed		(1~10)r/min	$U=0.02r/min$		
		(10~200)r/min		$U_{rel}=0.2\%$			
12	*Circle Sample Cutters	length	Calibration Specification for Circle Sample Cutters JJF(spin)061	(1~150)mm	$U=0.3mm$		
13	*Fabric Thickness Instrument	Length	Calibration Specification for Fabric Thickness Instruments JJF(Textile) 020	(0.5~10)mm	$U=0.006mm$		
		Time		(0~40)s			
		Weight		(0~200)g	$U=0.1g$		
		Length		(0~150)mm	$U=0.06mm$		
14	*Silk Length Measuring Machine	Length	Calibration Specitication for Silk Length Measuring Machine JJF(Textile) 043	(0~1500)mm	$U=0.7mm$		
		Rotate speed		(200~400)r/min	$U_{rel}=0.4\%$		
15	*Silk Blackboard Shake Machine	Rotate speed	Calibration Specification for Silk Blackboard Shake Machine JJF(Textile)046	(1~300)r/min	$U=1r/min$		
		Length		Length、 Width:(0~1500)mm	$U=0.7mm$		
				Thickness:(0~50)mm	$U=0.3mm$		
16	*Wool Fiber Comb Stapling Sorter	Length	Calibration Specificaion for Wool Fiber Comb Stapling Sorter JJF(Textile)025	(0~150)mm	$U=0.06mm$		
		Comb plate density		14pieces/cm	$U=0.3pieces/cm$		
17	*Winding Black Board Tester	Winding density	Calibration Specification for the Winding Black Board Tester JJF(Textile)012	(7~19)root/cm	$U_{rel}=1.2\%$		
		Tension tablet weight		(1~50)cN	$U_{rel}=5\%$		



No. CNAS L0260

第 141 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Length		(0~500)mm	$U=0.1\text{mm}$		
18	*Traveling Counting Glasses	Length	Calibration Specificaion for Traveling Counting Glasses JJF(Textile) 023	(0~150)mm	$U=0.08\text{mm}$		
19	*Textile Yarn Length Tester	Length	Calibration Specification for Textile Yarn Length Tester JJF(Textile)021	(0~1000)mm	$U=0.13\text{mm}$		
				(1~200)cN	$U_{\text{rel}}=0.5\%$		
20	*capillary effect instrument	Length	Calibration Specification for capillary effect instrument JJF(Textile)056	(0~300)mm	$U=0.11\text{mm}$		
		Weight		(0~10)g	$U=0.1\text{g}$		
		Time		(0~30)min	$U=0.2\text{s}$		
21	*strip length gauge	Drum circumference	Calibration Specification for sliver and roving length sampler JJF(Textile)001	(0~1000)mm	$U=0.44\text{mm}$		
		Weight		(0~5000)g	$U=0.2\text{g}$		
		Drum rotate speed		(1~20)r/min	$U=1\text{r/min}$		
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	$U=0.01\text{mm}$		
23	*Down Filing Power Tester	Length	Calibration Specificaion for Down Filing Power Tester JJF (Textile) 074	Diameter:(0~300)mm	$U=0.05\text{mm}$		
				Height:(0~1000)mm	$U=0.7\text{mm}$		
		Weight		(0~100)g	$U=0.2\text{g}$		
24	*Colour Fastness to Washing Testers	Length	Calibration Specification for Colour Fastness to Washing Testers JJF(spin)026	(1~200)mm	$U=0.05\text{mm}$		
		Rotational speed		(1~10)r/min	$U=0.02\text{r/min}$		



No. CNAS L0260

第 142 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(10~200)r/min	$U_{rel}=0.2\%$		
		Time		(0~3600)s	$U=0.2s$		
		Temperature		(0~150)°C	$U=0.6^{\circ}C$		
(4) Special measuring instruments for construction and traffic							
1	Static Loading Test System on Piling Foundation	PressUre	V.R.of Static Loading Test	(5~80)MPa	$U_{rel}=0.06\%$		
		Force	System on Piling Foundation	(500~5000)kN	$U_{rel}=0.22\%$		
		Displacement	JJG(Su)152	(0.01~50)mm	$U_{rel}=0.02mm$		
2	*Concrete Test Hammer	rate constant value		72~90	$U_{rel}=2.4\%$		
		Length		(20~135)mm	$U=0.05mm$		
		Force	V.R. of Rebound test Hammer JJG817	(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 floorsalb 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	Peak of pulse voltage	Calibration Specification for Electrical Fast	(0.1~4.4)kV	$U_{rel}=5\%$		

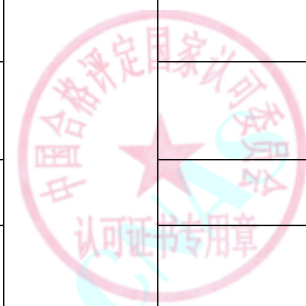


No. CNAS L0260

第 143 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Simulators	Rise time of pulse	Transient/Burst Simulators JJF1672	4ns~200ns	U _{rel} =9%		
		Pulse width		20ns~1 μ s	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		
				500ms	U=0.6ms		
4	*Surge Simulators	Peak open-circuit voltage	Calibration Specification for Surge Simulators JJF1741	(0.1~12)kV	U _{rel} =4%		
		open-circuit voltage					
		Wavefront time		0.5 μ s~50 μ s	U=0.07 μ s		
		Open-circuit voltage duration		10 μ s~1ms	U=0.6 μ s		
		Peak short-circuit current		(0.25~3)kA	U _{rel} =2.0%		
		Short-circuit current wavefront time		0.5 μ s~50 μ s	U=0.12 μ s		



No. CNAS L0260

第 144 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Short-circuit current duration		10 μ s ~ 1ms	$U=0.5 \mu$ 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)	$U_{rel}=0.3\%$		
		Voltage		(50~1000)V,(45Hz~65Hz)	$U_{rel}=0.3\%$		
		Flicker		$P_{st}=1, P_{st}=5$	$U=0.03$		
		Harmonic Voltage		(1~50)V,(100Hz~3kHz)	$U_{rel}=0.5\%$		
		Harmonic Current		(1~6)A,(100Hz~3kHz)	$U_{rel}=0.5\%$		
		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)	$U_{rel}=6\%$		



No. CNAS L0260

第 145 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		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 Generators	Output Voltage	Calibration Specification for Electrostatic Discharge Simulators JJF1397	1kV	$U_{rel}=5.0\%$		
				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	$U_{rel}=1\%$		
		Insulation Resistance		10k Ω ~ 1M Ω	$U_{rel}=0.7\%$		



No. CNAS L0260

第 146 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				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	$U_{rel}=0.5\%$		
		Load Adjustment Rate		0.1V~300V	$U_{rel}=7\%$		
		Voltage rise time/fall time		(1~50) μ s	$U_{rel}=4\%$		
		Voltage overshoot and undershoot		0.01%~20%	$U_{rel}=6\%$		
		phase angle		(0~360) $^{\circ}$	$U=0.6^{\circ}$		
		Duration		1ms~60s	$U_{rel}=1.4\%$		
		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)	$U=1.1$ dB		
		Rise Time		700ps~70ns	$U_{rel}=12\%$		
		Input Resistance		50 Ω ~ 100M Ω	$U_{rel}=0.6\%$		
12	*Electronic Load	DC Voltage	C.S. for DC Electronic Loads JJF1462	0.1V~10V	$U_{rel}=0.02\%$		
				10V~1000V	$U_{rel}=0.03\%$		
		DC Current		1mA~10mA	$U_{rel}=6\%$		

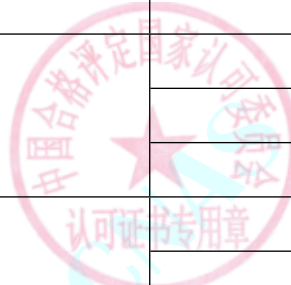
No. CNAS L0260

第 147 页 共 155 页



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

№	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	10mA～100mA	<i>U</i> _{rel} =0.6%				
				0.1A～1A	<i>U</i> _{rel} =0.10%				
				1A～10A	<i>U</i> _{rel} =0.06%				
				10A～100A	<i>U</i> _{rel} =0.07%				
				100A～1000A	<i>U</i> _{rel} =0.20%				
		Dc power		10mW～1W	<i>U</i> _{rel} =0.8%				
				1W～500W	<i>U</i> _{rel} =0.12%				
				500W～2.4kW	<i>U</i> _{rel} =0.2%				
13	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)°	<i>U</i> =0.1°				
		Weight		(0～1000)g	<i>U</i> =1.2g				
14	Elongation Tester of Enamelled Winding Wire	Length	Calibration Specification for Elongation Tester of Enamelled Winding Wire JJF（Su）160	(0～300)mm	<i>U</i> =0.06mm				
		Elongation		(10～50)%	<i>U</i> =0.22%				
		Speed		(0～500)mm/min	<i>U</i> =4.4mm/min				
15	Jerk Tester of Enamelled Winding Wire	Length	Calibration Specification for Jerk Tester of Enamelled Winding Wire JJF（Su）162	(0～300)mm	<i>U</i> =0.12mm				
		Elongation		(10～50)%	<i>U</i> =0.22%				
		Speed		(0.01～10)m/s	<i>U</i> _{rel} =2.4%				
16	Battery Internal Resistance Tester	DC Voltage	C.S. for Battery Internal Resistance Testers JJF1620	(0.1～0.5)V	<i>U</i> _{rel} =0.02%				
				(0.5～800)V	<i>U</i> _{rel} =0.006%				



No. CNAS L0260

第 148 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		AC Resistance		1mΩ ~ 3000 Ω	$U_{rel}=0.12\%$		
17	*Proof Tracking Index Tester	Voltage	C.S. for Proof Tracking Index Testers JJF(Su)194	(100~600)V	$U_{rel}=(0.8\sim0.5)\%$		
		Current		(0.2~1)A	$U_{rel}=(1.8\sim1.2)\%$		
		Time Interval		30s	$U=0.4s$		
18	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	$U_{rel}=0.2\%$		
19	*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	$U_{rel}=0.12\%$		
20	*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	$U=0.1s$		
21	*on line widening temperature rise tester	Resistance	C.S. for on line widening temperature rise tester JJF1540	0.1 Ω ~ 1 Ω			



No. CNAS L0260

第 149 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1 Ω ~ 10 Ω			
				10 Ω ~ 10k Ω			
22	*GalvaPluse Corrosion Rate System	Voltage measurement	C.S. for GalvaPluse Corrosion Rate System JJF1341	± (0.1~2)V	U=1mV		
		Output voltage		± (0.1~2)V	U=1mV		
		Output current		(-200~-20)mA	U=0.2mA		
				(-20~-2)mA	U=0.02mA		
				(-2~-0.2)mA	U=0.002mA		
				(0.2~2)mA	U=0.002mA		
				(2~20)mA	U=0.02mA		
				(20~200)mA	U=0.2mA		
23	*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	U _{rel} =0.2%		
		Total current		(0.1~0.5)mA,(45~65)Hz	U _{rel} =1.9%		
				(0.5~20)mA,(45~65)Hz	U _{rel} =0.5%		
		Resistive Current		(0.1~0.5)mA,(45~65)Hz	U _{rel} =1.9%		
				(0.5~10)mA,(45~65)Hz	U _{rel} =0.5%		
		Phase Angle		0°	U=0.12°		
24	Needle-flame Tester	Time	C.S.for Needle-flame Tester JJF(WXJL)010	(5~600)s	U=0.5s		
		Length		(0~100)mm	U=0.04mm		



No. CNAS L0260

第 150 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		angle		$(0\sim 360)^{\circ}$	$U=6'$		
25	*Oscilloscope current probe	AC current	Calibration Specification of Oscilloscope Current Probes JJF (DZ) 0036	$(0.01\sim 2000)\text{A}(50\text{Hz})$	$U_{\text{rel}}=0.7\%$		
		DC current		$(0.01\sim 2000)\text{A}$	$U_{\text{rel}}=0.7\%$		
		Output voltage ratio		$1\text{V}/1\text{A}\sim 1\text{mV}/1\text{A} (1\sim 1000)$	$U_{\text{rel}}=0.6\%$		
		frequency bandwidth		$50\text{kHz}\sim 100\text{MHz}$	$U_{\text{rel}}=5\%$		
		rise/fall time		$17.5\text{ns}\sim 3.5\mu\text{s}$	$U_{\text{rel}}=2.8\%$		
26	*Verifying Meter for pH Meters	DCV	Verification Regulation of Verifying Meter for pH Meters JJG 919	$1\text{mV}\sim 10\text{mV}$	$U_{\text{rel}}=0.012\%$		
				$10\text{mV}\sim 2\text{V}$	$U_{\text{rel}}=0.002\%$		
27	*current problem and injection proble	transfer impedance	Calibration specification for current probes and current injection clamps JJF(TX) 030	$(-34\sim +20)\text{dB } \Omega$, $(9\text{kHz}\sim 1\text{GHz})$	$U=1.1\text{dB}$		
28	*AC Electronic Load	AC Voltage	Calibration specification for AC electronic loads JJF (DZ) 0002	$(0.1\sim 300)\text{V}, (40\text{Hz}\sim 1\text{kHz})$	$U_{\text{rel}}=0.05\%$		
		AC Current		$(1\sim 30)\text{A}, (40\text{Hz}\sim 1\text{kHz})$	$U_{\text{rel}}=0.2\%$		
		Frequency		$40\text{Hz}\sim 1\text{kHz}$	$U_{\text{rel}}=0.02\%$		
		Resistance		$1\Omega\sim 1\text{k}\Omega, (45\text{Hz}\sim 65\text{Hz})$	$U_{\text{rel}}=0.2\%$		
		Power		$1\text{W}\sim 3\text{kW}, (45\text{Hz}\sim 65\text{Hz})$	$U_{\text{rel}}=0.3\%$		
		Power Factor		$0.01\sim 1, (45\text{Hz}\sim 65\text{Hz})$	$U=0.002$		
29	*Electric spark leak detector	Voltage	Calibration specification for electric spark leak detectors JJF (Lu) 101	$(0.1\sim 30)\text{ kV}$	$U_{\text{rel}}=2.5\%$		



No. CNAS L0260

第 151 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
30	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	$U=0.0003$		
		Insulating Oil Volume Resistivity		$1 \times 10^6 \Omega \cdot m \sim 1 \times 10^{12} \Omega \cdot m$	$U_{rel}=1.7\%$		
		Temperature		(0~120) °C	$U=0.08^{\circ}C$		
(6) Measuring instruments for motor vehicles							
1	*Platform Brake Tester	Force	V.R.of Platform Brake Tester JJG1020	(0.5~50)kN	$U_{rel}=0.44\% \sim 0.15\%$		
		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	$U_{rel}=0.58\% \sim 0.12\%$		
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	$U_{rel}=2.0\%$		



No. CNAS L0260

第 152 页 共 155 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
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 Emissions Testing	TorqUe	C.S.for Chassis Dynamometers for Automobile Emissions Testing JJF1221	(0.1~25000)N	$U_{rel}=0.6\%\sim 0.2\%$		
		Speed		(5~180)km/h	$U=0.06\text{km/h}$		
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	$U=(1.2\sim 3.1)\text{N}$		
		Angle		(0~360)°	$U=20'$		
9	*Headlamp tester for motor vehicle	Intension of the Light	V.R.of Headlamp Testers for Motor Vehicle JJG745	(5~60)kcd	$U_{rel}=6.2\%$		
		Optical axis offset		(0~35)cm/dam	$U=1.8\text{cm/dam}$		
10	*Transmittance Meter of Automobile	Transmittance Ratio	C.S. for transmittance Meter of automobile JJF1225	9.5%~95%	$U_{rel}=0.8\%$		
11	*Filter-type smoke-meter	Smoke intensity	V.R. of Filter-Type Smokemeters JJG847	(1~10)BSU	$U=0.3\text{BSU}$		
12	*Opacimeters	absorbance ratio	V.R.of Opacimeters JJG976	30%~80%	$U_{rel}=0.8\%$		
13	*Manipulating Force Tester for Automotive Brake	Force	C.S.for Manipulating Force Tester for Automotive Brake JJF1169	(100~1000)N	$U_{rel}=0.86\%\sim 0.21\%$		
14	*Automobile Side Slip Testers	Displace-ment	V.R. of Automobile Side Slip Testers JJG 908	(0~15)m/km	$U=0.04\text{m/km}$		
15	Non-contact Automotive Speedmeter	Speed	Calibration Specification for Non-contact Automotive Speedmeter JJF1193	(5~50)km/h	$U=0.2\text{km/h}$		
				(>50~180)km/h	$U_{rel}=0.3\%$		
		Displacement		(1.00~30.00)m	$U=0.2\text{m}$		



No. CNAS L0260

第 153 页 共 155 页

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

No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				(≥30.00~999.99)m	$U_{rel}=0.3\%$		
16	*Four-wheel Aligner	Angle	C.S.for Four-wheel Aligner JJF1154	(0~15)°	$U=1.8'$		
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)°	$U=6''$		
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	Rotate Speed	Calibration Specification for Motor Vehicle Engine Speed	(500~6000)r/min	$U_{rel}=0.3\%$		



№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Measuring Instrument	Time	Measuring Instruments JJF1375	(0~10)s	$U=1s$		
22	*Zero Gas Generator	Gas concentration	Calibration Specification For Zero Gas Generator JJF (Yu) 070-2022	CO:(0.1~20)×10 ⁻⁶ mol/mol	$U=0.26 \times 10^{-6} \text{mol/mol}$		
				NO:(0.1~20)×10 ⁻⁶ mol/mol	$U=0.20 \times 10^{-6} \text{mol/mol}$		
				C ₃ H ₈ :(0.1~40)×10 ⁻⁶ mol/mol	$U=0.28 \times 10^{-6} \text{mol/mol}$		
				NO ₂ :(0.1~20)×10 ⁻⁶ mol/mol	$U=0.28 \times 10^{-6} \text{mol/mol}$		
				CO ₂ :(0.1~40)×10 ⁻⁶ mol/mol	$U=0.16 \times 10^{-6} \text{mol/mol}$		
				O ₂ :(0.1~25)×10 ⁻² mol/mol	$U=0.45 \times 10^{-2} \text{mol/mol}$		



No. CNAS L0260

第 155 页 共 155 页

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