

Name: National Institute of Measurement and Testing Technology

Address: No.10, Yushuang Road, Chengdu, Sichuan, China

Registration No. CNAS L0893

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

Effective Date: 2025-04-07 Expiry Date: 2030-11-10

SCHEDULE 5 ACCREDITED CALIBRATION AND MEASUREMENT CAPABILITY SCOPE

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

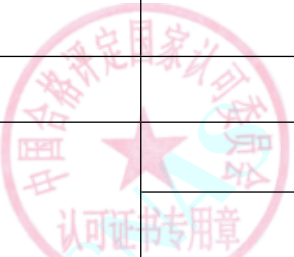
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
I Geometry measuring instrument							
1	Steel tape	Length	Verification Regulation of Steel Measuring Tapes JJG 4	(0~100)m	$U=((0.02+0.02L)\text{mm}(L:\text{m}))$		
2	Class 3 line ruler of metal	Length	Verification Regulation of Standard Metallic Scale(Grade III) JJG 71	(0~1000)mm	$U=(5+5L)\mu\text{m}(L:\text{m})$		
3	Standard steel tape	Length	Verification Regulation of Standard Steel Tapes JJG 741	(0~20)m	$U=(5+5L)\mu\text{m}(L:\text{m})$		
4	*Toolmaker's microscope	Length	Verification Regulation of Toolmaker's Microscope JJG 56	(1000×200)mm	$U=(0.3+L/300)\mu\text{m}(L:\text{mm})$		
5	Reading Microscope、Measuring Microscope	Length	Verification Regulation of Reading Microscope and Measuring Microscope JJG 571	Reading Microphone: (0~8)mm	$U=1\mu\text{m}$		
				Measuring Microscope: (0~50)mm	$U=(1+L/50)\mu\text{m}(L:\text{mm})$		



No. CNAS L0893

第 1 页 共 191 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	Linear comparator	Length	Verification Regulation of Linear comparator JJG 72	(0~200)mm	$U=(0.2+2L) \mu m (L:m)$		
7	Steel rulers	Length	Verification Regulation of Steel Rule JJG 1	(0~2000)mm	$U=(0.02+0.02L)mm (L:m)$		
8	Cable Length Meter	Length	Verification Regulation of Cable Length Meter JJG 987	(1~1000)m	$U_{rel}=0.05\%$		
9	*Projector	Length	Calibration Specification for Projectors JJF 1093	(200×100)mm	$U=(1+L/200) \mu m(L:mm)$		
10	633nm Frequency Stabilized Lasers	Wavelength	Verification Regulation of 633nm Frequency Stabilized Lasers JJG 353	633nm	$U_{rel}=5 \times 10^{-10}$		
11	Micrometer for outside dimension	Length	Calibration Specification for Micrometers with Measuring Range from 500mm to 3000mm JJF 1088	(500~3000)mm	$U=(1+L/200) \mu m L:mm$		
12	Height Caliper	Length	Verification Regulation of Height Caliper JJG 31	(0~2000)mm	$U=(0.01+0.01L)mm (L:m)$		
13	Micrometer for inside dimension	Length	Calibration Specification for Micrometers for Measuring Inside Dimension JJF 1411	(5~200)mm	$U=(1+L/200) \mu m L:mm$		
14	Micrometer	Length	Verification Regulation of Micrometer JJG 21	(0~500)mm	$U=(0.5+L/200) \mu m L:mm$		
15	Current Calipers	Length	Verification Regulation of Current Calipers JJG 30	(0~2000) mm	$U=(0.01+0.01L)mm (L:m)$		
16	Instruction sheet	Length	Verification Regulation of Dial Gauges JJG 34	(0~10)mm/Dividing : 0.001mm	$U=1.6 \mu m$		
				(0~100)mm reading 0.01mm	$U=4 \mu m$		



No. CNAS L0893

第 2 页 共 191 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	Dial indicator gauges	Length	Verification Regulation of Tester for Dial Indicator Gauges JJG 201	(0~50)mm	$U=(0.3+L/40) \mu m$ $L:mm$		
18	Portable Vertical Deviation Measuring Instrument	Length	Verification Regulation of Vertical Metal Tank Diametrical Deviation Measuring Instrument JJG 988	(0~300)mm	$U=0.02mm$		
19	Thickness Gauges	Length	Calibration Specification for Thickness Gauges JJF 1255				
20	Depth Micrometers	Length	Depth Micrometers JJG 24	(0~300)mm	$U=1.5 \mu m$		
21	Micrometers with Dial Comparator and Indication Snap Gauge	Length	Verification Regulation of Micrometers with Dial Comparator and Indication Snap Gauge JJG 26	Indication Snap Gauge(0~200)mm	$U=0.5 \mu m$		
				Micrometers with Dial Comparator(0~100)mm	$U=1 \mu m$		
22	Internal Micrometers	Length	Verification Regulation of Internal Micrometers JJG 22	(50~6000)mm	$U=(2+L/250) \mu m(L:mm)$		
23	Dial Test Indicator	Length	Verification Regulation of Dial Test Indicator JJG 35	(0~1)mm	$U=1 \mu m$		
24	Depth Dial Gauge	Length	Verification Regulation of Depth Dial Gauge JJG 830	(0~300)mm	$U=2 \mu m$		
25	Bore Dial Indicators	Length	Calibration Specification for Bore Dial Indicators JJF 1102	Bore dial indicators for 0.001(10~400)mm	$U=1.6 \mu m$		
				Bore dial indicators for 0.01(2~450)mm	$U=3 \mu m$		
26	Micro-alignment Telescopes	Length	Calibration Specification of Micro-alignment Telescopes JJF 1077	(-1.2~+1.2)mm	$U=3 \mu m$		



No. CNAS L0893

第 3 页 共 191 页

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

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27	Gauge Blocks	length	Verification Regulation of Gauge Blocks JJG 146	(0.5~100)mm	$U=0.02 \mu\text{m}+0.2 \times 10^{-6}L(k=2.7)$		
		length		(100~1000)mm	$U=0.05 \mu\text{m}+0.5 \times 10^{-6}L(k=2.7)$		
28	*Gear Degree dais	Angle	Verification Regulation of Precise Angle Dividing Table JJG 472	0° ~360°	$U=0.06''$		
29	*Measure angle instrument	Angle	Verification Regulation of Goniometers JJG 97	0° ~360°	$U=0.5''$		
30	*Small Angle Tester	Angle	Verification Regulation of Small Angle Testers JJG 300	(0~40)'	$U=0.3''$		
31	Angle gauge blocks	Angle	Verification Regulation of Angle Gauge Blocks JJG 70	10° ~100°	$U=1''$		
32	Angular polygon	Angle	Verification Regulation of Angular Polygon JJG 283	0° ~360°	$U=0.2''$		
33	Optical clinometer	Angle	Calibration Specification for Clinometers JJF 1915	0° ~240°	$U=6''$		
34	Electronic level、Coincidence level	Angle	Verification Regulation of Electronic levels and Coincidence levels JJG 103	-10mm/m~+10mm/m	$U=0.001\text{mm/m}$		
35	Dividing head	Angle	Verification Regulation of Optical Digital Dividing Head JJG 57	0° ~360°	$U=1''$		
36	Optics-electricity angle coded senso	Angle	Calibration Specification for Photoelectric Shaft Encoders JJF 1115	0° ~360°	$U=0.25''$		
37	General bevel protractors	Angle	Calibration Specification for General Bevel Protractors JJF 1959	0° ~360°	$U=1'$		
38	Autocollimator	Angle	Verification Regulation of Autocollimator JJG 202	(0~10)'	$U=0.1''$		



No. CNAS L0893

第 4 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
39	Angle gauges	perpendicularity	Verification Regulation of Squares JJG 7	$H:(63\sim 1000)\text{mm}$	$U=(1+H/500)\mu\text{m}$ $H:\text{mm}$		
40	Frame levels 、 Shaft levels	Angle	Calibration Specification for Frame Levels and Shaft Levels JJF 1084	$(0.01\sim 20)\text{mm/m}$	$U_{\text{rel}}=6\%$		
41	*Square Testers	perpendicularity	Calibration Specification for Square Testers JJF 1140	$H:(63\sim 1000)\text{mm}$	$U=0.8\mu\text{m}$		
42	*Optical Comparators for Angle Measurement	Angle	Calibration Specification for Optical Comparators for Angle Measurement JJF 1078	$0' \sim 60'$	$U=2''$		
43	*Calibrators for the Levels	Angle	Verification Regulation of Calibrators for the Levels JJG 191	$(0.001\sim 1.5)\text{mm/m}$	$U_{\text{rel}}=2\%$		
44	Square Gauge	Perpendicularity	Verification Regulation of Square Gauge JJG 1046	$(100\sim 500)\text{mm}$	$U=0.3\mu\text{m}$		
45	*Optical rotary table	Angle	Calibration Specification for Optical & Digital Dividing Table JJF 1114	$0^\circ \sim 360^\circ$	$U=1''$		
46	Milling Straight Edges	Flatness	Verification Regulation of Milling Straight Edges JJG 740	$(200\sim 500)\text{mm}$	$U=0.05\mu\text{m}$		
47	Straight Edge	Straightness	Verification Regulation of Straight Edge JJG 63	75mm	$U=0.4\mu\text{m}$	合格评定国家认可 CNAS 认可证书专用章	
				$(75\sim 225)\text{mm}$	$U=0.7\mu\text{m}$		
				$(225\sim 500)\text{mm}$	$U=1.3\mu\text{m}$		
48	Taper gauges	Angle	Taper gauges JJG 177	$0^\circ \sim 45^\circ$	$U=2''$		
		Straightness		$L:(0\sim 200)\text{mm}$	$U=1\mu\text{m}$		
49	Sine bars	Angle	Sine bars JJG 37	$0^\circ \sim 30^\circ$	$U=2''$		

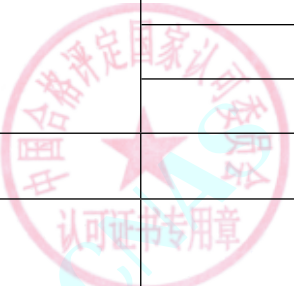


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No. CNAS L0893

第 5 页 共 191 页

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

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		Flatness		(0~200)mm	$U=1\text{ }\mu\text{m}$		
50	Theodolites	Angle	Optical Theodolites JJG 414	Horizontal angle: $0^{\circ} \sim 360^{\circ}$ Vertical angle: $-31^{\circ} \sim +31^{\circ}$	$U=0.2''$		
51	Level	Angle	Verification Regulation of Levels JJG 425	$-25'' \sim +25''$, $2\text{m} \sim \infty$	$U=2.0''$		
52	Plumb Instruments	Angle	Calibration Specification for Plumb Instruments JJF 1081	$-1' \sim +1'$	$U=1.2''$		
53	Electronic Theodolite	Angle	Verification Regulation of Electronic Tachometer Total Station JJG 100	Horizontal angle: $0^{\circ} \sim 360^{\circ}$ Vertical angle: $-31^{\circ} \sim +31^{\circ}$	$U=0.2''$		
54	Height Measuring Instrument with Digital Display	Length	Calibration Specification for Height Measuring Instrument with Digital Display JJF 1254	(0~1000)mm	$U=(1+L/1000)\text{ }\mu\text{m}(L:\text{mm})$		
55	*Theodolite Verification Device	Angle	Verification Regulation of Theodolite Verification Devices JJG 949	$0^{\circ} \sim 360^{\circ}$	$U=0.1''$		
56	Gear Helix Master	Length	Verification Regulation of Gear Helix Master JJG 408	$rb(20 \sim 50)\text{ mm}$	$U=2.0\text{ }\mu\text{m}$		
				$rb(50 \sim 150)\text{ mm}$	$U=2.5\text{ }\mu\text{m}$		
				$rb(150 \sim 300)\text{ mm}$	$U=2.8\text{ }\mu\text{m}$		
57	Screw Templates	Length	Screw Templates JJG 60	(0.4~6)mm	$U=(3+L/100)\text{ }\mu\text{m}(L:\text{mm})$		
58	Instruments of Thread Inspection of	Length	Calibration Specification for Instruments of Thread Inspection of Casing, Tubing, Line Pipe and	(0.1~300) mm	$U=(1+L/100)\text{ }\mu\text{m}(L:\text{mm})$		



No. CNAS L0893

第 6 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Old Pipe and New Rotary Shouldered Connection		New Rotary Shouldered Connection JJF 1063	Single parameter gauge (0~50) mm	$U=0.5 \mu\text{m}$		
59	Bearing Inside and Outside Diameter Testers	Length	Verification Regulation of Bearing Inside and Outside Diameter Testers JJG 471	(0.1~100)mm	$U=0.7 \mu\text{m}$		
60	*The universer involute gear tester	Length	Calibration Specification for Gear involute Measuring instrument JJF 1124	$r_b(0.05\sim 300)\text{mm}$	$U=2 \mu\text{m}$		
61	*Lead Tester of gear	Length	Calibration Specification for Gear Helix Measuring Instruments JJF 1122	$r_b(0.05\sim 300)\text{mm}$	$U=2 \mu\text{m}$		
62	*Gear Pitch Measuring Instruments	Length	Calibration Specification for Gear Pitch Measuring Instruments JJF 1209	(0~100)mm	$U=1 \mu\text{m}$		
63	Micrometers with Prismatically Arranged Measuring Faces	Length	Verification Regulation of Micrometers with Prismatically Arranged Measuring Faces JJG 182	(1~100)mm	$U=(1+L/100) \mu\text{m}$ (L : mm)		
64	*Measuring Instrument for Axial Clearance of Ball Bearings	Length	Verification Regulation of Measuring Instrument for Axial Clearance of Ball Bearings JJG 626	(9~250)mm	$U=2 \mu\text{m}$		
65	Common Normal Micrometer	Length	Verification Regulation of Common Normal Micrometer JJG 82	(0~150)mm	$U=2 \mu\text{m}$		
66	Screw Thread Micrometers	Length	Verification Regulation of Screw Thread Micrometers JJG 25	(0~200)mm	$U=2 \mu\text{m}$		
67	*Concentricity Tester	Length	Calibration Specification for Concentricity Tester JJF 1109	$L: (50\sim 1000) \text{mm}$	$U=2 \mu\text{m}$		



No. CNAS L0893

第 7 页 共 191 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	*Base Circle Pitch Comparator	Length	Calibration Specification for Base circle pitch comparator JJF 1123	(2~20)mm	$U=1 \mu m$		
69	*OCTG Thread Working Gauges	pitch diameter	C.S for OCTG Thread Working Gauges JJF 1108, Threading, Gauging, and Inspection of Casing, Tubing, and Line Pipe Threads API API	(0~500) mm	$U=(3.3+L/400) \mu m$ ($L:mm$)		
		taper		(0~5) mm	$U=1 \mu m$		
		pitch	Spec5B, Threading and Gauging of Rotary Shouldered Connections API Spec7-2	(0.5~10) mm	$U=(3.3+L/400) \mu m$ ($L:mm$)		
		Standoff		(5~20) mm	$U=8 \mu m$		
		Angle		$0^\circ \sim 45^\circ$	$U=3'$		
70	Multiple score Specimen	Roughness	C.S.for multiple score Specimen NIMTT(CM) 002	(0.01~100) μm	$U_{rel}=5\%$		
71	Roughness Comparison Specimens	Roughness	C.S.for Roughness Comparison Specimens JJF 1099	$Ra:(0.012\sim 25) \mu m$	$U_{rel}=6\%$		
72	Smooth limit gauge	Length	V.R.of Smooth limit gauge JJG 343	Outside Size:(0.9~450)mm	$U=0.4 \mu m+3 \times 10^{-6}L$		
				Inside Size: (2~450)mm	$U=0.4 \mu m+3 \times 10^{-6}L$		
				Inside Size:(20~500)mm	$U=1.0 \mu m+3 \times 10^{-6}L$		
73	Cylindrical Measuring Pin	Length	C.S for Cylindrical Measuring Pin JJF 1207	Pin gauge:(0.1~25)mm	$U=0.4 \mu m$		
				Three stitches:(0.118~6.585)mm	$U=0.4 \mu m$		
74	Gear InvoluteMasters	Length	Verification Regulation of Gear Involute Masters JJG 332	rb (20~50) mm	$U=2.0 \mu m$		
				rb (50~100) mm	$U=2.3 \mu m$		



No. CNAS L0893

第 8 页 共 191 页

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

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				rb (100~150) mm	$U=2.5 \mu m$		
				rb (150~300) mm	$U=2.8 \mu m$		
75	Step gauges	Length	C. S. for Step Gauges JJF 1258	(10~1000)mm	$U=0.6 \mu m+1 \times 10^{-6}L$		
76	Cylindrical Thread Gauges	Length	C.S for Cylindrical Thread Gauges JJF 1345	Thread Ring Gauge:(1.2~500)mm	$U=2.8 \mu m+2 \times 10^{-6}L$		
				Thread Plug Gauge:(1~500)mm	$U=2.8 \mu m+2 \times 10^{-6}L$		
		Angle		Dental Angle:29° ~60°	$U=3'$		
77	Test sieves	Length	Calibration Specification for Test Sieves JJF 1175	(0.02~4)mm	$U=2 \mu m$		
				(4~125)mm	$U=0.03mm$		
78	Straight Cylindrical Involute Spline Gauges	Length	Calibration Specification for Straight Cylindrical Involute Spline Gauges JJF 1557	gear modulus (0.3~1.5), plug gauger rb (1~90) mm; ring gauger rb (5~90) mm	$U=2.1 \mu m$		
				gear modulus (1.5~3.0), plug gauger rb (1~90) mm; ring gauger rb (5~90) mm	$U=2.4 \mu m$		
				gear modulus (3.0~5.0), plug gauger rb (1~90) mm; ring gauger rb (5~90) mm	$U=2.6 \mu m$		



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No. CNAS L0893

第 9 页 共 191 页

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

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				gear modulus (5.0~8.0), plug gaugerb (1~90) mm; ring gaugerb (5~90) mm	$U=2.8 \mu\text{m}$		
79	*System of coordinate Teste	Length	Calibration Specification for Coordinate Measuring Machine JJF 1064	(0~6)m	$U=(0.2+L/1000) \mu\text{m} (L:\text{mm})$		
				6~20)m	$U=(1+0.2L) \mu\text{m} (L:\text{m})$		
80	*Flatness Interferometer with Parallel Light Brightening	Plane degree	Calibration Specification for Flat Equal Thickness Interferometers JJF 1100	D:150 mm	$U=0.01 \mu\text{m}$		
81	Optical flat	Flatness	V.R.of Optical flat JJG 28	Plane Optical flats:D(30~200)mm	$U=0.007 \mu\text{m}$		
				Plane Optical flats:H(15~91) mm	$U=0.014 \mu\text{m}$		
				Long Optical flats::210mm、310mm	$U=0.007 \mu\text{m}$		
82	Magnetic and Eddy Current Measuring Instrument for Coating Thickness	Length	V.R.of Magnetic and Eddy Current Measuring Instrument for Coating Thickness JJG 818	Thickness measuring(0.01~0.05)mm	$U=0.2 \mu\text{m}$		
				Thickness measuring(0.05~10) mm	$U=(0.6\% \times H/2) \mu\text{m} (H: \mu\text{m})$		
				Standard thickness sheet: $H (1 \sim 50) \mu\text{m}$	$U=0.2 \mu\text{m}$		
				Standard thickness sheet: $H > (50 \sim 1000) \mu\text{m}$	$U=0.2 \mu\text{m} + 0.4\% H (H: \mu\text{m})$		
83	Ultrasonic Thickness	Length	Calibration Specification for Ultrasonic Thickness	(0.1~10) mm	$U=0.02 \text{mm}$		



No. CNAS L0893

第 10 页 共 191 页

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

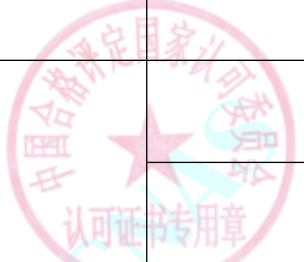
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Instruments		Instruments JJF 1126	(10~200) mm	$U=(0.003+H/600)\text{mm}(H:\text{mm})$		
84	Fineness of Grind Gage	Length	V.R.of Fineness of Grind Gage JJG 905	(0~150) μm	$U=(0.5+L/500)\mu\text{m}(L:\mu\text{m})$		
85	Roundness Flick Calibration Standard	Length	Calibration Specification for Roundness Flick Calibration Standard JJF 1485	(0.2~50) μm	$U_{\text{rel}}=2\%$		
86	*Extensometer	Length	V.R.of Extensometer JJG 762	(0~0.3)mm	$U=0.5\mu\text{m}$		
				(0.3~25)mm	$U_{\text{rel}}=0.15\%$		
87	Electrolytic (Coulometric) Coating Instruments Thickness	Length	Calibration Specification for Electrolytic (Coulometric) Coating Instruments Thickness JJF 1707	(0.57~12.9) μm	$U_{\text{rel}}=6\%$		
88	Coordinate Measuring Spheres	Length	C.S. for Coordinate Measuring Spheres JJF 1422	Roundness: Φ (5~100)mm	$U=0.02\mu\text{m}+5\times 10^{-8}D$		
				Diameter: Φ (5~100)mm	$U=0.2\mu\text{m}+5\times 10^{-7}D$		
89	Single score Speumen	Length	C. S.for single score Speumen NIMTT(CM) 001	$H:(0.1\sim 10)\mu\text{m}$	$U_{\text{rel}}=5.5\%$		
				$H:(10\sim 100)\mu\text{m}$	$U=0.3\mu\text{m}+5\times 10^{-3}H$		
90	Standard Ring Gauge	Length	V.R.of Standard ring gauge JJG 894	$D:(1\sim 200)\text{mm}$	$U=0.35\mu\text{m}+3\times 10^{-6}D$		
91	Radius Gauge	Length	V.R.of Radius Gauge JJG 58	$R:(1\sim 25)\text{mm}$	$U=4\mu\text{m}+10^{-4}R$		
92	*Length measuring machine	Length	C.S. for Length Measuring Machine JJF 1066	Decimeter scale:(0~6000)mm	$U=0.3\mu\text{m}+4\times 10^{-6}L$		
				Millimeter scale:(0~100)mm	$U=0.1\mu\text{m}+4\times 10^{-6}L$		



No. CNAS L0893

第 11 页 共 191 页

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

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				Micron scale::(-100~+100) μm	$U=0.09 \mu\text{m}$		
93	Light-section Microscope	Roughness	C. S.for Light-Section Microscopes JJF 1092	$H:(1.0\sim 80)\mu\text{m}$	$U_{\text{rel}}=5\%$		
94	Interferal microscope	Roughness	V.R.of Interference Microscopes JJG 77	$H:(0.01\sim 1.0)\mu\text{m}$	$U_{\text{rel}}=5\%$		
95	Contact (Stylus) Instruments of Surface Roughness Measurement by the Profile Method	Roughness	C.S.for Contact (Stylus) Instruments of Surface Roughness Measurement by the Profile Method JJF 1105	$Ra:(0.025\sim 10)\mu\text{m}$	$U_{\text{rel}}=4\%$		
96	*Measurement Standard instrument of roundness and cylindricity	Roundness	V.R.of Measurement Standard Instrument of Roundness and Cylindricity JJG 429	$(0.5\sim 10) \mu\text{m}$	$U_{\text{rel}}=2.2\%$		
97	standard sphere and standard hemisphere	Roundness	V. R. of standard sphere and standard hemisphere GJB 8627	Standard Hemisphere: $\Phi (25\sim 50)\text{mm}$	$U=0.02 \mu\text{m}+5\times 10^{-8}D$		
98	Torsional comparator	Length	V.R.of Microcator JJG 118	$(-100\sim +100)\mu\text{m}$	$U=0.2 \mu\text{m}$		
99	*Spherometer	Length	Calibration Specification for Spherometers JJF 1831	$(-15\sim +15)\text{mm}$	$U=0.4 \mu\text{m}$		
100	*Pneumatic Measuring Instrument for Micrometers	Length	V.R.of Pneumatic Measuring Instrument for Micrometers JJG 356	Buoy Type/Graduation Value1 $\mu\text{m}:(-15\sim +15) \mu\text{m}$	$U=0.4 \mu\text{m}$		
				Buoy Type/Graduation Value2 $\mu\text{m}:(-40\sim +40) \mu\text{m}$	$U=0.6 \mu\text{m}$		



No. CNAS L0893

第 12 页 共 191 页

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

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				Buoy Type/Graduation Value $5 \mu\text{m}$: $(-80 \sim +80) \mu\text{m}$	$U=1.2 \mu\text{m}$		
				Electronic Column/Graduation Value $0.5 \mu\text{m}$: $(-25 \sim +25) \mu\text{m}$	$U=0.4 \mu\text{m}$		
				Electronic Column/Graduation Value $1 \mu\text{m}$: $(-50 \sim +50) \mu\text{m}$	$U=1.0 \mu\text{m}$		
101	Wedge-feet Calibrator for Micrometers	Length	V.R. of Wedge-feet Calibrator for Micrometers JJG 525	$(0 \sim 2)\text{mm}$	$U=0.1 \mu\text{m} + 1 \times 10^{-4}L$		
102	*Flatness interferometer with Isoclinic Circle Fringe	Length	V.R. of Flatness Interferometer with Isoclinic Circle Fringe JJG 661	$(0 \sim 500)\text{mm}$	$U=0.009 \mu\text{m}$		
103	*Capacitance Comparators	Length	C.S. for Capacitance Comparators JJF 1944	$(0 \sim 2)\text{mm}$	$U=0.1 \mu\text{m} + 1 \times 10^{-4}L$		
104	Dial Snap Gauges	Length	C.S. for Dial Snap Gauges JJF 1253	Span: $(5 \sim 100)\text{mm}$	$U=5 \mu\text{m} + 1 \times 10^{-4}L$		
105	*Laser Diameter Measuring Gauges	Length	C.S. for Laser Diameter Measuring Gauges JJF 1250	$(0.1 \sim 30)\text{mm}$	$U=0.5 \mu\text{m}$		
106	Measuring Instrument for Laser Parallelism of Micrometers	Length	C.S. for Measuring Instrument for Laser Parallelism of Micrometers JJF 1252	$(150 \sim 2000)\text{mm}$	$U=0.7 \text{mm}$		



No. CNAS L0893

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第 13 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
107	Precision Bore Diameter Measuring Instrument	Length	C. S. for Measuring Equipment of Diameter of Micro and Small JJF 1806	(1~20)mm	$U=0.2 \mu m$		
108	Inductive Micrometers	Length	C.S. for Inductive Micrometers JJF 1331	Graduation Value $0.01 \mu m$: (-3~+3) μm	$U=0.04 \mu m$		
				Graduation Value $0.5 \mu m$: (-10~+10) μm	$U=0.06 \mu m$		
				Graduation Value $1 \mu m$: (-30~+30) μm	$U=0.2 \mu m$		
				Graduation Value $5 \mu m$: (-100~+100) μm	$U=0.5 \mu m$		
				Graduation Value $10 \mu m$: (-300~+300) μm	$U=1 \mu m$		
				Resolution $0.01 \mu m$: (-10~+10) μm	$U=0.03 \mu m$		
				Resolution $0.1 \mu m$: (-100~+100) μm	$U=0.1 \mu m$		
				Resolution $1 \mu m$: (-1000~+1000) μm	$U=1 \mu m$		
109	Reinforced Concrete Covermeter and Floorslab Thickness Tester	Length	C.S. for reinforced concrete covermeter and floorslab thickness tester JJF 1224	(10~200)mm	$U=0.7 mm$		
				Reinforcing Bar Shield block: (6~200)mm	$U=0.1 mm$		
				Slab thickness block: (50~200)mm	$U=0.1 mm$		
110	Feeler Gauges	Length	V.R. of Feeler Gauges JJG 62	d : (0.02~3.00)mm	$U=2 \mu m$		



No. CNAS L0893

第 14 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
111	*Measuring System of Coordinate Position	Length	C.S. for Measuring System of Coordinate Position JJF 1251	(0~20)m	$U=0.1 \mu m+1 \times 10^{-7}L$		
112	*Contact type inter-ferometer	Length	V.R.of Contact-type interferometer JJG 101	(-10~+10) μm	$U=0.01 \mu m$		
113	*Optimerer	Length	V.R.of Optimerer JJG 45	(-100~+100) μm	$U=0.02 \mu m$		
114	*Horizontal metro-scope	Length	C.S. for Length Measuring Instrument JJF 1189	(0~500)mm	$U=0.2 \mu m+2 \times 10^{-6}L$		
115	Calibration Specification for Grating Micrometers	Length indication error	C.S. for Grating Micrometers JJF1682	(0~100)mm	$U=0.1 \mu m+2 \times 10^{-6}L$		
116	Calibrator of Extensometers	Length	C. S. for Calibrator of Extensometers JJF1096	(0~0.3)mm	$U=0.2 \mu m$		
				(0.3~50)mm	$U_{rel}=0.04\%$		
117	Callipers for Welding Inspection	Length	C.S. for Callipers for Welding Inspection JJF2161	(6~48)mm	$U=0.1 mm$		
118	*Surface Plates	Flatness	V. R.of Surface Plates JJG 117	(160×160~5000×3000)mm	$U=0.8 \mu m+1 \times 10^{-6}L$ (L: Span of deck)		
119	*Straight Edges	Straightness	C.S.for Straight Edges JJF 1097	(300~6300)mm	$U=0.4 \mu m+3 \times 10^{-7}L$		
120	*Articulated Arm Coordinate Measuring Machine	length	C.S. for Articulated Arm Coordinate Measuring Machine JJF 1408	(30~4000)mm	$U=13 \mu m$		
121	Standard Grid Plate	Length	V. R. of Standard glass grid plate JJG 832	(1~400)mm	$U=1 \mu m$		



No. CNAS L0893

第 15 页 共 191 页

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

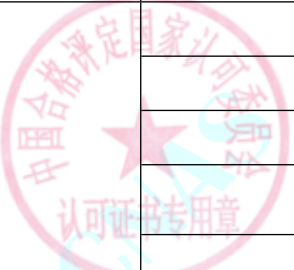
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
122	*Orifice Plate Comprehensive Measurement System	Length	C. S. for Orifice Plate Comprehensive Measurement System NIMTT(CM) 033	(12.5~300)mm	$U_{rel}=2\%$		
123	*Optical 3D measuring systems - Optical systems based on area scanning	Geometric Quantity	Optical 3D measuring systems Optical systems based on area scanning VDI/VDE 2634 Blatt 2	(16~1500)mm	$U=6\text{ }\mu\text{m}$		
124	*Clearance Detector of Rolling Stock Gauge for Standard Gauge Railway	length	V. R. of Clearance Detector of Rolling Stock Gauge for Standard Gauge Railway JJG (tiedao) 180	(0~5)m	$U=0.6\text{ mm}$		
125	Laser Interferometers	Angle	V. R. of Laser Interferometers JJG 739-2005 JJG 739	$0^{\circ} \sim 360^{\circ}$	$U=0.3''$		
		Length		Wavelength:633nm	$U_{rel}=2.5 \times 10^{-8}$		
126	*self-calibration measuring instrument with automobile model cutting system	Length	C.S.for self-calibration measuring instrument with automobile model cutting system NIMTT(CM) 138	(0~40)m	$U=3\text{ }\mu\text{m}+1.6 \times 10^{-6}L$		
127	Moulds	Roughness	C.S. for Moulds JJF 1307	$Ra:(1.6 \sim 3.2)\text{ }\mu\text{m}$	$U_{rel}=6\%$		
		Length		(100~600)mm	$U=0.30\text{ mm}$		
128	Standard stick of Measuring spheres	Length	V.R.for Standard stick of Measuring spheres JJG (jun gong) 177-2019	(10~1500)mm	$U=3.0\text{ }\mu\text{m}$		
129	*Equator	Length	C. S. for Equator NIMTT(CM) 147	(0~1000)mm	$U=1.2\text{ }\mu\text{m}+1.5 \times 10^{-6}L$		



No. CNAS L0893

第 16 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
130	*Scanning Probe Microscopes	Length	C.S. for Scanning Probe Microscopes JJF 1351	$(0.1 \sim 200) \mu\text{m}$	$U=5 \text{ nm}$		
131	3D Optial Area Sanning Measurement Instrments	Length	C.S. for 3D Optial Area Sanning Measurement Instrments JJF(jun gong) 116	$(16 \sim 1500)\text{mm}$	$U=5 \mu\text{m}$		
132	Pi Tapes	Length	C.S. for Pi Tapes JJF 1423	$(0.009 \sim 16)\text{m}$	$U=0.02 \text{ mm} + 1 \times 10^{-5} D$		
133	Wedge-Shape Filler Gauges	Length	C.S. for Wedge-Shape Filler Gauges JJF 1548	$(1 \sim 60)\text{mm}$	$U=11 \mu\text{m}$		
134	Calibration Specification for Linear Displacement Sensors	length	C.S. for Linear Displacement Sensors JJF 1305	$(0 \sim 10)\text{mm}$	$U=0.4 \mu\text{m}$	Calibration only for linear displacement sensors with direct digital output length	
				$(10 \sim 3000)\text{mm}$	$U_{\text{rel}}=0.015\%$		
135	Calibration Specification for Calibration Devices of Four-wheel Aligner	Angle	C.S. for Calibration Devices of Four-wheel Aligner JJF 1489	$-30^\circ \sim +30^\circ$	$U=28''$		
136	Crack width measuring instrument	length	C.S. for Concrete Width and Depth Measuring Instruments JJF 1334	Breadth: $(0.01 \sim 10)\text{mm}$	$U=3 \mu\text{m}$		
				Depth: $(35 \sim 50)\text{mm}$	$U=2\text{mm}$		
				Depth: $(50 \sim 500)\text{mm}$	$U=3\%$		
				Width Standard Plate: $(0.01 \sim 6)\text{mm}$	$U=3 \mu\text{m}$		
				Depth Standard Block: $(20 \sim 500)\text{mm}$	$U=1\text{mm}$		



No. CNAS L0893

第 17 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
137	Image measuring instrument	length	C.S. for Imaging Probe Measuring Machines JJF 1318	(0~1000)mm	$U=0.4 \mu m+0.4 \times 10^{-6}L$		
138	Tread depth ruler	length	C.S. for Tire Tread Depth Gauges JJF 1477	(0~100)mm	$U=0.01mm$		
139	Borehole inclinometer	Angle	C.S. for Borehole Clinometers JJF 1550	$-30^{\circ} \sim +30^{\circ}$	$U=0.008\%FS$		
140	Block comparator	length	C.S. for Gauge Block JJF 1304	$(-100 \sim +100) \mu m$	$U=0.017 \mu m$		
141	*White Light Interference Profiler	Length	C. S. for White Light Interference Profiler JJF(jungong) 201	$H:(0.1 \sim 10) \mu m$	$U=8nm$		
		Roughness		$Ra:(0.12 \sim 3.27) \mu m$	$U_{rel}=11\%$		
142	Step Profiler	Length	C.S. for Step Profiler JJF(jungong) 129	$H:(0.1 \sim 10) \mu m$	$U=5nm$		
143	three-dimensional spherical center distance calibrator	Length	C.S. for three-dimensional spherical center distance calibrator NIMTT(CM) 137	Center Distance:(10~1000)mm	$U=2 \mu m$		
				Diameter:(5~100)mm	$U=0.7 \mu m$		
				Roundness:(5~100)mm	$U=0.9 \mu m$		
144	Laser Marker	angle	C. S. for Laser Marker JJF (jin) 01	$-8.5^{\circ} \sim +8.5^{\circ}$	$U=6.6''$		
		Length		(0~10)mm	$U=0.3 mm$		
145	*digital laser plane interferometer	Length	C. S. for digital laser plane interferometer GJB 8704	$D:150mm$	$U=0.06 \mu m$	合格评定国家认可委员会 认可证书专用章	
146	Ultrasonic test block	Length	C.S. for Blocks used in Ultrasonic Testing JJF 1487	(0.1~1000)mm	$U=0.020mm$		
		Roughness		$Ra:(0.025 \sim 10) \mu m$	$U_{rel}=6\%$		
147	Master Gears	Length	V. R. of Master Gears JJG 1008	$d:(3 \sim 100)mm$	$U=2.2 \mu m$		
				$d:(100 \sim 280)mm$	$U=2.5 \mu m$		



No. CNAS L0893

第 18 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
148	Taper Thread Gauges	Length	Calibration Specification for Taper Thread Gauges JJF (JI) 185	Thread Ring Gauge:(5~500) mm	$U=2.8 \mu m+2 \times 10^{-6} L$		
				Thread Plug Gauge:(1~500) mm	$U=2.8 \mu m+2 \times 10^{-6} L$		
		Angle		$1^{\circ} \sim 45^{\circ}$	$U=3'$		
149	Total station	angle	V. R. of Electronic Tachometer Total Station JJG100, V. R. of Industrial Measurement Total Stations JJG1152	Horizontal: $0^{\circ} \sim 360^{\circ}$	$U=0.3''$	Length: Just calibrate Point-to-point Length error	
				Horizontal: $-60^{\circ} \sim +60^{\circ}$	$U=0.3''$		
		Length		(1~14)m	$U=0.2\text{mm}$		
150	Two-dimensional Optics Calibration Target	length	C.S.for Two-dimensional Optics Calibration Target NIMTT(CM) 140	(20~400)mm	$U=1.0 \mu m+2 \times 10^{-5} L$		
151	Calibration Specification for Paint Film Scriber	Length	C. S. for Paint Film Scriber JJF (ji) 137	Knife spacing:(1~3)mm	$U=2 \mu m$		
		Angle		$(20 \sim 30)^{\circ}$	$U=0.1^{\circ}$		
152	Metallographic microscope	length	Calibration Specification for Metallurgical Microscopes JJF 1914	Objective Lens:(1~100)X	$U_{\text{rel}}=1.2\%$		
153	Biological microscope	length	C.S. for Biological Microscopes JJF 1402	Objective Lens:(1~100)X	$U_{\text{rel}}=1.2\%$		
154	*Thread Gauge Scanners	length	Calibration Specification for Thread Gauge Scanners JJF1950	(0~600)mm	$U=(0.8 \sim 3.5) \mu m$		
		angle		$(0 \sim 80)^{\circ}$	$U=6'' \sim 4'$		
155	Le Chatelier, Tester for Determining Expansion of Le Chatelier Needles	length	V. R. of Le Chatelier, Tester for Determining Expansion of Le Chatelier Needles JJG (jiao tong) 093	(0.1~200.1) mm	$U=5.0 \mu m$		
		quality		(0~300)g	$U=0.03 \text{ g}$		



No. CNAS L0893

第 19 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
156	Surface Profile Gauges	Length	C. S. for Surface Profile Gauges JJF 1476	(0~6.5)mm	$U=1.7 \mu m$		
157	Material Measures of Length Measuring Instrument with Optical Principle	Length	C. S. for Material Measures of Length Measuring Instrument with Optical Principle JJF 1941	(0~500)mm	$U=0.5 \mu m$		
		Angle		$0^\circ \sim 360^\circ$	$U=0.4''$		
		Straightness		(0~500)mm	$U=(0.02+0.005L) \mu m(L:mm)$		
		Surface roughness		$Ra(0.01 \sim 10) \mu m$	$U_{rel}=5.0\%$		
		circel run-out		(0~40)mm	$U=(0.02+0.005L) \mu m(L:mm)$		
		Flatness		$(70 \times 70) mm \sim (400 \times 500) mm$	$U=(0.02+0.007L) \mu m(L:mm)$		
		parallelism		(0~600)mm	$U=(0.02+0.009L) \mu m(L:mm)$		
		verticality		$H:(0 \sim 70) mm$	$U=(0.02+0.010L) \mu m(L:mm)$		
		offset		(0~200)mm	$U=(0.02+0.011L) \mu m(L:mm)$		
158	Step Wedge Used in Radiographic Testing	length	C. S. for Step Wedge Used in Radiographic Testing JJF(jixie)1016	$(0 \sim 500) mm$	$U=0.004 mm$		
		Surface roughness		$Ra(0.01 \sim 10) \mu m$	$U_{rel}=6.0\%$		
159	Micropattern Standards	Length	C. S. for micropattern standards JJF 1917	line spacing: $(0 \sim 20) mm$	$U=0.2 \mu m$		
				grid spacing: $(0 \sim 50) mm$	$U=0.5 \mu m$		
				diameter: $(0 \sim 50) mm$	$U=0.5 \mu m$		
		Angle		$0^\circ \sim 360^\circ$	$U=0.01^\circ$		
	measuring instruments for	length	V.R.of measuring instruments for contact wire geometric	gauge: $(1410 \sim 1470) mm$	$U=0.2mm$	Calibtation only	



No. CNAS L0893

第 20 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	contact wire geometric parameter		parameter JJG(tie dao)150	superelevation: $(-185 \sim 185)$ mm	$U=0.2$ mm	portable	
				stagger value: $(-600 \sim 600)$ mm	$U=1.1$ mm		
				Height of contact line: $(5100 \sim 6500)$ mm	$U=1.1$ mm		
				Mast gauge: $(2400 \sim 6500)$ mm	$U=0.9$ mm		
161	*calibrator for measuring instruments for contact wire geometric parameter	length	calibrator for measuring instruments for contact wire geometric parameter JJG(tie dao)210	gauge: $(1410 \sim 1470)$ mm	$U=0.1$ mm		
				superelevation: $(-185 \sim 185)$ mm	$U=0.1$ mm		
				stagger value: $(-610 \sim 610)$ mm	$U=0.5$ mm		
				Height of contact line: $(5100 \sim 6500)$ mm	$U=0.5$ mm		
				mast gauge: $(2400 \sim 6500)$ mm	$U=0.5$ mm		
162	Liquid Level Transducer	length	C. S. for Liquid Level Transducer NIMTT(CM) 166	$(0.01 \sim 3000)$ mm	$U_{rel}=0.07\%$		
163	Industrial electronic endoscope	Illuminance	C. S. for Industrial Electronic Endoscope JJF (liao) 437	$(50 \sim 3000)$ lx	$U_{rel}=1.3\%$		
		length		$(0 \sim 30)$ mm	$U=0.08$ mm		
164	Straightness measuring instrument	straightness accuracy	C. S. of straightness measuring instrument JJF 1890	$(0 \sim 1000)$ mm	$U=1.0 \mu\text{m}$		
165	Conduit Detection Robots	Length	C. S. of Conduit Detection Robots JJF (e) 60	$(0 \sim 100)$ m	$U=0.2 \text{ mm} + 2 \times 10^{-4} L$		



No. CNAS L0893

第 21 页 共 191 页

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

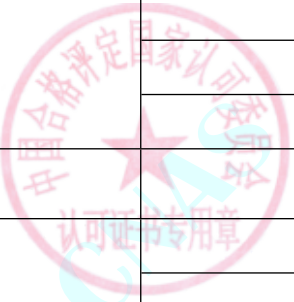
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
166	Digital Levels	Angle	V. R. of Digital Levels JJG (ce hui) 2101	$(-25 \sim +25)^\circ$	$U=2.8''$		
167	*Optical 3D Measuring Systems Based on Structured Light Scanning	Length	C. S. for Optical 3D Measuring Systems Based on Structured Light Scanning JJF 1951	$(16 \sim 1500) \text{ mm}$	$U=6 \mu \text{ m}$		
168	*Scanning Electronic Microscopes (SEM)	Length	C. S. for Scanning Electronic Microscope (SEM) JJF 1916	$100 \text{ nm} \sim 10 \mu \text{ m}$	$U=(2.4 \sim 44) \text{ nm}$		
169	Standard Ball Bars	Length	C. S. for Standard Ball Bars JJF 1859	sphere diameter: $(0 \sim 300) \text{ mm}$	$U=0.5 \mu \text{ m}$		
				spherical shape error: $(0 \sim 10) \text{ mm}$	$U=0.7 \mu \text{ m}$		
				from its: $(0 \sim 1.5) \text{ m}$	$U=2 \mu \text{ m} + 0.2L$		
170	Ground Penetration Radar	speed	Calibration Specification for Ground Penetration Radar JJF (qian) 58	Radar wave velocity: $(280 \sim 320) \text{ mm/ns}$	$U_{\text{rel}}=0.8\%$		
		Length		Measuring thickness: $(0.1 \sim 0.5) \text{ m}$	$U_{\text{rel}}=1.0\%$		
171	Step Specimen	Length	V. R. of Single Groove Specimen and Step Specimen JJG (军工) 175	step height H : $(0.01 \sim 0.02) \mu \text{ m}$	$U=1.3 \text{ nm} + 2.4\%H(H: \mu \text{ m})$	Calibrate only the step gauge.	
				step height H : $(0.02 \sim 0.1) \mu \text{ m}$	$U=1.8 \text{ nm} + 2.0\%H(H: \mu \text{ m})$		
				step height H : $(0.1 \sim 2) \mu \text{ m}$	$U=2.5 \text{ nm} + 0.8\%H(H: \mu \text{ m})$		
				step height H : $(2 \sim 10) \mu \text{ m}$	$U=3 \text{ nm} + 0.5\%H(H: \mu \text{ m})$		



No. CNAS L0893

第 22 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				step height H : (10~25) μm	$U=3\text{ nm}+0.3\%H(H:\mu\text{m})$		
				step height H : (25~100) μm	$U=3\text{ nm}+0.2\%H(H:\mu\text{m})$		
172	*Measuring contact angle with image method	Angle	C. S. for Instrument for measuring contact angle with image method JJF (su) 219	$6^\circ \sim 180^\circ$	$U=0.06^\circ$		
173	Standard Angle slice	Angle	C. S. for Instrument for measuring contact angle with image method JJF (su) 219	$6^\circ \sim 180^\circ$	$U=0.03^\circ$		
174	Ringelmann smoke telescope	Smoke opacity	C. S. for Ringelmann smoke telescope JJF (jin) 144	(0~5) ringelmann number	$U=0.04\text{ ringelmann number}$		
175	Coating thickness standard sheet	Length	C. S. For X-Ray Fluorescence Coating Thickness Instruments JJF 1306	(0.01~80) μm	$U_{\text{rel}}=7.0\%$		
176	X-Ray Fluorescence Coating Thickness Instruments	Length	Calibration Specification For X-Ray Fluorescence Coating Thickness Instruments JJF 1306	(0.01~80) μm	$U_{\text{rel}}=6.5\%$		
177	Resolution Target	Length	V.R.of Resolution Target JJG 827	(1~10) μm	$U=0.3\ \mu\text{m}$		
				(10~200) μm	$U=0.5\ \mu\text{m}$		
		line space		(0.6~100)mm	$U=(0.5+L/100)\ \mu\text{m}, (L:\text{mm})$		
178	Check the sample	Length	C. S. for Check the sample JJF (chuan) 110	(0~200) mm	$U=0.008\text{ mm}$		
179	Laser Tunnel Section Detector	Length	C. S. for Laser Tunnel Section Detector JJF (e) 50	(0~50) m	$U=1\text{ mm}$		
		Angle		$30^\circ \sim 360^\circ$	$U=0.08^\circ$		



No. CNAS L0893

第 23 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
180	Bridge Deflection Instrument	Length	C. S. for Bridge Deflection Instrument JJF(min)1077	(10~400) mm	$U_{rel}=0.4\%$		
181	*Contact (Stylus) Surface Contour Tester	Length	C. S. for Contact (Stylus) Surface Contour Tester JJF (min) 1043	(0~100) mm	$U=0.8 \mu m$		
		angle		$0^\circ \sim 360^\circ$	$U=41''$		
182	*Steel tape inspection platform based on image measurement	Length	Specification for calibration of Steel tape inspection platform based on image measurement JJF (chuan) 184	(0~20) m	$U=0.07 mm$		
183	*Auto Tester For Steel Rule	Length	C. S. for Auto Tester For Steel Rule JJF (zhe) 1129	(0~1000)mm	$U=8 \mu m$		
184	Industrial Endoscope	Angle	Calibration specification for Industrial Endoscope JJF(Ji) 69	$0.5^\circ \sim 360^\circ$	$U_{rel}=2\%$		
				(0.1~200) klx	$U_{rel}=5\%$		
185	*	Length	Calibration Specification for Industrial X-ray CT Coordinate Measuring Machine JJF (军工) 284	(0~116) mm	$U=4.0 \mu m$		
186	Spirit level	Angle	Calibration Specification for Level Rules JJF1085	(0.5~10) mm/m	$U_{rel}=6\%$		
187	Slit lamp Microscopes	Length	Calibration specification for Slit lamp Microscopes JJF (浙) 1169	Magnification $0.5 \times \sim 100 \times$	$U_{rel}=0.07\%$		
188	Stereomicroscope	Length	Calibration Specification for Stereomicroscope JJF(闽)1063	(0.1~10) mm	$U_{rel}=0.5\%$		
189	Laser Centering Instrument	Length	Calibration Specification for Laser Centering Instrument NIMTT(CM) 168	(0.1~200) mm	$U_{rel}=1\%$		

No. CNAS L0893

第 24 页 共 191 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		$0^{\circ} \sim \pm 360^{\circ}$	$U=6''$		
190	Gyrotheodolites	angle	C. S.for Gyrotheodolites JJF 1350	$0^{\circ} \sim 360^{\circ}$	$U=1.5''$		
191	Baseline and Basenet	Length	C. S.for Baseline and Basenet JJF 1214	$(0 \sim 100)\text{km}$	$U=0.10\text{mm}+0.34 \times 10^{-6}D$ $D:\text{km}$		
192	Large-Scale Laser Scanner Base on Spherical Coordinate	Length	Calibration Specification for Large-Scale Laser Scanners Base on Spherical Coordinate JJF (Military) 283	$(0 \sim 24)\text{m}$	$U=0.03\text{mm}$		
		Length		$(24 \sim 1018)\text{m}$	$U=0.5\text{mm}+0.8 \times 10^{-6}D$ $D:\text{m}$		
193	GNSS Receivers Working at Navigation	positioning	Calibration Specification for GNSS Receivers Working at Navigation JJF 1942	$4\text{m} \sim 42\text{km}$	$U=2.8\text{m}$		
		Speed		$(0 \sim 15) \text{ km/s}$	$U=0.04\text{m/s}$		
		acceleration		$(0 \sim 1000)\text{m/s}^2$	$U=0.05\text{m/s}^2$		
194	GNSS Vehicle Travelling Data Recorders	Positioning	Calibration Specification for GNSS Vehicle Travelling Data Recorders JJF 1921	$(0 \sim 1000) \text{ km}$	$U=1.0\text{m}$		
		Speed		$(0 \sim 15) \text{ km/s}$	$U=0.02\text{m/s}$		
		mileage		$(0 \sim 1000)\text{km}$	$U=6.2\text{m}$		
		Time		$(0 \sim 24)\text{h}$	$U=0.1 \text{ s}$		
		sensitivity		$(-150 \sim -100)\text{dBm}$	$U=0.3\text{dB}$		
195	Ground Penetrating Radar	Length	V.R.of Highway Structure Defect and Layer Thickness Ground Penetration Radar JJG (交通) 124	$(50 \sim 100) \text{ mm}$	$U=0.74\text{mm}$		
		Length		$(100 \sim 715) \text{ mm}$	$U_{\text{rel}}=1.1\%$		
		wave velocity		$(180 \sim 300) \text{ mm/ns}$	$U_{\text{rel}}=0.2\%$		
		Linearity		$(180 \sim 300) \text{ mm/ns}$	$U_{\text{rel}}=0.2\%$		
		frequency		$10\text{Hz} \sim 6\text{GHz}$	$U_{\text{rel}}=5 \times 10^{-6}$		



No. CNAS L0893

第 25 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
196	Deflection /Camber instrument	Length	V.R.of Bridge Deflection Measuring Instrument JJG (交通) 143	(0~500)mm	$U=0.05\text{mm}$		
197	Verification Regulation of Measure for Gauge for Measuring Distance Between Inside Rim Faces of Railway Wheels	Geometry	Verification regulation of internal distance gauge of railway locomotive and rolling stock wheel JJG 1159	(1345~1365) mm	$U=0.08\text{ mm}$		
198	Rules for Measuring Center Height of Coupler for Railway Locomotive and Vehicle	Geometry	Rules for Measuring Center Height of Coupler for Railway Locomotive and Vehicle JJG 1150	(650~950) mm	$U=0.11\text{mm}$		
199	Verification Regulation of Gauges for Measuring Distance Between Inside Rim Faces of Railway Wheels	Geometry	Calibrators of Wheel- Checkers for Railway Locomotives and Vehicles JJG 1153	(1345~1365) mm	$U=0.06\text{mm}$		
200	Calibrators of Wheel-Checkers for Railway Locomotives and Vehicles	Geometry	Calibrators of Wheel- Checkers for Railway Locomotives and Vehicles JJG 1155	(3~70) mm	$U=0.02\text{ mm}$		



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No. CNAS L0893

第 26 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
201	Verification regulation of height measuring device of railway frog structure	Geometry	Verification regulation of height measuring device of railway frog structure JJG 1183	(-15~+15) mm	$U=0.05$ mm		
202	Calibrators for Railway Switch Offset Rule	Geometry	V.R. for Railway Switch Offset Rule JJG 1109	(100~1800) mm	$U=0.12$ mm		
203	Railway Switch Offset Rules	Geometry	Railway Switch Offset Rules JJG 1108	(100~1800) mm	$U=0.18$ mm		
204	Inspecting Instruments for Railway Track	Geometry	Inspecting Instruments for Railway Track JJG 1090	1410~1470) mm	$U=0.10$ mm		
205	Calibrator for Inspecting Instruments for Railway Track	Geometry	V.R. for Inspecting Instruments for Railway Track JJG 1091	1410~1470) mm	$U=0.04$ mm		
206	Measuring Scale for Wheel-Diameter	Geometry	Verification Regulation of Measuring Instrument for Wheel-Diameter of Railway Locomotive and Vehicles Part 1: Ruler for Wheel-Diameter JJG 1081.1	(760~1270) mm	$U=0.06$ mm		
207	Measuring Instrument for Wheel-Diameter of Railway	Geometry	V.R. of Measuring Instrument for Wheel-Diameter of Railway Locomotives and Vehicles Part 2: Measuring Tools for Wheel-Diameter JJG 1081.2	(760~1270) mm	$U=0.04$ mm		



在线扫码获取验证

No. CNAS L0893

第 27 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
208	Wheel-Checker for Railway Locomotives and Vehicles	Geometry	V.R. for Wheel-Checker for Railway Locomotives and Vehicles JJG 1080	(3~95) mm	$U=0.03\text{mm}$		
209	Measuring Ruler for Difference of Wheels Set Position and Brake Discs Set Position of Railway Vehicles	Geometry	Measuring Ruler for Difference of Wheels Set Position and Brake Discs Set Position of Railway Vehicles JJG 1110	(0~500) mm	$U=0.07\text{mm}$		
210	Inspection of rail straightness measuring instrument	Geometry	JJG(铁道)167	(0~3000) mm	$U=0.02\text{mm}$		
211	Verification Regulation of Wheel Contour Gauge for Railway Locomotive and Vehicle	Geometry	Verification Regulation of Wheel Contour Gauge for Railway Locomotive and Vehicle JJG (铁道) 175	(-69~100) mm	$U=5\text{ }\mu\text{m}$		
212	Wear Tools for Rail	Geometry	Wear Tools for Rail JJG 1127	(0~25) mm	$U=0.15\text{mm}$		
213	Straight-sided spline Gauges	length	Calibration Specification for Straight-sided spline Gauge NIMTT(CM)177	minor diameter d : (10~120) mm, major diameter D : (10~125) mm, spline/space width B : (3~18) mm	$U=0.8\text{ }\mu\text{m}$		



No. CNAS L0893

第 28 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Major Diameter D (10~125) mm: lead-tooth alignment, pitch variation, index variation	$U=2.1 \mu\text{m}$		
214	Geologic Compasses	angle	Calibration Specification for Geologic Compasses JJF 2086	$0^\circ \sim 360^\circ$	$U=0.1^\circ$		
215	Optical Fiber End-Face Interferometers	length	Calibration Specification for Optical Fiber End-Face Interferometers JJF 2007	Fiber Height (0~500) nm	$U=2.0\text{nm}$		
				Curvature radius (10~25) mm	$U=0.03\text{mm}$		
				Vertex Offset (0~30) μm	$U=3.2 \mu\text{m}$		
216	Quick Video Measuring Machines	length	Calibration Specification for Quick Video Measuring Machines JJF (浙) 1194	(225×125) mm	$U=(0.4+3.4L) \mu\text{m} (L:\text{m})$		
217	Reflection Gratings by Laser Diffraction	length	Calibration Specification for Reflection Gratings by Laser Diffraction JJF 1967	(140~2000) nm	$U_{\text{rel}}=8 \times 10^{-5}$		
218	Nanoindentation Testers	length	Calibration Specification for Nanoindentation Testers JJF 1981	indentation hardness: (5~15) GPa	$U_{\text{rel}}=10\%$		
				indentation modulus: (5~100) GPa	$U_{\text{rel}}=10\%$		
219	Capacitive Digital Scale Units	length	Calibration Specification for Capacitive Digital Scale Units JJF 1280	(0~2000) mm	$U=0.02\text{mm}$		
220	Light Pen Measuring instrument	length	Calibration Specification for Light Pen Measuring instrument NIMTT (CM) 178	(0~30) m	$U=(1.5+0.6L)\mu\text{m}$		



No. CNAS L0893

第 29 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
221	Cutting Ring	length	Cutting Ring JJG(traffic)194	(0~200) mm	$U=0.01\text{mm}$		
222	*Solder Paste Inspection Instruments	Length	Calibration Specification for Solder Paste Inspection Instruments JJF1965	(20~400) μm	$U=1.1\ \mu\text{m}$		
223	Gauel of Cigarette Purpose	length	Calibration Specification for Gauel of Cigarette Purpose JJG (qian)64	(0~200) mm	$U=1.2\ \mu\text{m}$		
224	Coating Bend Testers(Cylindrical Mandrel)	length	Calibration Specification for Coating Bend Testers(Cylindrical Mandrel) JJF(石化)035	(0~32)mm	$U=0.03\text{mm}$		
225	Resistance Rebar Strain Meter	length	Verification Regulation fo Resistance Rebar Strain Meter JJF(traffic)185	(0.1~10)mm	$U=5\ \mu\text{m}$		
226	Film Thickness Standard Specimens	thickness	Calibration Specification for Film Thickness Standard Specimens JJF(military project)203	(1~50) nm	$U=0.8\text{nm}$		
				(50~100) nm	$U=1.4\text{nm}$		
				(100~500) nm	$U=3.3\text{nm}$		
				(500~1000) nm	$U=5.0\text{nm}$		
227	*Optical thin film refractive index and thickness tester	thickness	Optical Film Refractive Index and Thickness Measurement Equipment JJG (JG) 14	(1~100) nm	$U=0.8\text{nm}$		
				(100~500) nm	$U=2.5\text{nm}$		
				(500~1000) nm	$U=5.0\text{nm}$		
228	*Medical Micro-image Analyzers	optical density	Calibration Specification for Medical Micro-image Analyzers JJF1819	(0.0~3.0)	$U=0.03$		
		length		(0~10) mm	$U=4\ \mu\text{m}$		



No. CNAS L0893

第 30 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Magnification Error of Microscope Objective 1 $\times \sim 20 \times$	$U_{\text{rel}}=2\%$		
229	Target Ball and Target Holder	Length	Calibration Specification for Target Ball and Target Holder JJF(军工)320	(5~75)mm	$U=0.6 \mu\text{m}$		
230	*Standard Planar Near Field Scanners	Length	Calibration Specification for Standard Planar Near Field Scanners JJF(军工)323	(0~10)m	$U=0.01\text{mm}$		
		Angle		$0^\circ \sim 360^\circ$	$U=15''$		
231	*Darkroom	Length	Calibration Specification for Darkroom (mechanical part) NIMTT(CM) 183	(0~10)m	$U=0.01\text{mm}$	Accredited only for Turntable; Scanning Frame; Feed System; Compact Range Reflector	
		Angle		$0^\circ \sim 360^\circ$	$U=15''$		
		Roughness		RMS:(0~5)mm	$U=4 \mu\text{m}$		
232	Optical 3D measurement system	length	Multi view 3D scanning measurement system based on regional scanning measurement system VDI/VDE 2634-3	(16~1000)mm	$U=6 \mu\text{m}$		
233	*transmission electron microscope	discernibility	V. R. of Transmission Electron Microscope JJG (jiaowei) 011	(100~5000)nm	$U_{\text{rel}}=2.9\% \sim 0.95\%$		
		enlargement ratio		$1000 \times \sim 500000 \times$	$U_{\text{rel}}=3\%$		
234	Abbe refractometer standard block	Refractive index	V. R. of Abbe refractometer standard block JJG 981	$n: 1.47 \sim 1.80$	$U_{\text{rel}}=3.2 \times 10^{-5} (k=3)$		



No. CNAS L0893

第 31 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
235	Optical prototype	Length	Calibration Specification for Optical prototype JJF (chuan) 199	(5~500)mm	$U=2\text{ }\mu\text{m}$		
236	Spatial geometric dimensions	Length	Calibration Specification for Medical (Rigid) Endoscope JJF (jing) 3029	Resolution: (1~100)lp/mm	$U_{\text{rel}}=1.7\%$		
237	Spherical interferometer	Length	Calibration Specification for Digital laser spherical interferometer JJF1739	ϕ (10~150)mm	$U=13\text{nm}$		
238	Elevator guide rail correction detector set	Length	Calibration Specification for Elevator Guide Rail Correction Detector Set JJF (su) 259	(0~300)mm	$U=0.2\text{mm}$		
239	*Level-type wheel alignment measuring instrument	angle	Calibration Specification for Level-type wheel alignment measuring instrument JJF 1377	$-50^{\circ} \sim +50^{\circ}$	$U=0.14^{\circ}$		
240	*Crane brake slippage measuring instrument	Length	Calibration Specification for Crane brake slippage measuring instrument JJF (liao) 131	(0~100)mm	$U=0.3\text{mm}$		
241	Tool presetting and measuring instrument	Length	V. R. of Tool presetting and measuring instrument JJG 938	(0~1000)mm	$U=4\text{ }\mu\text{m}$		
242	Copper Clad Thickness Measuring Instrument	Length	Calibration Specification for Copper Clad Thickness Measuring Instrument JJF (su) 258	$H:(5.2\sim 10)\text{ }\mu\text{m}$	$U=0.6\text{ }\mu\text{m}$	合格评定国家认可委员会 认可证书专用章	
				$H:(10\sim 69.3)\text{ }\mu\text{m}$	$U_{\text{rel}}=7\%$		
				Standard Specimens $H:(1\sim 10)\text{ }\mu\text{m}$	$U=0.6\text{ }\mu\text{m}$		



No. CNAS L0893

第 32 页 共 191 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
				Standard Specimens <i>H</i> :(10~100) μm	<i>U</i> _{rel} =6.5%		
243	Diamond Pressure Head	Angle	Calibration Specification for Diamond Pressure Head NIMTT (CM) 025	90° ~140°	<i>U</i> =2′		
		Length		((0.2~10)mm	<i>U</i> =1.2 μm		
II Thermology measuring instrument							
1	*Temperature and Humidity Standard Chambers	Temperature	Calibration Specification fo Temperature and Humidity Standard Chambers JJF1564	uniformity:(5~50)℃	<i>U</i> =0.05℃		
				fluctuation:(5~50)℃	<i>U</i> =0.02℃		
		Humidity		uniformity:10%RH~90%RH	<i>U</i> =0.5%RH		
				fluctuation:10%RH~90%RH	<i>U</i> =0.1%RH		
2	*recorders for industrial-process measurement	Temperature	Verification regulation of the recorders for industrial-process measurement JJG 74	RTD: (-200~850)℃	<i>U</i> =(0.10~0.15)℃		
				K、N、J:(-200~0)℃	<i>U</i> =(0.18~0.12)℃		
				K、N、J:(0~1200)℃	<i>U</i> =(0.12~0.19)℃		
				S:(0~1600)℃	<i>U</i> =(0.7~0.4)℃		
				B:(800~1800)℃	<i>U</i> =(0.5~0.4)℃		
				T: (-200~400)℃	<i>U</i> = (0.27~0.11)℃		
				E: (-200~1000)℃	<i>U</i> = (0.21~0.12)℃		
3	*Digital temperature indicators	Temperature	Verification regulation of digital temperature indicators and controller JJG 617	RTD: (-200~850)℃	<i>U</i> =(0.10~0.15)℃		
				K、N、J:(-200~0)℃	<i>U</i> =(0.18~0.12)℃		



No. CNAS L0893

第 33 页 共 191 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
	and/controllers			K、N、J:(0~1200)°C	U=(0.12~0.19)°C		
				S:(0~1600)°C	U=(0.7~0.4)°C		
				B:(800~1800)°C	U=(0.5~0.4)°C		
				T:(-200~400)°C	U=(0.27~0.11)°C		
				E:(-200~1000) °C	U= (0.21~0.12) °C		
4	*Temperature transmitter	Temperature	Calibration specification of the temperature transmitter JJF 1183	RTD: (-200~850)°C	U=(0.08~0.20)°C		
				K: (-200~1200) °C	U=0.5°C		
				E: (-200~1000) °C	U=0.4°C		
				S: (0~1600) °C	U=(0.9~0.6)°C		
				Equipped with a thermistor sensor:(-60~300)°C	U=(0.1~0.2)°C		
				Equipped with S-type thermocouple sensor:(300~1100)°C	U=1.3°C		
				Equipped with K and N-type thermocouple sensors:(-40~1200)°C	U=(0.5~1.5)°C		
5	Standard platinum-30% rhodium/platinum-6%rhodium thermocouple	Temperature	Verification regulation of the standard platinum-30% rhodium/platinum-6% rhodium thermocouple JJG 167	1100°C	U=2.0°C		
				1200°C	U=1.9°C		
				1300°C	U=1.9°C		
				1400°C	U=1.9°C		



No. CNAS L0893

第 34 页 共 191 页

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

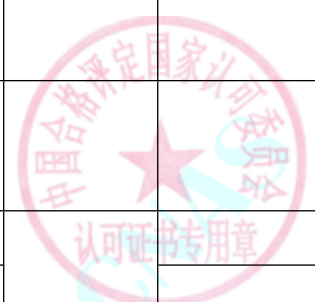
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
				1500℃	U=1.9℃		
6	Standard platinum-10% rhodium/platinum thermocouple	Temperature	verification regulation of the standard platinum-10% rhodium/platinum thermocouple JJG 75	419.527℃	U=0.24℃		
				660.323℃	U=0.26℃		
				1084.62℃	U=0.29℃		
7	The working noble metal thermocouples	Temperature	Verification regulation of the working noble metal thermocouples JJG 141	(419.527~1084.62)℃	U=0.48℃~0.55℃		
				(1100~1500)℃	U=2.0℃		
8	Standard platinum resistance thermometer	Temperature	Verification regulation of standard platinum resistance thermometer JJG 160	83.8058K	U=3.4mK		
				234.3156K	U=1.6mK		
				273.16K	U=1.0mK		
				505.078K	U=2.3mK		
				692.677K	U=3.5mK		
				933.473K	U=4.5mK		
9	Industry platinum copper resistance thermometers	Temperature	Verification Regulation of industry platinum and copper resistance thermometers JJG 229	(-80~+300)℃	U= (0.02~0.05)℃		
				-196℃	U=0.03℃		
10	Standard clinical thermometer	Temperature	Verification regulation of standard clinical thermometer JJG 881	(35~45)℃	U=0.018℃		
11	*On-line Temperature Measuring System	Temperature	Calibration Specification for On-line Temperature Measuring System JJF (Chuan) 143	(-30~300)℃	U=0.1℃		
				(300~650)℃	U=1.0℃		



No. CNAS L0893

第 35 页 共 191 页

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

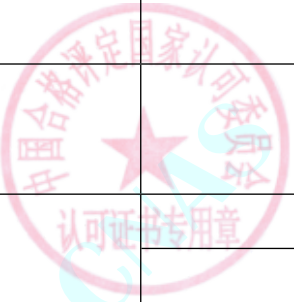
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
12	Temperature Calibration Devices for Polymerase Chain Reaction Analyzers	Temperature	Calibration Specification of Temperature Calibration Devices for Polymerase Chain Reaction Analyzer JJF 1821	(0~110)°C	$U=0.04^{\circ}\text{C}$		
13	Clinical Electronic Thermometers	Temperature	Verification Regulation of Clinical Electronic Thermometers JJG 1162	(35.0~41.3) °C	$U=0.03^{\circ}\text{C}$		
14	*Automated Blood Bacteria Culture Analyzers	Temperature	Calibration Specification for Automated Blood Bacteria Culture Analyzers JJF 1937	(20~50)°C	$U=0.2^{\circ}\text{C}$		
		Illuminance		(50~10000)lx	$U_{\text{rel}}=6\%$		
15	*hot aging test chambers	Temperature	Calibration Specification of Hot Aging Test Chambers JJF (Chuan) 162	(30~100)°C	$U=0.3^{\circ}\text{C}$		
				(100~300)°C	$U=0.5^{\circ}\text{C}$		
				(300~500)°C	$U=1.3^{\circ}\text{C}$		
		Air change rate		(5~200) times/h	$U_{\text{rel}}=5\%$		
16	*Temperature Controller for Transformers	Temperature	Calibration Specification of Temperature Controller for Transformers JJF (Chuan) 151	(-20~160)°C	$U=0.4^{\circ}\text{C}$		
17	*Passive Medical Cold Boxes	Temperature	Calibration Specification for Temperature Parameter of Passive Medical Cold Boxes JJF 1676	(-20~20)°C	$U=0.16^{\circ}\text{C}$		
18	*Environmental testing equipment	Temperature	Calibration Specification for Environmental Testing Equipment for	(-80~0)°C	$U=0.2^{\circ}\text{C}$		
				(0~100)°C	$U=0.1^{\circ}\text{C}$		



No. CNAS L0893

第 36 页 共 191 页

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

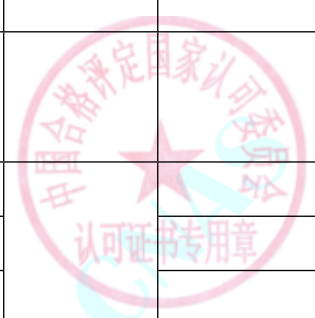
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			Temperature and Humidity Parameters JJF 1101	(100~300)°C	$U=0.3^{\circ}\text{C}$		
		Humidity		10%RH~95%RH	$U=1.5\%\text{RH}$		
19	Electric Ventilation Psychrometer	Temperature	Verification Regulation of Meteorological Ventilation Psychrometer JJG 993	(5~50)°C	$U=0.07^{\circ}\text{C}$		
		Humidity		10%RH~90%RH	$U=0.8\%\text{RH}$		
20	Meteorological Ventilation Psychrometer	air speed	Verification Regulation of Electric Ventilation Psychrometer JJG 204	(2~5)m/s	$U=0.6\text{m/s}$		
		Time		(4~8)min	$U=0.2\text{s}$		
21	Mechanical Thermo - hygrometers	Humidity	Verification Regulation of Mechanical Thermo - hygrometers JJG 205	30%RH~95%RH	$U=1\%\text{RH}$		
		Temperature		(5~50)°C	$U=0.07^{\circ}\text{C}$		
22	Precision Dew- point Hygrometers	Temperature	Verification Regulation of Precision Dew-point Hygrometers JJG 499	Dew-point: (-80~+20) °C	$U=(0.2\sim0.4)^{\circ}\text{C}$		
23	Resistance and Capacitance Dew Point Hygrometer	Temperature	Calibration Specification for Resistance and Capacitance Dew Point Hygrometer JJF 1272	Dew-point: (-80~+20) °C	$U=(0.2\sim0.4)^{\circ}\text{C}$		
24	Electrolytic hygrometers	Humidity	Verification Regulation of Electrolytic Hygrometers JJG 500	(0.1~1000) $\mu\text{L/L}$	$U_{\text{rel}}=4.4\%\sim0.5\%$		
25	Secondary Standard Divided Flow Humidity Generator	Humidity	Verification Regulation of Secondary Standard Divided Flow Humidity Generator JJG 826	10%RH~95%RH	$U=0.8\%\text{RH}$		
26	Tempurature and Humidity Generator	Humidity	Calibration Specification for Temperature and humidity generator NIMTT(CM) 121	10%RH~95%RH	$U=0.8\%\text{RH}$		
		temperature		(5~50) °C	$U=0.1^{\circ}\text{C}$		



No. CNAS L0893

第 37 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
27	Index detector	Temperature	Calibration Specification for WBGT index thermometer calibration specification JJF 1407	(5~50)°C	$U=0.07^{\circ}\text{C}$		
28	Base metal thermocouples	Temperature	Calibration Specification for Base Metal Thermocouples JJF 1637	K、N: (-40~1200)°C	$U=(0.26\sim1.2)^{\circ}\text{C}$		
				E: (-40~900)°C	$U=(0.26\sim0.80)^{\circ}\text{C}$		
				J: (-40~750)°C	$U=(0.26\sim0.70)^{\circ}\text{C}$		
29	Standard Mercury-in-Glass thermometers	Temperature	Verification regulation of standard mercury-in-glass thermometers JJG 161	(-60~300)°C	$U=(0.03\sim0.05)^{\circ}\text{C}$		
30	Liquid-in-Glass thermometers for working	Temperature	Verification regulation of liquid-in-glass thermometer for working JJG 130	High precision: (0~150)°C	$U=(0.012\sim0.024)^{\circ}\text{C}$		
				Working: (-60~300)°C	$U=(0.05\sim0.09)^{\circ}\text{C}$		
31	*Bimetallic thermometers	Temperature	Calibration Specification for Bimetallic Thermometers JJF 1908	(-60~300)°C	$U=0.3^{\circ}\text{C}$		
32	Filled system thermometers	Temperature	Calibration Specification for Filled System Thermometers JJF 1909	(-60~300)°C	$U=0.4^{\circ}\text{C}$		
33	*Thermocouple calibration furnaces	Temperature	Testing Specification of temperature uniformity in thermocouple calibration furnaces JJF 1184	(300~1500)°C	$U=0.3^{\circ}\text{C}$		
34	Temperature data collector	Temperature	Calibration specification for temperature data collector NIMTT(CM) 018	RTD: (-200~850)°C	$U=(0.01\sim0.03)^{\circ}\text{C}$		
				K,N,J: (-200~1200)°C	$U=(0.12\sim0.19)^{\circ}\text{C}$		
				S: (0~1600)°C	$U=(0.7\sim0.4)^{\circ}\text{C}$		



No. CNAS L0893

第 38 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				E: (-200~1000)°C	$U=(0.21\sim0.11)^\circ\text{C}$		
				B: (800~1800)°C	$U=(0.5\sim0.4)^\circ\text{C}$		
35	*Thermostatic bath	Temperature	Measurement and Test Norm of Metrological Characteristics of Thermostatic Baths for Temperature Calibration JJF 1030	Uniformity: (-100~40)°C	$U=(0.006\sim0.002)^\circ\text{C}$		
				Uniformity: (40~300)°C	$U=(0.002\sim0.005)^\circ\text{C}$		
				Volatility: (-100~300)°C	$U=0.003^\circ\text{C}$		
36	*Auto-measuring system of thermocouples and resistance thermometers	Temperature	Calibration Specification for Auto-measuring System of Thermocouples and Resistance Thermometers JJF 1098	Industry platinum resistance: 0°C	$U=0.05^\circ\text{C}$		
				Industry platinum resistance: 100°C	$U=0.07^\circ\text{C}$		
				Base metal thermocouples: (300~1200)°C	$U=(0.9\sim1.1)^\circ\text{C}$		
				Working noble metal thermocouples 419.527°C	$U=0.70^\circ\text{C}$		
				Working noble metal thermocouples 660.323°C	$U=0.72^\circ\text{C}$		
				Working noble metal thermocouples 1084.62°C	$U=0.80^\circ\text{C}$		
				Standard thermocouples 419.527°C	$U=0.50^\circ\text{C}$		
				Standard thermocouples 660.323°C	$U=0.60^\circ\text{C}$		
				Standard thermocouples 1084.62°C	$U=0.60^\circ\text{C}$		
37	*Temperature block calibrators	Temperature	Calibration guideline of the temperature block calibrators	(-80~660)°C	$U=(0.03\sim0.36)^\circ\text{C}$		



No. CNAS L0893

第 39 页 共 191 页

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

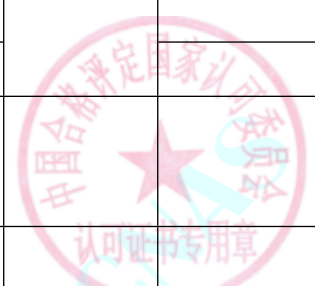
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			JJF 1257	(660~1300)°C	$U=(0.5\sim 1.2)^{\circ}\text{C}$		
38	*Fixed-Point Devices for Standard Platinum Resistance Thermometer	Temperature	Calibration specification of fixed-point devices for standard platinum resistance thermometer JJF 1178	83.8058K	$U=2.0\text{mK}$		
				234.3156K	$U=1.2\text{mK}$		
				273.16K	$U=0.35\text{mK}$		
				302.9146K	$U=1.2\text{mK}$		
				505.078K	$U=1.7\text{mK}$		
				692.677K	$U=2.0\text{mK}$		
				933.473K	$U=4.5\text{mK}$		
39	*The Triple Point of Water Cell (Cell comparison)	Temperature	Calibration Specification of The Triple Point of Water Cell (Cell comparison) NIMTT(CM) 017	273.16K	$U=0.30\text{mK}$		
40	*Box-type Resistance Furnace	Temperature	Calibration Specification for Box-type Resistance Furnace JJF 1376	(300~1100)°C	$U=(1.2\sim 1.5)^{\circ}\text{C}$		
41	Temperature Data Acquisition Instruments	Temperature	Calibration Specification of Temperature Data Acquisition Instruments JJF 1366	(-80~300) °C	$U=0.03^{\circ}\text{C}$	When using a constant temperature chamber for temperature field calibration, only calibrate (- 30~80) °C	
		Temperature	Calibration Specification for	(25~140)°C	$U=0.4^{\circ}\text{C}$		

No. CNAS L0893

第 40 页 共 191 页

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



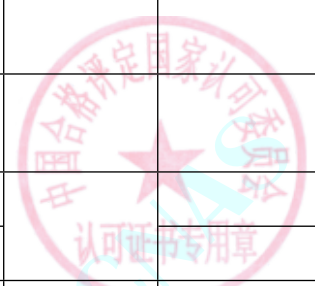
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Sterilization	Pressure	the Equipment of the Sterilization for Temperature Pressure and Time JJF(C)145	(101~400)kPa	$U=2.8\text{kPa}$		
		Time		(0~3600) s	$U=0.2\text{s}$		
43	*Digital Thermometer	Temperature	Calibration Specification for Digital Thermometer JJF (Chuan) 139	(-196~660.323)°C	$U=(0.010\sim0.018)^\circ\text{C}$		
				(660.323~1200) °C	$U=1.2^\circ\text{C}$		
44	Sheathed Thermocouples	Temperature	Calibration specification for sheathed thermocouples JJF 1262	K、N: (-40~1100)°C	$U=(0.26\sim2.0)^\circ\text{C}$		
				E: (-40~900)°C	$U=(0.26\sim0.80)^\circ\text{C}$		
				J: (-40~750)°C	$U=(0.26\sim0.70)^\circ\text{C}$		
				T: (-40~350)°C	$U=(0.26\sim0.80)^\circ\text{C}$		
45	Device of verification and measurement of temperature meter	Temperature	Calibration specification of temperature Indicators and simulators by electrical simulation and measurement JJF 1309	RTD: (-200~850)°C	$U=(0.01\sim0.03)^\circ\text{C}$		
				K、N、J: (-200~1200) °C	$U=(0.08\sim0.05)^\circ\text{C}$		
				S: (0~1600)°C	$U=(0.09\sim0.06)^\circ\text{C}$		
				E: (-200~1000)°C	$U=(0.08\sim0.05)^\circ\text{C}$		
				T: (-200~400)°C	$U=0.05^\circ\text{C}$		
				B: (800~1800)°C	$U=(0.08\sim0.06)^\circ\text{C}$		
46	Temperature Switches	Temperature	Calibration Specification for Temperature Parameters of Temperature Switches JJF1632	(-30~300) °C	$U=0.4^\circ\text{C}$		
47	*Microwave Digestion Instrument	Temperature	Calibration Specification for Temperature Parameters of Microwave Digestion Instrument JJF(Chuan)142	(0~170) °C	$U=0.15^\circ\text{C}\sim0.25^\circ\text{C}$		



No. CNAS L0893

第 41 页 共 191 页

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

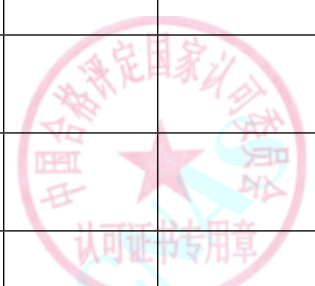
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
48	*Temperature Indicators	Temperature	Calibration Specification for Temperature Indicators JJF 1664	Equipped with thermocouple sensor: (-200~1800) °C	$U=0.38^{\circ}\text{C}$		
				Equipped with thermal resistance sensor: (-200~850) °C	$U=0.16^{\circ}\text{C}$		
				DC standard signal input: (-200~1800) °C	$U=0.12^{\circ}\text{C}$		
49	Digital Temperature-hygrometer	Humidity	C. S. for Digital Temperature-hygrometers JJF 1076	10%RH~95%RH	$U=(0.6\sim 1.0)\%\text{RH}$		
		Temperature		(5~50) °C	$U=0.1^{\circ}\text{C}$		
50	Heat flow meter	Heat flux	Calibration Specification of Contact Heat Flow Meters of Absolute method NIMTT(CM) 157	(2~200) W/m ²	$U_{\text{rel}}=2.8\%$		
51	*Thermal imagers	Temperature	Calibration Specification for Thermal Imagers JJF 1187	(-20~2000) °C	$U=(0.3\sim 4.6)^{\circ}\text{C}$		
52	*Infrared Thermometers for Measurement of Human Temperature	Temperature	Calibration Specification of Infrared Thermometers for Measurement of Human Temperature JJF 1107	(22.0~42.0) °C	$U=0.11^{\circ}\text{C}$		
53	Infrared Ear Thermometer	Temperature	Verification Regulation of Infrared Ear Thermometer JJG 1164	(35.0~42.0) °C	$U=0.04^{\circ}\text{C}$		
54	*Blackbody radiators in -50 °C~+90 °C	Temperature	Calibration Specification of Blackbody Radiators in -50 °C~+90 °C JJF 1080	(-50~+90) °C	$U=(0.15\sim 0.20)^{\circ}\text{C}$		
		Emissivity		0.5~1.0	$U_{\text{rel}}=0.6\%$		
55	*Blackbody radiators at the	Temperature	Verification Regulation of Blackbody Radiators at the	(500~1000)K	$U=(0.4\sim 1.3)\text{K}$		



No. CNAS L0893

第 42 页 共 191 页

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

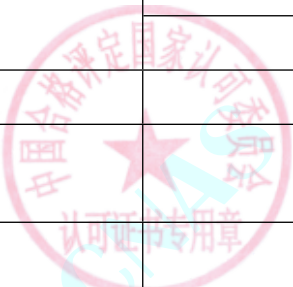
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	500K~1000K	Emissivity	500K~1000K JJG 309	0.5~1.0	$U_{rel}=0.6\%$		
56	*Blackbody radiators	Temperature	Calibration specification of Blackbody Radiators	(-50~3000) °C	$U=(0.07\sim5.9)$ °C		
		Emissivity	NIMTT(CM) 112	0.5~1.0 (Range:-50°C~1600°C)	$U_{rel}=0.6\%$		
57	*Blackbody radiation sources of radiation thermometry from -10°C to 200°C	Temperature	Calibration Specification for Blackbody Radiation Sources of Radiation Thermometry from -10°C to 200°C JJF 1552	(-10~200) °C	$U=(0.07\sim0.4)$ °C		
58	*Blackbody radiators for radiation thermometry calibration from -50°C~1000°C	Temperature	Verification Regulation of Reference Blackbody Radiator for Radiation Thermometry from -50°C to 1000°C JJG(JUNGONG)162	(-50~1000)°C	$U=(0.07\sim1.5)$ °C		
59	*Radiation temperature of 800 °C~3000°C blackbody radiators	Temperature	Verification Regulation of Reference Blackbody Radiators for Radiation Thermometry from 800°C to 3000°C JJG(JUNGONG)161	(800~3000) °C	$U=(1.2\sim5.9)$ °C		
60	*Radiation thermometers	Temperature	Verification Regulation of Radiation Thermometers JJG 856	(-50~3000)°C	$U=(0.04\sim6.7)$ °C		
61	Standard tungsten ribbon lamps	Temperature	Verification Regulation of Standard Tungsten Ribbon Lamps JJG 110	(800~2000)°C	$U=(1.5\sim2.8)$ °C		
62	Standard photoelectric pyrometers	Temperature	Verification Regulation of Standard Photoelectric Pyrometers JJG 1032	(800~3200)°C	$U=(0.9\sim5.9)$ °C		



No. CNAS L0893

第 43 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
63	*Cryogenic Thermometers	Temperature	Calibration Specification of (-195~-80) °C Cryogenic Thermometers JJF (川) 203	(-195~-80) °C	U= (0.01~0.05) °C		
64	*Open-type Cryostats	Temperature	Measurement Specification of Open-type Cryostats for Temperature Calibration with the temperature range from -196°C to 0°C NIMTT (CM) 179	(-196~0) °C	U= (0.0015~0.004) °C		
65	K, N, S, R type thermocouples	Temperature	Standard Test Method for Calibration of Thermocouples By Comparison Techniques ASTM E220	K、N: (-196~1200) °C	U=(0.22~1.2)°C		
				S、R: (0~1200) °C	U= (0.21~2.0) °C		
66	*Liquid Constant Temperature Testing Equipment	Temperature	Measurement Specification for Temperature Performance of Liquid Constant Temperature Testing Equipment JJF 2019	(-80~300) °C	U=0.4°C		
67	Temperature and Humidity Itinerant Detecting Instruments	Temperature	Calibration Specification for Temperature and Humidity Itinerant Detecting Instruments JJF1171	(-80~300) °C	U= (0.03~0.05) °C		
				(300~1200) °C	U=0.7 °C		
		Humidity		5%RH~95%RH	U=(0.7~1.0) %RH		
III Mechanics measuring instrument							
1	Standard Equipment for Revolution Speed	revolution speed	Verification Regulation of Standard Equipment for Revolution Speed JJG 326	(30~40000)r/min	U _{rel} =0.01%(k=3)		
2	Tachometer	revolution speed	Verification Regulation of Tachometer JJG 105	(10~40000)r/min	U _{rel} =0.02%		
3	*Weights	mass	Verification Regulation of Weights JJG 99	E ₁ :1mg~500mg	U=0.0004mg~0.0006mg		

No. CNAS L0893

第 44 页 共 191 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
				E ₁ : 1g~500g	U=0.0008mg~0.02mg		
				E ₁ : 1kg~20kg	U=0.04mg~1.1mg		
				E ₂ : 1mg~500mg	U=0.0006mg~0.0008mg		
				E ₂ : 1g~500g	U=0.0012mg~0.024mg		
				E ₂ : 1kg~20kg	U=0.04mg~1.5mg		
				F ₁ : 1mg~500mg	U=0.001mg~0.0012mg		
				F ₁ : 1g~500g	U=0.0016mg~0.026mg		
				F ₁ : 1kg~20kg	U=0.04mg~1.7mg		
				F ₂ : 1mg~500mg	U=0.001mg~0.0012mg		
				F ₂ : 1g~500g	U=0.0016mg~0.026mg		
				F ₂ : 1kg~500kg	U=0.04mg~1.2g		
				M ₁ : 1mg~500mg	U=0.001mg~0.0012mg		
				M ₁ : 1g~500g	U=0.0084mg~0.44mg		
				M ₁ : 1kg~20kg	U=0.44mg~1.9mg		
				M ₂ : 100m~500mg	U=0.05mg~0.06mg		
				M ₂ : 1g~500g	U=0.08mg~1.0mg		
				M ₂ : 1kg~20kg	U=2.6mg~50mg		
				M ₃ : 1g~500g	U=0.46mg~2.6mg		
				M ₃ : 1kg~20kg	U=5.0mg~0.1g		



No. CNAS L0893

第 45 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
4	*Mechanical Balance	Quality	Verification Regulation of Mechanical Balance JJG 98	1mg~20g	$U=0.01\text{mg}\sim 0.08\text{mg}$		
				20g~200g	$U=0.08\text{mg}\sim 0.3\text{mg}$		
				200g~20kg	$U=0.3\text{mg}\sim 0.72\text{mg}$		
5	*Electronic Balance	Quality	Verification Regulation of Electronic Balance JJG 1036, Calibration Specification for Electronic Balances JJF1847	1mg~100mg	$U=3.0\text{ }\mu\text{g}\sim 4.4\text{ }\mu\text{g}$		
				100mg~1g	$U=4.4\text{ }\mu\text{g}\sim 12\text{ }\mu\text{g}$		
				1g~100g	$U=12\text{ }\mu\text{g}\sim 0.18\text{mg}$		
				100g~1kg	$U=0.18\text{mg}\sim 0.9\text{mg}$		
				1kg~100kg	$U=0.9\text{mg}\sim 0.18\text{g}$		
				100kg~3000kg	$U=0.18\text{g}\sim 18\text{g}$		
6	**Mass Comparators	Quality	Calibration Specification for Mass Comparators JJF1326	1mg~1g	$U=0.1\text{ }\mu\text{g}\sim 3\text{ }\mu\text{g}$		
				1g~1kg	$U=3\text{ }\mu\text{g}\sim 0.2\text{mg}$		
				1kg~3000kg	$U=0.2\text{mg}\sim 6\text{g}$		
7	*Relative Density Balance for Liquid	Liquid Relative Density	Verification Regulation of Relative Density Balance for Liquid JJG 171	0.001~2.0000	$U_{\text{rel}}=0.043\%$		
8	*Table Balances	Quality	Verification Regulation of Table Balances JJG 156	(0~20)kg	$U=(0.1\sim 10)\text{g}$		
9	*Non-self-indicating Weighing Instruments	Quality	Verification Regulation of Non-self-indicating Weighing Instruments JJG 14	100g~10kg	$U=10\text{mg}\sim 0.5\text{g}$		
				10kg~1t	$U=0.5\text{g}\sim 89\text{g}$		
				1t~30t	$U=89\text{g}\sim 0.5\text{kg}$		
10	*Digital Indicating Weighing	Quality	Verification Regulation of Digital Indicating Weighing	1g~3kg	$U=0.04\text{g}\sim 0.6\text{g}$		



No. CNAS L0893

第 46 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Instruments		Instruments JJG 539	3kg~30kg	$U=0.6g\sim 2.8g$		
				30kg~1t	$U=2.8g\sim 31g$		
				1t~30t	$U=31g\sim 1.2kg$		
				30t~150t	$U=1.2kg\sim 4.2kg$		
11	*Analogue Indicating Weighing Instruments	Quality	Verification Regulation of Analogue Indicating Weighing Instruments JJG 13	0.1kg~10kg	$U=1.0g\sim 5.7g$		
				10kg~120kg	$U=5.7g\sim 53g$		
12	*Automatic Gravimetric Filling Instruments	Quality	Verification Regulation of Automatic Gravimetric Filling Instruments JJG 564	10g~100t	$U_{rel}=0.09\%$		
13	*Continuous Totalizing Automatic Weighing Instruments (Belt Weigher)	Quality	Verification Regulation of Continuous Totalizing Automatic Weighing Instruments (Belt Weigher) JJG 195	(0.2~1000)t/h	$U_{rel}=0.09\%$		
14	*Discontinuous Totalizing Automatic Weighing Instruments	Quality	Verification Regulation of Discontinuous Totalizing Automatic Weighing Instruments (Totalizing Hopper Weighers) JJG 648	0.1t~1t	$U_{rel}=0.08\%$		
				1t~10t	$U_{rel}=0.05\%$		
				10t~200t	$U_{rel}=0.07\%$		
15	*Automatic Instruments for Weighing Road Vehicles in Motion	Quality	Verification Regulation of Automatic Instruments for Weighing Road Vehicles in Motion JJG 907	(0.5~150)t	$U_{rel}=0.36\%$		



No. CNAS L0893

第 47 页 共 191 页

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

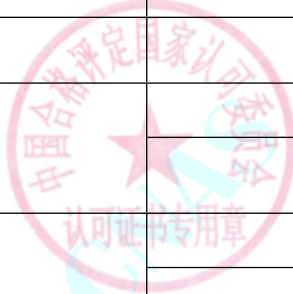
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
16	Digital Weighing Indicators (Weighing Indicators)	Number of Divisions	Verification Regulation of Digital Weighing Indicators (Weighing Indicators) JJG 649	n:100~10000	$U=0.5d\sim 1d$		
17	*Taking Blood Electronic Scale	Quality	Verification Regulation of Taking Blood Electronic Scale JJG 815	20g~40g	$U=0.12g\sim 0.14g$		
				40g~600g	$U=0.14g\sim 0.26g$		
				600g~1200g	$U=0.26g\sim 0.48g$		
				Dynamic:200g	$U_{rel}=0.1\%$		
				Dynamic:400g	$U_{rel}=0.1\%$		
18	*Steelyard Scales	Quality	Verification Regulation of Steelyard Scale JJG 17	20g~500g	$U=0.14g\sim 0.28g$		
19	Load Cell	mass	Verification Regulation of Load Cell JJG 669	10g~1kg	$U_{rel}=0.01\%$		
				1kg~1t	$U_{rel}=0.01\%$		
				(1~100) t	$U_{rel}=0.03\%$		
				(100~200)t	$U_{rel}=0.05\%$		
20	Interface Tensiometers	Force value	C. S. for Interface Tensiometers JJF 1464	(0.1~100)N	$U_{rel}=0.2\%$		
		Length		(0.1~25)mm	$U=(1+L/100) \mu m, (L: mm)$		
21	Standard Dynamometers	Force value	V. R. of Standard Dynamometers JJG 144	0.1N~10kN	$U_{rel}=0.01\%$		
				(10~3600)kN	$U_{rel}=0.03\%$		
22	Force Transducers	Force value	V. R. of Force Transducers JJG 391	0.1N~10kN	$U_{rel}=0.01\%$		
				(10~3000)kN	$U_{rel}=0.03\%$		



No. CNAS L0893

第 48 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(3~3.6)MN	$U_{rel}=0.05\%$		
23	Working Dynamometers	Force value	V. R. of Working Dynamometers JJG 455	0.1N~10kN	$U_{rel}=0.05\%$		
				(10~3000)kN	$U_{rel}=0.1\%$		
				(1~3.6)MN	$U_{rel}=0.05\%$		
24	*Deadweight and Lever Force Standard Machines	Force value	V. R. of Force Standard Machines JJG 734	10N~1MN	$U_{rel}=0.003\%$		
25	*Hydraulic- amplification Force Standard Machines	Force value	V. R. of Hydraulic- amplification Force Standard Machines JJG 1117	10N~1MN	$U_{rel}=0.01\%$		
				(1~3)MN	$U_{rel}=0.02\%$		
26	*Build-up Force Standard Machines	Force value	V. R. of Build-up Force Standard Machines JJG 1116	10N~1MN	$U_{rel}=0.01\%$		
				(1~3)MN	$U_{rel}=0.02\%$		
				(3~3.6)MN	$U_{rel}=0.2\%$		
				(3.6~10)MN	$U_{rel}=0.5\%$		
				(10~30)MN	$U_{rel}=0.5\%$		
27	Hydraulic Jacks	Force value	V. R. of Hydraulic Jacks JJG 621	10N~3.6MN	$U_{rel}=0.5\%$		
28	Measuring Instrumentations for Strain Gauge Transducer	Voltage ratio	C. S. for Measuring Instrumentations for Strain Gauge Transducer JJF 1469	(-100~-0.1) mV/V	$U_{rel}=0.001\%$		
				(0.1~100) mV/V	$U_{rel}=0.001\%$		
29	*Tension, Compres- sion and Universal Testing Machines	Force value	V. R. of Tension, Compression and Universal Testing Machines	0.1N~300kN	$U_{rel}=0.2\%$		
				(0.3~3)MN	$U_{rel}=0.2\%$		



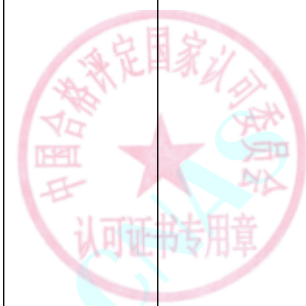
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No. CNAS L0893

第 49 页 共 191 页

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№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			JJG 139, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system ISO 7500-1, Standard Practices for Force Verification of Testing Machines ASTM E4, Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012, Standard Practices for Verification of Displacement Measuring Systems and Devices Used in Material Testing Machines ASTM E2309/E2309M, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system BS EN ISO 7500-1	(3~50) MN	$U_{rel}=0.3\%$		
		Coaxiality		0.1%~40%	$U=2\%$		
		Length		Extensometer: (0.1~25)mm Displacement: (1~500)mm	$U_{rel}=0.1\%$ $U=0.02\text{mm}$		



No. CNAS L0893

第 50 页 共 191 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
30	*Flexure Testing Machines	Force value	V. R. of Flexure Testing Machines JJG 476	0.1N~300kN	<i>U</i> _{rel} =0.2%		
		Afterforce Velocity		50N/s	<i>U</i> _{rel} =1%		
31	*Electronic Universal Testing Machine	Force value	V. R. of Electronic Universal Testing Machine JJG 475,Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system ISO 7500-1,Metallic materials — Calibration and verification	0.1N~300kN	<i>U</i> _{rel} =0.2%		
				(0.3~1)MN	<i>U</i> _{rel} =0.4%		
		Coaxality		0.1%~40%	<i>U</i> =2%		
		Length		Extensometer: (0.1~25)mm	<i>U</i> _{rel} =0.1%		
				Displacement: (1~500)mm	<i>U</i> =0.02mm		
		Speed		(0.05~500)mm/min	<i>U</i> _{rel} =0.2%		
Deformation	(0.1~1)mm, (Extensometer)	<i>U</i> =1μm					

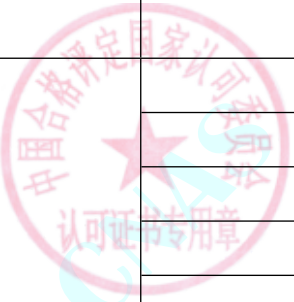


No. CNAS L0893

第 51 页 共 191 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
			of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system BS EN ISO 7500-1, Standard Practices for Force Verification of Testing Machines ASTM E4, Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012, Standard Practices for Verification of Displacement Measuring Systems and Devices Used in Material Testing Machines ASTM E2309/E2309M, Standard Practices for Verification of Speed for Material Testing Machines ASTM-E2658	(1~300)mm, (Extensometer)	$U_{rel}=0.1\%$		
32	*High-Temperature Creep and Stress-Rupture Testing Machines	Force value	V. R. of High-Temperature Creep and Stress-Rupture Testing Machines JJG 276, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of	0.1N~300kN	$U_{rel}=0.2\%$		
				(0.3~3)MN	$U_{rel}=0.4\%$		
		Coaxiality		0.1%~40%	$U=2\%$		
		Time		(0~86400)s	$U=0.1s$		
		Length		(0.1~25)mm	$U_{rel}=0.1\%$		



No. CNAS L0893

第 52 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Temperature	the applied force ISO 7500-2, Metallic materials -- Verification of static uniaxial testing machines -- Part 2: Tension creep testing machines -- Verification of the applied force DIN EN ISO 7500-2, Standard Practices for Force Verification of Testing Machines ASTM E4, Standard Practice for Verification of Testing Frame and Specimen Alignment Under Tensile and Compressive Axial Force Application ASTM E1012	(300~1100) °C	$U=1.0^{\circ}\text{C}$		
33	*Electro-hydraulic Servo Universal Testing Machines	Force value	V. R. of Electro-hydraulic Servo Universal Testing Machines JJG 1063	10N~300kN	$U_{\text{rel}}=0.2\%$		
		Coaxality		(0.3~3) MN	$U_{\text{rel}}=0.4\%$		
34	*Working Force Measuring Machines for Special Purposes	Force value	C. S. for Working Force Measuring Machines for Special Purposes JJF 1134	0.1%~40%	$U=2\%$		
				0.1N~300kN	$U_{\text{rel}}=0.2\%$		
35	*Pendulum Impact Testing Machines	Length	V. R. of Pendulum Impact Testing Machines JJG 145	(0.3~30)MN	$U_{\text{rel}}=0.3\%$		
		Energy		(0~800)mm, (Center distance)	$U=0.33\text{mm}$		
36	*Medical Centrifuge	Rotating velocity	Calibration Specification for Medical Centrifuges JJF2004	(0.1~300)J	$U_{\text{rel}}=0.33\%$		
		Temperature		(50~40000) r/min	$U_{\text{rel}}=0.2\%$		
				(-20~40)°C	$U=0.3^{\circ}\text{C}$		

No. CNAS L0893

第 53 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Time		(1~3600) s	$U_{rel}=0.1\%$		
37	*Metallic Rockwell Hardness Testing Machines	Hardness	Verification Regulation of Metallic Rockwell Hardness Testing Machines (Scales A, B, C, D, E, F, G, H, K, N, T) JJG 112	(20~88)HRA	$U=0.6HRA$		
				(20~100)HRBW	$U=0.6HRBW$		
				(20~70)HRC	$U=0.4HRC$		
				(12~93)HRT	$U=(1.0\sim1.5)HRT$		
				(20~91)HRN	$U=(1.0\sim1.5)HRN$		
		Angle		90° ~ 140°	$U=0.25^\circ$		
		Length		(0.2~10)mm	$U=1.2\mu m$		
38	Metallic Rockwell Hardness Reference Blocks	Hardness	Verification Regulation of Metallic Rockwell Hardness Reference Blocks (Scales A, B, C, D, E, F, G, H, K, N, T) JJG 113	(0.1~1.5)kN	$U_{rel}=0.3\%$		
				(20~88)HRA	$U=0.5HRA$		
				(20~100)HRBW	$U=0.5HRBW$		
				(20~70)HRC	$U=0.5HRC$		
				(89~91)HR15N	$U=0.64HR15N$		
				(74~80)HR30N	$U=0.64HR30N$		
				(42~54)HR30N	$U=0.75HR30N$		
				(32~61)HR45N	$U=0.80HR45N$		
				(88~93)HR15TW	$U=0.76HR15TW$		
				(70~82)HR30TW	$U=0.76HR30TW$		



No. CNAS L0893

第 54 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
39	Metallic Brinell Hardness Reference Blocks	Hardness	Verification Regulation of Metallic Brinell Hardness Reference Blocks JJG 147	(8~650)HBW(S)	$U_{rel}=0.8\%\sim 1.0\%$		
40	*Metallic Brinell Hardness Testers	Hardness	Verification Regulation of Metallic Brinell Hardness Testers JJG 150	(8~125) HB	$U_{rel}=1.3\%$		
				(125~225)HB	$U_{rel}=1.0\%$		
				(225~650)HB	$U_{rel}=0.9\%$		
41	Vickers Hardness Reference Blocks	Hardness	Verification Regulation of Vickers Hardness Reference Blocks JJG 148	(5~225)HV	$U_{rel}=2.1\%$		
				(225~400)HV	$U_{rel}=1.3\%$		
				(400~1000)HV	$U_{rel}=1.6\%$		
42	*Metallic Vickers Hardness Testers	Hardness	Verification Regulation of Metallic Vickers Hardness Testers JJG 151	(5~225)HV	$U_{rel}=2.7\%$		
				(225~400)HV	$U_{rel}=2.1\%$		
				(400~1000)HV	$U_{rel}=2.3\%$		
43	Epuotip Hardness Tester	Hardness	Verification Regulation of Epuotip Hardness Testers JJG 747	(465~847)HLD	$U=5HLD$		
				(465~847)HLD	$U=7HLD$		
				(448~645)HLG	$U=5HLG$		
				(448~645)HLG	$U=7HLG$		
44	ShoreHardness Reference Blocks	Hardness	Verification Regulation of Shore Hardness Reference Blocks JJG 347	(91~99)HSD	$U=1.1HSD$		
				(56~64)HSD	$U=0.9HSD$		
				(26~34)HSD	$U=0.8HSD$		



No. CNAS L0893

第 55 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
45	Shore Hardness testers	Hardness	Verification Regulation of Shore Hardness tester JJG 346	(26~99)HSD	$U=2.0\text{HSD}$		
46	Shore A Durometers	Force	Verification Regulation of Shore A Durometers JJG 304	(0~100)HA	$U=1.0\text{HA}$		
		Length		(0.76~0.82)mm	$U=0.1\text{mm}$		
		Angle		35°	$U=0.5^\circ$		
47	*Quantitative Filling Machine for Liquid State Material	Weight	Verification Regulation of Quantitative Filling Machine for Liquid Material JJG 687	Set the heavy type:(0~20)kg	$U=17\text{g}$		
48	Scale Online Comparator	Weight	Calibration Specification for Scale Online Comparator NIMTT (CM) 186	(1~35)kg	$U=0.08\text{g}\sim 0.32\text{g}$		
49	*Weighing System	Weight	Calibration Specification for Weighing System (Method of Scale Online Comparator) NIMTT (CM) 185	0.1kg~400t	$U=0.006\text{kg}\sim 0.12\text{t}$		
50	Electromagnetic Sensors of Rotational Speed	Rotational Speed	Calibration Specification for Electromagnetic Sensors of Rotational Speed JJF1871	(10~40000) r/min	$U=0.01\text{r/min}$		
IV Acoustics measuring instrument							
1	Standard Sound Source	Sound Power Level	V. R. of Reference Sound Sources JJG 277	(36~148)dB, (100~500) Hz	$U=1.0\text{dB}$		
				(36~148)dB, (500~2500) Hz	$U=0.5\text{dB}$		
				(36~148)dB, (2.5~10) kHz	$U=0.8\text{dB}$		



No. CNAS L0893

第 56 页 共 191 页

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

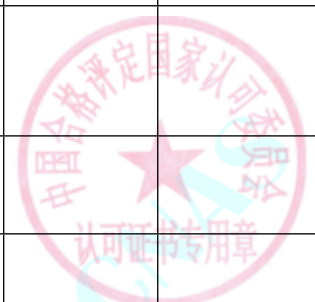
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
2	Sound Calibrators	SPL	V.R. of Sound Calibrators JJG 176	(30~130)dB, (31.5Hz~16kHz)	$U=0.50\text{dB}$		
				94dB, 1kHz	$U=0.12\text{dB}$		
				114dB, 1kHz	$U=0.15\text{dB}$		
				124dB, 250Hz	$U=0.10\text{dB}$		
		Frequency		20Hz~20kHz	$U_{\text{rel}}=0.01\%$		
		Total distortion+noise		0.05%~10%	$U_{\text{rel}}=10\%$		
3	Working Standard Microphones	Sound Pressure Level	V.R. of Working Standard Microphones(Electrostatic Actuator Method) JJG 175	Sound signal:124dB, 250Hz	$U=0.5\text{dB}$		
				Electrical signal: (60~160) dB, 10Hz~50kHz	$U=0.1\text{dB}$		
4	Working Standard Microphones	Sound Pressure Level	V.R. of Working Standard Microphones(Coupler Comparison Method) JJG 1019	Sound signal:(80~130)dB, 20Hz~20kHz	$U=0.2\text{dB}$		
				Electrical signal: (60~160) dB, 20Hz~20kHz	$U=0.1\text{dB}$		
5	Working Standard Microphones	Sound Pressure Level	V.R. of Working Standard Microphones(Free-field Comparison Method) JJG 1172	Sound signal: (80~130) dB, 20Hz~20kHz	$U=0.4\text{dB}$		
				Sound signal:(80~130) dB, 20kHz~40kHz	$U=2.0\text{dB}$		
				Electrical signal: (80~160) dB, 20Hz~20kHz	$U=0.1\text{dB}$		
6	Octave and Fraction Octave Band Filter	Attenuation Amount	V.R. of Octave-Band and Fractional-Octave-Band Filters JJG 449	(0~2)dB	$U=0.07\text{dB}$		
				(2~60)dB	$U=0.13\text{dB}$		



No. CNAS L0893

第 57 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Sound Pressure Levels		(1~120)dB	$U=0.1\text{dB}$		
7	Laboratory Standard Microphones	Sound Pressure Levels	V.R. of Laboratory Standard Microphones (Free-field Reciprocity Method) JJG 482	60dB~130dB, (1~25)kHz	$U=0.20\text{dB}$		
				60dB~130dB, (25~50)kHz	$U=0.50\text{dB}$		
8	Laboratory Standard Microphones	Sound Pressure Levels	V.R. of Laboratory Standard Microphones (Coupler Reciprocity Method) JJG 790	60dB~130dB, (10Hz~6.3kHz)	$U=0.05\text{dB}$		
				60dB~130dB, (6.3kHz~25kHz)	$U=0.12\text{dB}$		
9	Personal Sound Exposure Meters	Personal Sound Exposure Meters	V.R. of Personal Sound Exposure Meters JJG 980	(0.3~100)Pa ² h, (20~800)Hz	$U_{\text{rel}}=11\%$		
				(0.3~100)Pa ² h, (1~4)kHz	$U_{\text{rel}}=9\%$		
				(0.3~100)Pa ² h, (5~8)kHz	$U_{\text{rel}}=14\%$		
10	Measurement Instruments of Sound Intensity	Sound Intensity Level	V.R. of The Measurement Instruments of Sound Intensity JJG 992	30dB~130dB, 45Hz~7.1kHz	$U=0.5\text{dB}$		
11	*Anechoic Rooms and Hemi-anechoic Rooms	SPL	C. S. for Acoustic Performance of Anechoic Rooms and Hemi-anechoic Rooms JJF 1147	6.5dB~130dB, 20Hz~20kHz	$U=0.8\text{dB}$		
12	*Reverberation Rooms	Reverberation Time	C. S. for Acoustic Performance of Reverberation Rooms JJF 1143	0.05ms~30s	$U_{\text{rel}}=8.7\%$		
13	Sound Level meters	SPL	Verification Regulation of Sound Level Meters JJG 188	(40~120)dB, (10~200)Hz	$U=0.4\text{dB}$		



No. CNAS L0893

第 58 页 共 191 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
				(40~120)dB, (250 Hz~1.25kHz)	U=0.3dB		
				(40~120)dB, (1.6~10)kHz	U=0.5dB		
				(40~120)dB, (12.5 ~20)kHz	U=0.9dB		
				(120~160)dB, 100Hz	U=0.5dB		
				Signal:(10~160)dB,(10Hz~20kHz)	U=0.1dB		
				Burst signals:(60~160)dB, (0.25~1000)ms	U=0.2dB		
				F:(1~50)dB/s, 4kHz	U=3.0dB/s		
		Attenuation Rate		S:(1~50)dB/s, 4kHz	U=0.2dB/s		
14	Psophometers	Impedance	Calibration Specification for Calibration Specification for Psophometers JJF 1167	600 Ω	U=0.7 Ω		
				10k Ω	U=12 Ω		
				10M Ω	U=10k Ω		
		Level		(0~150)dB	U=0.05dB		
15	Noise Level Statistical Analyzers	Sound Pressure Level	Verification Regulation of Noise Level Statistical Analyzers JJG 778	(40~140)dB, (10~200)Hz	U=0.4dB		
				(40~140)dB, (250Hz~1.25kHz)	U=0.3dB		
				(40~140)dB, (1.6~10)kHz	U=0.5dB		
				(40~140)dB, (12.5 ~20)kHz	U=0.9dB		



No. CNAS L0893

第 59 页 共 191 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		
				Signal:(1~160)dB,(10Hz~20kHz)	<i>U</i> =0.1dB				
				Burst signals:(60~160)dB, (0.25~1000)ms	<i>U</i> =0.2dB				
		Attenuation Rate		F:(1~50)dB/s, 4kHz	<i>U</i> =3.0dB/s				
				S:(1~50)dB/s, 4kHz	<i>U</i> =0.2dB/s				
16	Audio-frequency Signal Generator	Sound Pressure Levels	Verification Regulation of Audio-frequency Signal Generator JJG 607	1~130dB, 20Hz~20kHz	<i>U</i> =0.1dB				
				1dB~130dB, (20~200)kHz	<i>U</i> =0.2dB				
		Voltage		1V,(10Hz~20kHz)	<i>U</i> _{rel} =0.8%				
		Frequency		10Hz~20kHz	<i>U</i> _{rel} =0.08%				
		Output Impedance		Voltage output impedance:(0.1 Ω ~100 Ω)	<i>U</i> _{rel} =0.3%				
				Power output impedance:8 Ω	<i>U</i> _{rel} =0.8%				
17	Electro-acoustical Measurement Instruments for Telephone Set	Sound Pressure Level	Verification Regulation of Electro-acoustical Measurement Instruments for Telephone Set JJG 869	Signal: (0.1~130)dB, (100Hz~8kHz)	<i>U</i> =0.2dB				
				Acoustic Signal:94.6dB, (100Hz~8kHz)	<i>U</i> =1.0dB				
		Distortion		0.05%~10%	<i>U</i> _{rel} =12%				
		Frequency		10Hz~20kHz	<i>U</i> _{rel} =0.3%				
		Level		102dB、109dB	<i>U</i> =0.15dB				
18	Measuring Level		Calibration Specification for	97dB, 1kHz	<i>U</i> =0.05dB				

No. CNAS L0893

第 60 页 共 191 页



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

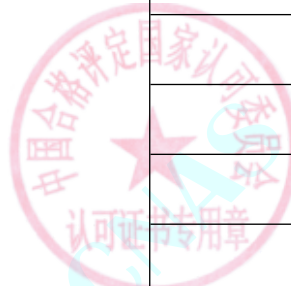
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	Amplifiers		Measuring Amplifiers JJF 1157	1dB~130dB, 10Hz~20kHz	$U=0.08\text{dB}$		
		Sound Pressure Level		1dB~130dB, 10Hz~20kHz	$U=0.08\text{dB}$		
				Burst signals:(60~160)dB, (0.25~1000)ms	$U=0.2\text{dB}$		
		Attenuation Rate		F:(1~50)dB/s, 4kHz	$U=3.0\text{dB/s}$		
		Harmonic distortion		S:(1~50)dB/s, 4kHz	$U=0.2\text{dB/s}$		
				0.03%~3%	$U_{\text{rel}}=12\%$		
19	Preamplifiers	Sound Pressure Level	Calibration Specification for Microphone Preamplifiers JJF 1137	120dB, 10Hz~50kHz	$U=0.09\text{dB}$		
20	Audio-frequency Power Amplifiers	Sound Pressure Level	Calibration Specification for Audio-frequency Power Amplifiers JJF 1200	(1~140)dB, 10Hz~20kHz	$U=0.05\text{dB}$		
		Distortion		0.05%~10%	$U_{\text{rel}}=10\%$		
21	Electrostatic Actuators	Sound Pressure Level	Calibration Specification for Electrostatic Actuators JJF 1293	WS1:1dB~130dB, 10Hz~20kHz	$U=0.06\text{dB}$		
				WS2:-60dB~20dB, 1dB~130dB, 10Hz~20kHz	$U=0.10\text{dB}$		
22	Tone Burst Generators	Duration	Verification Regulation of Tone Burst Generators JJG 199	0.1 ms~5 s	$U_{\text{rel}}=0.5\%$		
		Repeat Cycle		0.1 ms~5 s	$U_{\text{rel}}=0.5\%$		
		Frequency		10Hz~20kHz	$U_{\text{rel}}=0.3\%$		
		Attenuation Amount		1dB~130dB	$U=0.05\text{dB}$		



No. CNAS L0893

第 61 页 共 191 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
23	Sonic Belt Tension Meters	Frequency	Calibration Specification for Sonic Belt Tension Meters JJF 1216	(10~100)Hz	<i>U</i> =0.3Hz		
				(100~600)Hz	<i>U</i> =3.0Hz		
24	Measurement Instruments of Otoacoustic Emissions	SPL	Calibration Specification for	(30~90)dB	<i>U</i> =1.0dB		
		Frequency	Measurement Instruments of Otoacoustic Emissions JJF 1289	0.5kHz~8kHz	<i>U</i> _{rel} =0.01%		
		Distortion		0.05%~10%	<i>U</i> _{rel} =10%		
25	Instruments for the Measurement of Aural Acoustic Impedance/Admittance	Hearing Level	Verification Regulation of Audiometric Equipment—	-20dB~100dB, 250Hz~8kHz	<i>U</i> =0.9dB		
		SpoundPressureLevel	Instruments for the Measurement of Aural Acoustic Impedance/Admittance JJG 991	0dB~130dB, (226Hz、 678Hz、1000Hz)	<i>U</i> =0.8dB		
26	*Audiometry Rooms	SPL	Calibration Specification for Acoustic Performance of Audiometry Rooms JJF 1191	-2dB~90dB, 3.15Hz~ 20kHz	<i>U</i> =0.8dB		
27	Pure-tone Audiometer	Frequency	Verification Regulation of Audiological Equipment Pure-tone Audiometers JJG 388	(100~20000)Hz	<i>U</i> _{rel} =0.01%		
		Distortion		0.05%~10%	<i>U</i> _{rel} =10%		
		RETSPL		(-10~110)dB, (125~ 4000)Hz	<i>U</i> =1.0dB		
				(-10~110)dB, (6000~ 12500)Hz	<i>U</i> =1.5dB		
		RETFL		(-10~70)dB, (250~ 4000)Hz	<i>U</i> =1.5dB		
				(-10~70)dB, (6000~ 8000)Hz	<i>U</i> =2.0dB		



No. CNAS L0893

第 62 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
28	*Anechoic Watertank	Echoic interference value	Calibration Specification for Acoustic Characteristics of Anechoic Water Tank JJF 1146	(80~160)dB, (500Hz~200kHz)	$U=0.3\text{dB}$		
29	Standard Hydrophones in the Frequency Range 1 Hz to 2 kHz	Sound Pressure Levels	Verification Regulation of Standard Hydrophones in the Frequency Range 1 Hz to 2 kHz(Closed-chamber Comparison Method) JJG 340	(60~160)dB, 1Hz~2kHz	$U=0.9\text{dB}$		
30	Standard Hydrophones in the Frequency Range 0.5 MHz to 5 MHz	Sound Pressure Levels	Verification Regulation of Standard Hydrophones in the Frequency Range 1 Hz to 2 kHz(Closed-chamber Comparison Method)Standard Hydrophones in the Frequency Range 0.5 MHz to 5 MHz (Two-transducer Reciprocity Method) JJG 1070	(60~160)dB, 0.5MHz~5MHz	$U=1.1\text{dB}$		
31	Standard Hydrophones in the Frequency Range 1kHz to 1 MHz	Sound Pressure Levels	Verification Regulation of Standard Hydrophones in the Frequency Range 1kHz to 1 MHz JJG 1017	(60~160)dB, 1kHz~100kHz	$U=0.9\text{dB}$		
				(60~160)dB, 100kHz~1MHz	$U=1.1\text{dB}$		
32	Equipment of Ultrasonic Inspection Detectors	Frequency	C.R. for Equipment of Ultrasonic Inspection Detectors NIMTT(CM) 097	(0.02~1)MHz	$U_{\text{rel}}=1.2 \times 10^{-5}$		
				(1~30)MHz	$U_{\text{rel}}=3.4 \times 10^{-5}$		
				(0.1~10)dB	$U=0.03\text{dB}$		
		Attenuation		(10~60)dB	$U=0.06\text{dB}$		



No. CNAS L0893

第 63 页 共 191 页

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

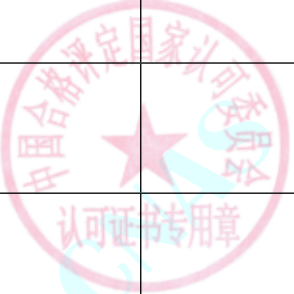
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date	
				(60~120)dB	<i>U</i> =0.10dB			
		Voltage		(0.1~10)V	<i>U</i> _{rel} =0.3%			
		THD		0.05%~10%	<i>U</i> _{rel} =10%			
33	Acoustic Detector	Time of transmitted sound	Verification Regulation of Acoustic Detector JJG 990	Electrical signal: 0.1 μs~100s	<i>U</i> _{rel} =0.2%			
				Acoustic signal: 0.1 μs~100s	<i>U</i> _{rel} =0.3%			
34	Ultrasonic Standard Test Tube	Length	C.R. for Ultrasonic Standard Test Tube NIMTT (CM) 041	(1~400)mm	<i>U</i> =(1.5+ <i>L</i>) μm, <i>L</i> :m			
35	Air Ultrasound Measuring Instruments	Frequency	Calibration Specification for Air Ultrasound Measuring Instruments JJF 1504	100Hz~50kHz	<i>U</i> _{rel} =5%			
36	Acoustic Emission Instrumentation	Sound pressure level	Calibration Specification for Acoustic Emission Instrumentation JJF 1505	(0~60)dB	<i>U</i> =0.4dB			
		frequency		10Hz~100MHz	<i>U</i> _{rel} =5%			
37	Environmental Noise Automatic Monitors	SPL	Verification Regulation of Environmental Noise Automatic Monitors JJG 1095	(0~120)dB, 31.5Hz~2kHz	<i>U</i> =0.5dB			
				(0~120)dB, (2k~16k)Hz	<i>U</i> =0.9dB			
				Level Linearity: (1~160)dB, 31.5Hz~2kHz	<i>U</i> =0.1dB			
		Attenuation Rate		F: (1~50)dB/s	<i>U</i> =3.0dB/s			
				S: (1~50)dB/s	<i>U</i> =0.3dB/s			
		Burst Response		(60~120)dB	<i>U</i> =0.2dB			



No. CNAS L0893

第 64 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
38	Multi-Channels Sound Analyzers	SPL	Calibration Specification for Multi-Channels Sound Analyzers JJF 1288	(1~160)dB, (10Hz~ 20kHz)	$U=0.1\text{dB}$		
		Attenuation Rate		F:(1~50)dB/s	$U=3.0\text{dB/s}$		
		Frequency		S:(1~50)dB/s	$U=0.3\text{dB/s}$		
				10Hz~20kHz	$U_{\text{rel}}=0.05\%$		
39	High Sound Pressure Measuring Microphones	Sound Pressure Level	Calibration Specification of the Upper Limit of Dynamic Range of High Sound Pressure Measuring Microphones JJF 1738	(1~171)dB	$U=0.2\text{dB}$		
		Total harmonic distortion		0.05%~10%	$U_{\text{rel}}=10\%$		
40	Impact Elastic Wave Measurement Apparatus	Acoustic time	Calibration Specification for Impact Elastic Wave Measurement Apparatus JJF 1969	Electrical signal: 0.1 μ s~100s	$U_{\text{rel}}=0.2\%$		
				Acoustic signal: 0.1 μ s~ 100s	$U_{\text{rel}}=0.3\%$		
		Frequency Response:		0dB~100dB, 100Hz~ 50kHz	$U=0.2\text{dB}$		
		Voltage		0.1V~10V	$U_{\text{rel}}=0.3\%$		
		Host channel isolation		10dB~100dB	$U=0.2\text{dB}$		
41	Ultrasonic Flaw Detectors by Time- of-Flight Diffraction	Receiver bandwidth	Calibration Specification for Ultrasonic Flaw Detectors by Time-of-Flight Diffraction JJF 1447	100kHz~1MHz	$U_{\text{rel}}=2.5\%$		
42	Acoustic Emission Sensors	Amplitude	Calibration Specification for Acoustic Emission Sensors(Comparative Method) JJF 1337	(10~120)dB, 100kHz~ 1MHz	$U=3.1\text{ dB}$		



No. CNAS L0893

第 65 页 共 191 页

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

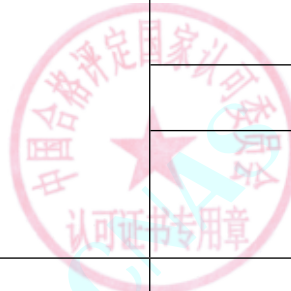
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
43	Ultrasonic Flaw Detector for Rail	attenuator	Calibration Specification for Ultrasonic Flaw Detector for Rail JJG (TZ) 014	40dB	$U=0.5\text{dB}$		
44	*Ultrasonic Flaw Detectors	Linearity of time base	V.R. for Ultrasonic Flaw Detectors JJG 746, Non- destructive testing — Characterization and verification of ultrasonic test equipment—Part 1: Instruments BS EN ISO22232-1	1%~100%	$U_{\text{rel}}=0.4\%$		
		Linearity of vertical display		5%~100%	$U_{\text{rel}}=1.4\%$		
		Gain		(0~101)dB	$U=0.2\text{dB}$		
		Frequency		(0.1~30)MHz	$U_{\text{rel}}=1.8\%$		
		pulse duration		(0.1~1000)ns	$U_{\text{rel}}=2.0\%$		
		Pulse voltage		(0.1~1000)V	$U_{\text{rel}}=1.4\%$		
		Pulse Repetition Frequency		(0.1~2000)Hz	$U_{\text{rel}}=0.6\%$		
		Crosstalk damping during transmission		(0~100)dB	$U=0.2\text{dB}$		
		Equivalent input noise		$(1 \times 10^{-11} \sim 1 \times 10^{-5})\text{V/Hz}^{1/2}$	$U_{\text{rel}}=2.6\%$		
45	*Ultrasonic Phased Array Flaw Detectors	length	Calibration Specification for Ultrasonic Phased Array Flaw Detectors JJF 1338	(0.1~55)mm	$U_{\text{rel}}=2.0\%$		
		angle		$0.1^\circ \sim 90^\circ$	$U_{\text{rel}}=2.0\%$		
46	Transducers of Ultrasonic flaw detector	frequency	Calibration Specification for Transducers of Ultrasonic flaw detector JJF 1294	(0.5~15)MHz	$U_{\text{rel}}=2.3\%$		
		Sound Pressure Level		(1~100)dB	$U=1.0\text{dB}$		



No. CNAS L0893

第 66 页 共 191 页

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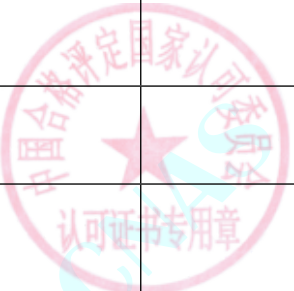
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Length		(0.1~50)mm	<i>U</i> _{rel} =2.1%		
		angle		35° ~85°	<i>U</i> _{rel} =3.6%		
47	Ultrasonic Power Meter for Mill watt Level	power	Verification Regulation of Ultrasonic Power Meter for Milliwatt Level JJG665	(1~5)mW	<i>U</i> _{rel} =7%		
				(5~100)mW	<i>U</i> _{rel} =5.8%		
				(100~150)mW	<i>U</i> _{rel} =10%		
48	Ultrasound Phantoms	Sound velocity	Calibration Specification for Ultrasound Phantoms JJF 1556	(1000~3000)m/s	<i>U</i> _{rel} =0.3%		
		Attenuation factor:		(0.1~80)dB/cm	<i>U</i> _{rel} =6%		
49	*Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment	Ultrasonic Power	V.R. of Ultrasonic Source for Medical Ultrasonic Diagnostic Equipment JJG 639	(3~98)mW	<i>U</i> _{rel} =15%		
50	*Calibration Specification for Sound Insulation Measuring Rooms	Sound Pressure Level	Calibration Specification for Sound Insulation Measuring Rooms JJF 1798	7dB~140dB	<i>U</i> =1.7 dB		
51	*ultrasonic flaw detector	Horizontal linearity	Standard Practice for Evaluating Performance	1%~100%	<i>U</i> _{rel} =0.4%		
		Vertical linearity	Characteristics of Ultrasonic Pulse-Echo Testing	1%~100%	<i>U</i> _{rel} =1.4%		
		Gain	Instruments and Systems without the Use of Electronic Measurement Instruments ASTM E317	(0~101)dB	<i>U</i> =0.2dB		
V Electromagnetism measuring instrument							



No. CNAS L0893

第 67 页 共 191 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	Withstanding Voltage Tester	AC Voltage	Withstanding Voltage Tester JJG795	(0.1~15)kV	$U_{rel}=0.05\%$		
		DC Voltage		(0.1~15)kV	$U_{rel}=0.1\%$		
		current		0.1mA~2A	$U_{rel}=0.1\%$		
		Time		1s~999s	$U_{rel}=1.0\%$		
2	Digital high-Voltage meter	AC Voltage	Digital high-voltage meter verification regulation JJG(J1)101	(0.1~300)kV, 50Hz	$U_{rel}=0.05\%$		
		DC Voltage		(0.1~300)kV	$U_{rel}=0.1\%$		
3	High Voltage Divider at Power Frequency	Voltage	Verification Regulation of High Voltage Divider at Power Frequency JJG496	(1~300)kV, 50Hz	$U_{rel}=0.05\%$		
4	DC High Voltage Dividers	Voltage	DC High Voltage Dividers JJG1007	(1~300)kV	$U_{rel}=0.1\%$		
5	high-voltage prob	DC Voltage	C.S. of high-voltage prob NIMTT(CM) 020	(1~100)kV	$U_{rel}=0.1\%$		
		AC Voltage		(1~100)kV, 50Hz	$U_{rel}=0.05\%$		
		Spike Voltage		(1~15)kV	$U_{rel}=2.0\%$		
6	Industrial frequency, dc spark machine	voltage	verification procedure for test equipment of rubber plastic wire and cable-part 10: spark tester JB/T 4278.10	(1~50)kV	$U_{rel}=0.5\%$		
7	Contactless electrostatic voltmeter	voltage	Contactless electrostatic voltmeter calibration specifications JJF 1517	(0.1~20)kV	$U_{rel}=0.1\%$		
8	Voltage Transformers of Measuring Service	Difference value	V.R. of Voltage Transformers of Measuring Service JJG 314	20%Un: (100/√3 ~ 500000/√3) / (100~100/√3)V	$U=2.4 \times 10^{-5}$		



No. CNAS L0893

第 68 页 共 191 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-M	50%Un:(100/√3~500000/√3)/(100~100/√3)V	U=1.8×10 ⁻⁵			
				80%~120%Un:(100/√3~500000/√3)/(100~100/√3)V	U=1.2×10 ⁻⁵			
		Phase difference		20%Un:(0~0.29)rad	U=2.4×10 ⁻⁵ rad			
				50%Un:(0~0.29)rad	U=1.8×10 ⁻⁵ rad			
				80%~120%Un:(0~0.29)rad	U=1.2×10 ⁻⁵ rad			
9	*Instrument Transformers in Power System (Three-phase Combined Instrument Transformers)	Difference value	V. R. of Instrument Transformers in Power System JJG1021	(80~120) %Un:(100/√3~500000/√3)/(100~100/√3)V	U=0.01%			
		Phase difference		(80~120) %Un:(0~999.9)'	U=0.8'			
		Difference value		1%In:(0.1~10000)/(1、5)A	U=0.02%			
				5%In:(0.1~10000)/(1、5)A	U=0.01%			
				20%~120%In:(0.1~10000)/(1、5)A	U=0.01%			
		Phase difference		1%In:(0~999.9)'	U=1.2'			
				5%In:(0~999.9)'	U=1.0'			
				20%~120%In:(0~999.9)'	U=0.8'			
10	Inductive Voltage Divider	Difference value	V.R of Inductive Voltage Divider JJG 244	(10~1000) / (10~200) V	U=1.2×10 ⁻⁵			

No. CNAS L0893

第 69 页 共 191 页



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

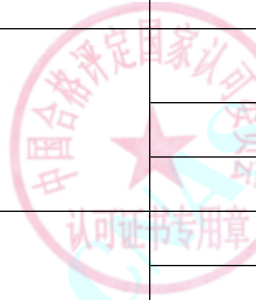
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Phase difference		(0~0.29)rad	$U=1.2\times 10^{-5}$ rad		
11	Residual Current Operated Protective Decice Operated Characteristic Tester	AC Current	Calibtation Specification for Residual Current Operated Protective Device Operated Chataceristic Tester JJF1283	(3~1500)mA, (40~65)Hz	$U_{rel}=0.05\%$		
		Time		(20~5000)ms	$U=0.10$ ms		
12	Leakage current tester	Voltage	V.R. of Leakage current tester JJG843	1V~600V	$U_{rel}=0.2\%$		
		Current		10 μ A~10A	$U_{rel}=0.3\%$		
		Input resistance(DC)		100 Ω ~3000 Ω	$U_{rel}=0.12\%$		
		Input impedance		100 Ω ~3000 Ω ,10Hz~1MHz	$U_{rel}=0.4\% \sim 0.7\%$		
		Transmission characteristics		10 μ A~20mA,(10Hz~1kHz)	$U_{rel}=0.3\%$		
				10 μ A~20mA,(1kHz~1MHz)	$U_{rel}=0.6\%$		
13	*Current Transformers of MeasUring Service	Difference value	V.R. of Current Transformers of MeasUring Service JJG 313	1%In:(0.1~10000)/(1、5)A	$U=5\times 10^{-6}$		
				5%In:(0.1~10000)/(1、5)A	$U=4\times 10^{-6}$		
				20%~120%In:(0.1~10000)/(1、5)A	$U=3\times 10^{-6}$		
		Phase difference		1%In:(0~0.29)rad	$U=5\times 10^{-6}$ rad		
				5%In:(0~0.29)rad	$U=4\times 10^{-6}$ rad		



No. CNAS L0893

第 70 页 共 191 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	
				20%~120%In:(0~0.29)rad	<i>U</i> =3×10 ⁻⁶ rad			
14	DC Electronic Loads	DC Voltage	Calibration Specification for DC Electronic Loads JJF1462	(1~240)V	<i>U</i> _{rel} =0.01%			
		DC Current		(0.1~240)A	<i>U</i> _{rel} =0.02%			
		DC Power		1W~12kW	<i>U</i> _{rel} =0.02%			
15	lightning element tester	DC Voltage	Lightning Protection Component Testers JJF 2177	Initial operating voltage: 5V~2000V	<i>U</i> _{rel} =0.2%			
				DC breakdown voltage: 75V~2000V	<i>U</i> _{rel} =0.2%			
		DC Current		Constant current:1mA	<i>U</i> _{rel} =0.2%			
				DC leakage current: 1 μA ~20 μA	<i>U</i> _{rel} =0.01%			
16	Galvanometer	Current	Verification Regulation of DC Magnetoelectric Galvanometers JJG495	10 ⁻⁴ A~10 ⁻⁷ A	<i>U</i> _{rel} =0.1%,			
				10 ⁻⁷ A~10 ⁻⁸ A	<i>U</i> _{rel} = (0.1%~0.5%)			
				10 ⁻⁸ A~10 ⁻¹⁰ A	<i>U</i> _{rel} = (0.5%~2%)			
				10 ⁻¹⁰ A~10 ⁻¹² A	<i>U</i> _{rel} = (2%~5%)			
17	DC Resistors	Resistances	Verification Regulation of DC Standard Resistors JJG 166	Working standard:(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =(0.25~1)×10 ⁻⁶			
				Grade 1:(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =(0.5~3)×10 ⁻⁶			
				Grade 2:(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =3×10 ⁻⁵			
18	DC Bridges for MeasUring TemperatUre	Resistances	Verification Regulation of DC Bridges for MeasUring TemperatUre JJG484	(10 ⁻² ~10 ⁻¹) Ω	<i>U</i> _{rel} =1×10 ⁻³			
				(10 ⁻¹ ~1) Ω	<i>U</i> _{rel} =1×10 ⁻⁴			



No. CNAS L0893

第 71 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				$(1 \sim 10^4) \Omega$	$U_{\text{rel}}=1 \times 10^{-5}$		
19	DC Low Resistance Meters	Resistances	Verification Regulation of DC Low Resistance Meters JJG837	$(10^{-6} \sim 10^{-4}) \Omega$	$U_{\text{rel}}=1 \times 10^{-3}$		
				$(10^{-4} \sim 10^{-1}) \Omega$	$U_{\text{rel}}=5 \times 10^{-4}$		
				$(10^{-1} \sim 10^5) \Omega$	$U_{\text{rel}}=5 \times 10^{-5}$		
20	Loop Resistance Tester and DC Resistance Meters	Resistances	Verification Regulation of Loop Resistance Tester and DC Resistance Meters JJG1052	$(10^{-6} \sim 10^{-4}) \Omega$	$U_{\text{rel}}=1 \times 10^{-3}$		
				$(10^{-4} \sim 10^{-1}) \Omega$	$U_{\text{rel}}=5 \times 10^{-4}$		
				$(10^{-1} \sim 10^5) \Omega$	$U_{\text{rel}}=5 \times 10^{-5}$		
21	DC Bridge	Resistances	Verification Regulation of DC Bridge JJG125	$(10^{-4} \sim 1) \Omega$	$U_{\text{rel}}=1 \times 10^{-3}$		
				$(1 \sim 10) \Omega$	$U_{\text{rel}}=1 \times 10^{-4}$		
				$(10 \sim 10^7) \Omega$	$U_{\text{rel}}=1 \times 10^{-5}$		
22	DC Comparison Bridge	Resistances	Verification Regulation of DC Comparison Bridge JJG546	$(10^{-2} \sim 1) \Omega$	$U_{\text{rel}}=1 \times 10^{-3}$		
				$(1 \sim 10^4) \Omega$	$U_{\text{rel}}=1 \times 10^{-5}$		
23	DC Shunts	Resistances	Verification Regulation of DC Shunts JJG1069	$(10^{-6} \sim 1) \Omega$, Rate Current: $(5 \sim 10000) \text{ A}$	$U_{\text{rel}}=5 \times 10^{-5}$		
24	Earth Resistance Meter	Resistance	Verification Regulation of Earth Resistance Meters JJG366	$0.01 \Omega \sim 10 \Omega$	$U_{\text{rel}}= (0.5\% \sim 1\%)$		
				$10 \Omega \sim 2000 \Omega$	$U_{\text{rel}}= (0.5\% \sim 5\%)$		
25	Clamp Earth Resistance Meters	Resistance	Verification Regulation of Clamp Earth Resistance Meters JJG1054	$0.01 \Omega \sim 10 \Omega$	$U_{\text{rel}}= (0.5\% \sim 1\%)$		
				$10 \Omega \sim 2000 \Omega$	$U_{\text{rel}}= (0.5\% \sim 5\%)$		
26	Industry Frequency Single-Phase Phase Meter	Mutually Phase	Verification Regulation of Industry Frequency Single-Phase Phase Meter JJG440	$0^\circ \sim 360^\circ$	$U=0.05^\circ$		



No. CNAS L0893

第 72 页 共 191 页

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

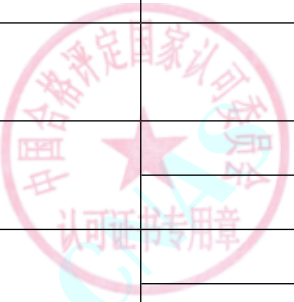
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date			
27	Low-frequency Phase Meters	Mutually Phase	Calibration Specification for Low-frequency Phase Meters JJF1756	0° ~ 360° , (45~65)Hz	<i>U</i> =0.005°					
28	Instrument Transformer Test Set	Ratio variant	Verification Regulation of Instrument Transformer Test Set JJG 169	1×10 ⁻⁹ ~1.111×10 ⁻²	<i>U</i> _{rel} =0.4%~0.2%					
		Angular Difference		(1×10 ⁻⁵ ~1111)	<i>U</i> _{rel} =0.4%~0.2%					
29	Burden Box of Instrument Transformers	Impedance	Calibration Specification for Burden Box of Instrument Transformers JJF1264	(10 ⁻³ ~111.1) Ω	<i>U</i> _{rel} =0.8%~0.4%					
		Admittance		(10 ⁻⁸ ~0.1111)S	<i>U</i> _{rel} =0.4%					
30	Transformer volt ampere characteristic ratio tester	Current Transformation Ratio	Calibration Specification for Volt-ampere characteristic and polarity Measuring Instrument NIMTT(CM) 048	0.1/5A~10000/5A	<i>U</i> _{rel} =0.01%					
		Voltage Transformation Ratio		(100/100V~10000/100V)	<i>U</i> _{rel} =0.01%					
				10000/100V ~35/0.1kV	<i>U</i> _{rel} =0.01%~0.05%					
				Current	(0.1~50)A					<i>U</i> _{rel} =0.5%~0.2%
		(50~100)A			<i>U</i> _{rel} =0.2%~0.1%					
		(100~1000)A			<i>U</i> _{rel} =0.1%					
		(1000~10000)A			<i>U</i> _{rel} =0.1%~0.5%					
		Voltage		(0.1~50)V	<i>U</i> _{rel} =0.5%~0.1%					
				50V~35kV	<i>U</i> _{rel} =0.1%					
		resistant		(0.01~1000) Ω	<i>U</i> _{rel} =0.1%					
load	(0.01~80) VA	<i>U</i> _{rel} =0.1%								



No. CNAS L0893

第 73 页 共 191 页

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

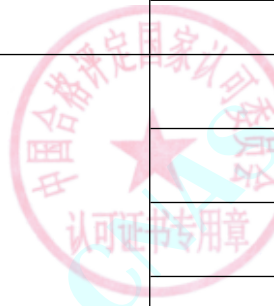
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
31	Magnetic field coil	Coils constant	Calibration Specification for Magnetic Field Coil NIMTT(CM) 003	$(1 \times 10^{-4} \sim 2 \times 10^{-2}) \text{ T/A}$	$U_{\text{rel}}=0.02\%$		
32	Power amplifier	Gain	calibration specification for RF and microwave power amplifier JJF1678	$(0 \sim 80) \text{ dB}$, $(9 \text{ kHz} \sim 18 \text{ GHz})$	$U=0.49 \text{ dB}$		
		1dB compression point output power		$(0 \sim 63) \text{ dBm}$, $(9 \text{ kHz} \sim 18 \text{ GHz})$	$U=0.49 \text{ dB}$		
		harmonic distortion		$(-60 \sim 0) \text{ dBc}$, $(9 \text{ kHz} \sim 18 \text{ GHz})$	$U=0.49 \text{ dB}$		
33	Magnetometer	Magnetic induction intensity	Calibration Specification for $(1 \text{ mT} \sim 2.5 \text{ T})$ Magnetometers JJF 1832	$(1 \sim 43) \text{ mT}$	$U_{\text{rel}}=0.1\%$		
				$(43 \sim 2000) \text{ mT}$	$U_{\text{rel}}=0.02\%$		
34	Fluxmeter	Magnetic flux	Calibration Specification for Magnetic Flux Meters JJF 1905	$(0.1 \sim 1) \text{ mWb}$	$U=0.002 \text{ mWb}$		
				$1 \text{ mWb} \sim 10 \text{ Wb}$	$U_{\text{rel}}=0.1\%$		
35	Alternating magnetic intensity meter	Magnetic induction intensity	Verification regulation of Alternating Tesla-Meter for Weak Magnetic Field JJG 1049	$(1 \sim 1000) \mu \text{ T}$	$U=(0.12 \sim 5) \mu \text{ T}$		
36	Magnetometers Based Magnetic Force	Magnetic induction intensity	Calibration Specification for Magnetometers Based Magnetic Force JJF 1656	$(0.05 \sim 10) \text{ mT}$	$U_{\text{rel}}=1.3\%$		
37	DC Potentiometer	voltage	Verification Regulation of DC Potentiometer JJG 123	$0.01 \mu \text{ V} \sim 10 \text{ mV}$	$U=0.01 \mu \text{ V}$		
				$10 \text{ mV} \sim 2.111111 \text{ V}$	$U_{\text{rel}}=1 \times 10^{-5}$		
38	DC Comparison Potentiometer	voltage	Verification Regulation of DC Comparison Potentiometer JJG 505	$0.01 \mu \text{ V} \sim 10 \text{ mV}$	$U=0.01 \mu \text{ V}$		
				$10 \text{ mV} \sim 2.111111 \text{ V}$	$U_{\text{rel}}=1 \times 10^{-6}$		



No. CNAS L0893

第 74 页 共 191 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
39	DC Current Comparator Bridge	Resistances	Verification Regulation of DC Current Comparator Bridge JJG 506	(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =(0.5~1)×10 ⁻⁶		
		ratio		0.95~1.05	<i>U</i> _{rel} =5×10 ⁻⁸		
				0.01~0.95	<i>U</i> _{rel} =1×10 ⁻⁷		
				1.05~100	<i>U</i> _{rel} =1×10 ⁻⁷		
40	DC Comparator Bridge for measuring temperatures	Resistances	Calibration specification for DC Comparator Bridge for measuring temperatures JJF 1444	(10 ⁻³ ~10 ⁵) Ω	<i>U</i> _{rel} =(0.5~1)×10 ⁻⁶		
		ratio		0.95~1.05	<i>U</i> _{rel} =5×10 ⁻⁸		
				0.01~0.95	<i>U</i> _{rel} =1×10 ⁻⁷		
				1.05~100	<i>U</i> _{rel} =1×10 ⁻⁷		
41	Electromechanical watt hour meters	Alternating-current Electrical Energy	V.R. of Electromechanical Meters for Measuring Alternating-current Electrical Energy JJG 307	57.7V~380V,25mA~100A	<i>U</i> _{rel} =0.2%		
42	*Electrical energy meters	Alternating-current Electrical Energy	V.R. of Electrical Meters for Measuring Alternating-current Electrical Energy JJG 596	57.7V~380V,1mA~100A	<i>U</i> _{rel} =4×10 ⁻⁴		
		time		(-99.99 ~99.99) s/d	<i>U</i> =0.06s/d		
43	Reference meters for electrical energy	Alternating-current Electrical Energy	V.R. of Reference Meters for Electrical Energy JJG 1085	3P4W active0.05A~100A,57.7V~380V	<i>U</i> _{rel} =8×10 ⁻⁵		
				3P3W active0.05A~100A,57.7V~380V	<i>U</i> _{rel} =1×10 ⁻⁴		
				3P4W reactive0.05A~100A,57.7V~380V	<i>U</i> _{rel} =1.3×10 ⁻⁴		
				3P4W active0.01A~0.05A,57.7V~380V	<i>U</i> _{rel} =1.3×10 ⁻⁴		



No. CNAS L0893

第 75 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				3P3W active 0.01A~0.05A, 57.7V~380V	$U_{rel}=1.6 \times 10^{-4}$		
				3P4W active 0.001A~0.01A, 57.7V~380V	$U_{rel}=2.5 \times 10^{-4}$		
44	*verification equipment for AC electrical energy meters	Alternating-current Electrical Energy	V.R. Verification Equipment for AC Electrical Energy Meters JJG 597	0.1A~100A, 57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
		voltage		0.001A~0.1A, 57.7V~380V	$U_{rel}=3 \times 10^{-4}$		
		current		57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
		power		0.1A~100A	$U_{rel}=1.2 \times 10^{-4}$		
		phase		0.001A~0.1A	$U_{rel}=3 \times 10^{-4}$		
		frequency		0.1A~100A, 57.7V~380V	$U_{rel}=1.2 \times 10^{-4}$		
				0.001A~0.1A, 57.7V~380V	$U_{rel}=3 \times 10^{-4}$		
				0° ~360°	$U=0.01^\circ$		
45	*DC Digital Wattmeter	DC Power	Calibration method of DC digital power meter NIMTT(CM) 076	0.1V~600V, 10 μ A~400A	$U_{rel}=0.02\%$		
46	*Testers for Relaying Protection	DC Voltage	V.R. of Testers for Relaying Protection JJG 1112	10mV~1000V	$U_{rel}=0.002\%$		
		DC Current		1mA~100A	$U_{rel}=0.02\%$		
		AC Voltage		10mV~750V, 50Hz~1kHz	$U_{rel}=0.02\%$		
		AC Current		1mA~100A, 50Hz~1kHz	$U_{rel}=0.02\%$		



No. CNAS L0893

第 76 页 共 191 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
		Mutually Phase		(0~360)°	$U=0.006^\circ$		
		Time		1ms~999s	$U=0.02\text{ms}\sim 3.9\text{ms}$		
		Frequency		10Hz~1kHz	$U_{\text{rel}}=0.001\%$		
47	*Harmonious and Flicker Analysis System	Voltage	Calibration Specification for Harmonious and Flicker Analysis System JJF 1205	(110~240)V, 45Hz~65Hz	$U_{\text{rel}}=0.01\%$		
		Current		(0.05~16)A, 45Hz~65Hz	$U_{\text{rel}}=0.01\%$		
		Power		220V, 2.5A, (45Hz~65Hz)	$U_{\text{rel}}=0.02\%$		
		Frequency		16Hz~850Hz	$U_{\text{rel}}=0.001\%$		
		Phase		(0~360)°	$U=0.003^\circ$		
		Harmonic Voltage		(110~240)V, (2~40)Times	$U_{\text{rel}}=0.01\%\sim 0.02\%$		
		Harmonic Current		(0.05~16)A, (2~40)Times	$U_{\text{rel}}=0.01\%\sim 0.02\%$		
		Flicker		(0.40~13.62)%	$U_{\text{rel}}=0.06\%$		
48	Transformer with load tap changer	Time	Calibration method of transformer with load tap changer NIMTT(CM) 078	(0.01~2000)ms	$U=0.02\text{ms}$		
		Resistance		(0.1~100)Ω	$U=0.10\Omega$		
49	Electrical Quantities Transducer	AC Current	Verification regulation of Power Frequency A.C.Electrical Quantities Measuring Transducers JJG 126	(0.1~100)A, 50Hz	$U_{\text{rel}}=0.02\%$		
		AC Voltage		10mV~1000V, 45Hz~65Hz	$U_{\text{rel}}=0.01\%$		
		AC Power		$3\times(30\sim 600)\text{V}, (0.005\sim 20)\text{A}, 50\text{Hz}$	$U_{\text{rel}}=0.02\%$		
		Frequency		10Hz~10kHz	$U_{\text{rel}}=0.01\%$		



No. CNAS L0893

第 77 页 共 191 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
50	*DC Stabilized Power Supplies	DC Voltage	Calibration Specification for DC Stabilized Power Supplies JJF 1597	(0.01～1000)V	<i>U</i> _{rel} =0.002%		
		DC Current		(0.01～480)A	<i>U</i> _{rel} =0.005%		
		Regulated output cycles and random deviations		10mV～10V, (40Hz～100kHz)	<i>U</i> _{rel} =0.01%		
51	*Battery charging and discharging tester	DC Voltage	Calibration Specification for Battery Charging & Discharge Testers JJF 2039	(1～1000)V	<i>U</i> _{rel} =0.01%		
		DC Current		(0.01～1000)A	<i>U</i> _{rel} =0.01%		
		Resistance		0.1 Ω ～100k Ω	<i>U</i> _{rel} =0.02%		
		DC Power		1mW～30kW	<i>U</i> _{rel} =0.01%		
		Capacity		1mAh～1000Ah	<i>U</i> _{rel} =0.1%		
		Time		Discharge time: 1min～24h	<i>U</i> _{rel} =0.05%～1%		
				Rise time: 100 μ s～100ms	<i>U</i> _{rel} =0.05%～1%		
52	*Digital AC Electrical Parameters Meter	AC Voltage	Calibration Specification for Digital AC Electrical Parameters Meter JJF 1491	1V～1000V, (40Hz～1kHz)	<i>U</i> _{rel} =0.01%		
		AC Current		10mA～40A,(40～65)Hz	<i>U</i> _{rel} =0.01%		
		AC Power		3V～600V,0.005A～40A,(40～65)Hz	<i>U</i> _{rel} =0.01%		
		Frequency		40Hz～1kHz	<i>U</i> _{rel} =1×10 ⁻⁵		
		Phase		0° ～360°	<i>U</i> =0.005°		
53	Process Calibrators	DC Voltage	Calibration Specification for Process Calibrators JJF 1472	output: 0.01 V～100V	<i>U</i> _{rel} =0.001%		



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No. CNAS L0893

第 78 页 共 191 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 ACCREDITATION CERTIFICATE	measure: 0.01V~300V	$U_{rel}=0.001\%$		
		AC Voltage		0.01V~1000V, (40Hz~10kHz)	$U_{rel}=0.01\%$		
		DC Current		measure: 10 μ A ~ 100mA	$U_{rel}=0.01\%$		
				output: 10 μ A ~ 100mA	$U_{rel}=0.01\%$		
		AC Current		0.1mA~200mA,(40~5000)Hz	$U_{rel}=0.01\%$		
				0.2A~10A,65Hz~5kHz	$U_{rel}=0.05\%$		
		Frequency		measure:1Hz~500kHz	$U_{rel}=1 \times 10^{-5}$		
				output:1Hz~50kHz	$U_{rel}=1 \times 10^{-5}$		
		Resistance		measure: 1 Ω ~ 100k Ω	$U_{rel}=0.01\% \sim 0.002\%$		
				output: : 1 Ω ~ 10k Ω	$U_{rel}=0.01\% \sim 0.002\%$		
54	Dc high voltage(source) generator	voltage	C.S. for DC high voltagesource, dc high voltage generatorcalibration specifications NIMTT(CM) 054	(1~300)kV	$U_{rel}=0.2\%$		
		current		10 μ A ~ 1A	$U_{rel}=0.1\%$		
55	*Lightning impulse voltage test system.	voltage	calibration specification of impulse voltage divider NIMTT(CM) 129	(10~500)kV	$U_{rel}=1.0\%$		
		time		(1~3000) μ s	$U_{rel}=3.0\%$		
56	*Lightning impulse current test system.	voltage	Lightning impulse current test system.Calibration specification NIMTT(CM) 011	(1~100) kA	$U_{rel}=1.5\%$		
		current		(1~500) μ s	$U_{rel}=3.0\%$		



No. CNAS L0893

第 79 页 共 191 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
57	Multifunction standard Source	DCV	Calibration Specification for Multifunction Standard Sources JJF 1638	10mV~100mV	$U_{rel}=5.5\times 10^{-6}\sim 1.0\times 10^{-5}$		
				100mV~1V	$U_{rel}=4.5\times 10^{-6}\sim 5.0\times 10^{-6}$		
				1V~10V	$U_{rel}=1.5\times 10^{-6}\sim 5.0\times 10^{-6}$		
				10V~100V	$U_{rel}=2.7\times 10^{-6}\sim 3.6\times 10^{-6}$		
				100V~1000V	$U_{rel}=3.7\times 10^{-6}\sim 4.5\times 10^{-6}$		
		ACV		10mV~220mV,10Hz~40Hz	$U_{rel}=2.5\times 10^{-4}$		
				10mV~220mV,40Hz~20kHz	$U_{rel}=1.0\times 10^{-4}$		
				10mV~220mV,20kHz~100kHz	$U_{rel}=3.4\times 10^{-4}$		
				10mV~220mV,100kHz~1MHz	$U_{rel}=1.8\times 10^{-3}$		
				220mV~2.2V,10Hz~40Hz	$U_{rel}=2.5\times 10^{-4}$		
				220mV~2.2V,40Hz~20kHz	$U_{rel}=0.5\times 10^{-4}$		
				220mV~2.2V,20kHz~100kHz	$U_{rel}=2.0\times 10^{-4}$		
				220mV~2.2V,100kHz~1MHz	$U_{rel}=1.5\times 10^{-3}$		
				2.2V~22V,10Hz~40Hz	$U_{rel}=2.5\times 10^{-4}$		
				2.2V~22V,40Hz~20kHz	$U_{rel}=0.5\times 10^{-4}$		
				2.2V~22V,20kHz~100kHz	$U_{rel}=2.0\times 10^{-4}$		



No. CNAS L0893

第 80 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				2.2V~22V,100kHz~1MHz	$U_{rel}=5.0 \times 10^{-3}$		
				22V~220V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				22V~220V,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				22V~220V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				22V~220V,100kHz~500kHz	$U_{rel}=5.0 \times 10^{-3}$		
				220V~1000V,50Hz~1kHz	$U_{rel}=1.0 \times 10^{-4}$		
		ACI		10mA~220mA,10Hz~40Hz	$U_{rel}=2.0 \times 10^{-4}$		
				10mA~220mA,40Hz~1kHz	$U_{rel}=1.5 \times 10^{-4}$		
				10mA~220mA,1kHz~5kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mA~2.2A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
				220mA~2.2A,1kHz~5kHz	$U_{rel}=4.5 \times 10^{-4}$		
				2.2A~50A,20Hz~1kHz	$U_{rel}=1 \times 10^{-4}$		
		DCI		2.2A~20A,1kHz~5kHz	$U_{rel}=1.0 \times 10^{-3}$		
				10 μ A~22mA	$U_{rel}=3.0 \times 10^{-5}$		
				22mA~220mA	$U_{rel}=5.0 \times 10^{-5}$		
				220mA~2.2A	$U_{rel}=5.8 \times 10^{-5}$		



No. CNAS L0893

第 81 页 共 191 页

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

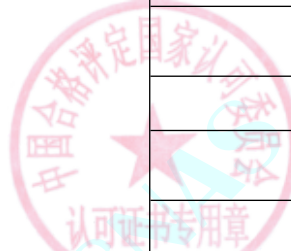
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Resistive		2.2A～20A	<i>U</i> _{rel} =6.5×10 ⁻⁵		
				1 Ω ～100 Ω	<i>U</i> _{rel} =6.5×10 ⁻⁵		
				100 Ω ～100k Ω	<i>U</i> _{rel} =1.0×10 ⁻⁵		
				100k Ω ～10M Ω	<i>U</i> _{rel} =5.0×10 ⁻⁵		
				10M Ω ～100M Ω	<i>U</i> _{rel} =5.0×10 ⁻⁴		
58	Insulation resistance meter Megohm-meter	Resistance	Verification regulation of megohmmeter JJG 622	100 Ω ～100M Ω	<i>U</i> _{rel} =1%～5%		
		Voltage		100M Ω ～1T Ω	<i>U</i> _{rel} =5%～10%		
				10V～5000V	<i>U</i> _{rel} =0.5%～5%		
59	Megohm-meter (High Resistance meter)	Resistance	Verification Regulation of High Insulation Resistance Meters JJG 690	100 Ω ～100M Ω	<i>U</i> _{rel} =0.2%～2%		
				100M Ω ～10G Ω	<i>U</i> _{rel} =2%～5%		
				10G Ω ～1T Ω	<i>U</i> _{rel} =5%～10%		
				10V～1000V	<i>U</i> _{rel} =0.5%		
60	High Voltage and Value D.C.Resistors	Resistance	Verification Regulation of High Voltage and Value D.C.Resistors JJG 1072	10 ² Ω ～10 ⁶ Ω	<i>U</i> _{rel} =0.001%～0.002%		
				10 ⁶ Ω ～10 ⁸ Ω	<i>U</i> _{rel} =0.002%～0.005%		
				10 ⁸ Ω ～10 ¹⁰ Ω	<i>U</i> _{rel} =0.005%～0.2%		
				10 ¹⁰ Ω ～10 ¹² Ω	<i>U</i> _{rel} =0.2%～5%		
61	Electronic Insulation Resistance Meters	Resistive	Verification Regulation of Electronic Insulating Resistance Meters JJG 1005	100 Ω ～100M Ω	<i>U</i> _{rel} =1%～5%		
		Voltage		100M Ω ～1T Ω	<i>U</i> _{rel} =5%～10%		
				10V～5000V	<i>U</i> _{rel} =0.5%～5%		



No. CNAS L0893

第 82 页 共 191 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
62	Calibration device of leakage current switch tester	DC Current	Calibration Specification for Calibration device of leakage current switch tester NIMTT(CM) 102	(5~3000)mA	<i>U</i> _{rel} =0.08%		
		AC Current		(5~3000)mA,50Hz	<i>U</i> _{rel} =0.10%		
		Time		(20~5000)ms	<i>U</i> =0.08ms		
63	Calibration device of Transformer with load tap changer	Resistance	Calibration Specification for Calibration device of Transformer with load tap changer NIMTT(CM) 094	(0.1~10) Ω	<i>U</i> _{rel} =0.06%		
				(10~40) Ω	<i>U</i> _{rel} =0.10%		
		Time		(1~10)ms	<i>U</i> _{rel} =2.5×10 ⁻⁵		
				(10~100)ms	<i>U</i> _{rel} =2.5×10 ⁻⁶		
				(100~10000)ms	<i>U</i> _{rel} =3×10 ⁻⁷		
64	Volt-Second generator	voltage	Calibration Specification for Volt-second Generators JJF 2178	2mV~100mV	<i>U</i> _{rel} =1×10 ⁻⁴		
				100mV~2V	<i>U</i> _{rel} =2×10 ⁻⁵		
		Pulse width		(10~10000)ms	<i>U</i> _{rel} =3×10 ⁻⁶		
		magnetic flux		0.1mWb~10Wb	<i>U</i> _{rel} =1.5×10 ⁻⁴		
65	Multi Function Clamp Meter Calibrator	DC Voltage	Calibration Specification for Multi Function Clamp Meter Calibrator NIMTT(CM) 114	0.01 V~1000V	<i>U</i> _{rel} =0.002%		
		AC Voltage		0.01V~1000V,(40~1000)Hz	<i>U</i> _{rel} =0.01%		
		DC Current		0.1A ~2000A	<i>U</i> _{rel} =0.02%		
		AC Current		0.1A ~2000A,(45~400)Hz	<i>U</i> _{rel} =0.02%		
		Resistance		0.1 Ω ~100M Ω	<i>U</i> _{rel} =0.01%~0.05%		
66	Insulating Oil electrical Strength Tester	Voltage	Calibration Specification for Dielectric strength detector of insulating oils NIMTT(CM)	5kV~100kV	<i>U</i> _{rel} =0.6%		

No. CNAS L0893

第 83 页 共 191 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
		Boost speed	126	(2~3) kV/s	<i>U</i> _{rel} =1.0%		
67	Withstanding Voltage calibration device	Voltage	Calibration specification for safety gauge NIMTT(CM) 131	Leakage voltage: (1~300)V,(50Hz)	<i>U</i> _{rel} =0.05%		
				Withstanding Voltage: 0.1kV~30kV,(50Hz)	<i>U</i> _{rel} =0.1%		
		Voltage		(0.1~30)kV	<i>U</i> _{rel} =0.1%		
		current		0.1mA~30A,(DC,50Hz)	<i>U</i> _{rel} =0.1%		
		resistance		Earth-Continuity:10m Ω ~500m Ω	<i>U</i> _{rel} =0.2%		
				Insulation resistance: 1M Ω ~1000M Ω	<i>U</i> _{rel} =0.2%		
		Time		0.1s~999s	<i>U</i> _{rel} =0.1%		
68	Testing transformer	Voltage	Calibration specification for high voltage tester devices NIMTT(CM)133	1kV~100kV	<i>U</i> _{rel} =0.2%		
				100kV~600kV	<i>U</i> _{rel} =1%		
		Voltage		1kV~100kV(50Hz)	<i>U</i> _{rel} =0.2%		
				100kV~600kV(50Hz)	<i>U</i> _{rel} =1%		
		current		0.1mA~1A	<i>U</i> _{rel} =0.2%		
				1A~1000A	<i>U</i> _{rel} =0.3%		
		current		0.1mA~1A(50Hz)	<i>U</i> _{rel} =0.2%		
				1A~1000A(50Hz)	<i>U</i> _{rel} =0.3%		
		Time		1s~300s	<i>U</i> _{rel} =1.0%		
		Voltage	Calibration specification for	10V~200V,(50Hz))	<i>U</i> _{rel} =0.2%		

No. CNAS L0893

第 84 页 共 191 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
	lightning arrester test instrument	current	Resistive current testers for zinc oxide surge arrester NIMTT(CM) 128	0.1mA～20mA,(50Hz)	<i>U</i> _{rel} =0.2%		
70	DC Spark Detector(Needle- hole Detector)	Voltage	Calibration Specification for Electric Spark Leak Detectors NIMTT(CM) 123	1kV～30kV	<i>U</i> _{rel} =1.2%		
71	Impulse Voltage Testers for Winding Interturn Insulation	Voltage	Calibration Specification for Impulse Voltage Testers for Winding Interturn Insulation JJF 1691	0.5kV～15kV	<i>U</i> _{rel} =1.2%		
		time		0.1 μ s～50 μ s	<i>U</i> _{rel} =3%		
72		Voltage	calibration specification for Electrostatic analyzer NIMTT(CM) 115	10V～1kV	<i>U</i> _{rel} =0.1%		
				1kV～20kV	<i>U</i> _{rel} =0.2%		
		time		1s～20s	<i>U</i> _{rel} =5%		
73	Concrete Resistivity Tester	resistivity	Calibration specification for Concrete Resistivity Tester NIMTT(CM) 148	(1～2000)k Ω · cm	<i>U</i> _{rel} =0.05%		
74	Digital Multimeter	DC Voltage	Calibration Specification for Multimeters JJF 1587	10mV～100mV	<i>U</i> _{rel} =5.5×10 ⁻⁶		
				100mV～1V	<i>U</i> _{rel} =4.5×10 ⁻⁶		
				1V～10V	<i>U</i> _{rel} =1.5×10 ⁻⁶		
				10V～100V	<i>U</i> _{rel} =2.7×10 ⁻⁶		
				100V～1000V	<i>U</i> _{rel} =3.7×10 ⁻⁶		
		AC Voltage		10mV～220mV,10Hz～ 40Hz	<i>U</i> _{rel} =2.5×10 ⁻⁴		
				10mV～220mV,40Hz～ 20kHz	<i>U</i> _{rel} =1.0×10 ⁻⁴		



No. CNAS L0893

第 85 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				10mV~220mV,20kHz~100kHz	$U_{rel}=3.4 \times 10^{-4}$		
				10mV~220mV,100kHz~1MHz	$U_{rel}=1.8 \times 10^{-3}$		
				220mV~2.2V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				220mV~2.2V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				220mV~2.2V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				220mV~2.2V,100kHz~1MHz	$U_{rel}=1.5 \times 10^{-3}$		
				2.2V~22V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				2.2V~22V,40Hz~20kHz	$U_{rel}=0.5 \times 10^{-4}$		
				2.2V~22V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				2.2V~22V,100kHz~1MHz	$U_{rel}=5.0 \times 10^{-3}$		
				22V~220V,10Hz~40Hz	$U_{rel}=2.5 \times 10^{-4}$		
				22V~220V,40Hz~20kHz	$U_{rel}=1.0 \times 10^{-4}$		
				22V~220V,20kHz~100kHz	$U_{rel}=2.0 \times 10^{-4}$		
				22V~220V,100kHz~500kHz	$U_{rel}=5.0 \times 10^{-3}$		
				220V~1000V,40Hz~10kHz	$U_{rel}=1.0 \times 10^{-4}$		



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No. CNAS L0893

第 86 页 共 191 页

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

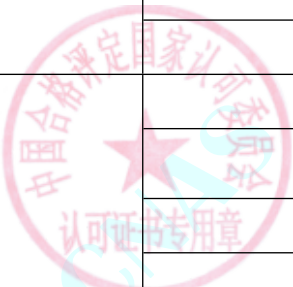
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		AC Current	ilac-M	10 μ A~220mA,10Hz~40Hz	<i>U</i> _{rel} =2.0×10 ⁻⁴		
				10 μ A~220mA,40Hz~1kHz	<i>U</i> _{rel} =1.5×10 ⁻⁴		
				10 μ A~220mA,1kHz~5kHz	<i>U</i> _{rel} =2.0×10 ⁻⁴		
				220mA~2.2A,20Hz~1kHz	<i>U</i> _{rel} =1×10 ⁻⁴		
				220mA~2.2A,1kHz~5kHz	<i>U</i> _{rel} =4.5×10 ⁻⁴		
				2.2A~50A,20Hz~1kHz	<i>U</i> _{rel} =1×10 ⁻⁴		
				2.2A~20A,1kHz~5kHz	<i>U</i> _{rel} =1.0×10 ⁻³		
				50A~100A,40Hz~65Hz	<i>U</i> _{rel} =1×10 ⁻⁴		
				DC Current	10 μ A~22mA		<i>U</i> _{rel} =3.0×10 ⁻⁵
		22mA~220mA			<i>U</i> _{rel} =5.0×10 ⁻⁵		
		220mA~2.2A			<i>U</i> _{rel} =5.8×10 ⁻⁵		
		2.2A~20A			<i>U</i> _{rel} =6.5×10 ⁻⁵		
		20A~100A			<i>U</i> _{rel} =1×10 ⁻⁴		
		Resistances		(10 ⁻⁴ ~1) Ω	<i>U</i> _{rel} =5×10 ⁻⁴		
				1 Ω ~100 Ω	<i>U</i> _{rel} =5×10 ⁻⁵		
				100 Ω ~100k Ω	<i>U</i> _{rel} =1.0×10 ⁻⁵		
				100k Ω ~10M Ω	<i>U</i> _{rel} =5.0×10 ⁻⁵		



No. CNAS L0893

第 87 页 共 191 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
				10M Ω ~ 10G Ω	<i>U</i> _{rel} =5.0×10 ⁻⁴		
75	*Amperemeters, Voltmeters, Wattmeters	DC Current	V.R. of Amperemeters, Voltmeters, Wattmeters and Ohmmeters JJG 124	10 μ A ~ 50A	<i>U</i> _{rel} =0.05%		
		AC Current		100 μ A ~ 100A,40Hz~ 65Hz	<i>U</i> _{rel} =0.05%		
				0.2A~10A,65Hz~5kHz	<i>U</i> _{rel} =0.06%		
		DC Voltage		10mV~1000V	<i>U</i> _{rel} =0.05%		
		AC Voltage		0.1V~1000V,40Hz~ 10kHz	<i>U</i> _{rel} =0.05%		
		DC Power		0.1V~600V,10 μ A~ 100A	<i>U</i> _{rel} =0.02%		
		AC Power		10V~600V,5mA~100A ,(40~65)Hz	<i>U</i> _{rel} =0.05%		
5V~600V,0.025A~ 10A, 65Hz~1kHz	<i>U</i> _{rel} =0.05%						
76	*DigitalAC./DC. Voltmeter	AC Voltage	V.R. of AC Digital VoltMeter JJG(JG) 72	0.01V~1000V,40Hz~ 10kHz	<i>U</i> _{rel} =0.01%		
77	*DigitalAC./DC. Amperemeter	AC Current	V.R. of AC Digital Current Meter JJG(JG) 68	100 μ A~100A,40Hz~ 65Hz	<i>U</i> _{rel} =0.01%		
				0.2A~10A,65Hz~5kHz	<i>U</i> _{rel} =0.05%		
78	Calibrators for Electrical Meters	DC Voltage	Calibration Specification of Calibrators for Electrical Meters JJF 1284	0.01 V~1000V	<i>U</i> _{rel} =0.001%		
		AC Voltage		0.01V~1000V,40Hz~ 10kHz	<i>U</i> _{rel} =0.01%		
		DC Current		10 μ A ~ 100A	<i>U</i> _{rel} =0.01%		
		AC Current		100 μ A ~ 100A,(40~ 65)Hz	<i>U</i> _{rel} =0.01%		



No. CNAS L0893

第 88 页 共 191 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
		Frequency		0.2A~10A,65Hz~5kHz	<i>U</i> _{rel} =0.05%		
				1Hz~100kHz	<i>U</i> _{rel} =1×10 ⁻⁵		
		Resistance		1Ω~100Ω	<i>U</i> _{rel} =0.01%		
				100Ω~100kΩ	<i>U</i> _{rel} =0.002%		
				100kΩ~10MΩ	<i>U</i> _{rel} =0.005%		
				10MΩ~100MΩ	<i>U</i> _{rel} =0.01%		
79	Electrical (Safety) Analyzer	AC Voltage	Calibration Specification for Electrical (Safety) Analyzer NIMTT(CM) 113	10V~300V,40Hz~65Hz	<i>U</i> _{rel} =0.02%		
		AC Current		0.1A~20A,40Hz~65Hz	<i>U</i> _{rel} =0.02%		
		DC Leakage Current		10μA~100mA	<i>U</i> _{rel} =0.3%		
				100mA~1A	<i>U</i> _{rel} =0.05%		
		AC Leakage Current		30μA~100mA,40Hz~5kHz	<i>U</i> _{rel} =0.5%		
				100mA~1A,40Hz~5kHz	<i>U</i> _{rel} =0.1%		
		Resistance		0.01Ω~0.1Ω	<i>U</i> _{rel} =5%		
				0.1Ω~1Ω	<i>U</i> _{rel} =0.5%		
				1Ω~10Ω	<i>U</i> _{rel} =0.1%		
				10Ω~100Ω	<i>U</i> _{rel} =0.02%		
				100Ω~10MΩ	<i>U</i> _{rel} =0.3%		
				10MΩ~100MΩ	<i>U</i> _{rel} =1.5%		



No. CNAS L0893

第 89 页 共 191 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
80	AC Digital Powermeter	AC Power	V.R. of AC Digital Powermeter JJG 780	$3 \times (3 \sim 600) \text{ V}$, $3 \times (0.005 \sim 100) \text{ A}$, (40~65)Hz	$U_{\text{rel}}=0.01\%$		
81	*Clamp Meter	AC Current	Calibration Specification of Clamp-on Multifunctional Electricity Meter NIMTT(CM) 085	(0.001~1000)A45Hz~65Hz	$U_{\text{rel}}=0.02\%$		
		(0.001~1000)A65Hz~1kHz		$U_{\text{rel}}=0.3\%$			
		DC Current		(0.001~1000)A	$U_{\text{rel}}=0.02\%$		
		AC Power		(0.1~1000)V,(1~1000)A(45Hz~65Hz)	$U_{\text{rel}}=0.2\%$		
		DC Voltage		0.01V~1000V	$U_{\text{rel}}=0.002\%$		
		AC Voltage		0.01V~1000V40Hz~10kHz	$U_{\text{rel}}=0.01\%$		
		Resistance		10 Ω ~ 100 Ω	$U_{\text{rel}}=0.01\%$		
				100 Ω ~ 100k Ω	$U_{\text{rel}}=0.002\%$		
				100k Ω ~ 10M Ω	$U_{\text{rel}}=0.005\%$		
				10M Ω ~ 100M Ω	$U_{\text{rel}}=0.01\%$		
		Phase		0° ~ 360° (16~69)Hz	$U=0.005^\circ$		
				0° ~ 360° (69~450)Hz	$U=0.03^\circ$		
		Frequency		10Hz~100kHz	$U_{\text{rel}}=0.005\%$		
82	*Clamp Ammeters	AC Current	Calibration Specification for Clamp Ammeters JJF1075	(0.1~1000)A,(45~65)Hz	$U_{\text{rel}}=0.08\%$		
				(0.1~1000)A,(65~400)Hz	$U_{\text{rel}}=0.3\%$		



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No. CNAS L0893

第 90 页 共 191 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		(0.1~2000)A	<i>U</i> _{rel} =0.02%		
83	*Large current tester	DC Current	Calibration Specification of Large Current Tester NIMTT(CM) 087	(0.001~10000)A	<i>U</i> _{rel} =0.005%		
		AC Current		(0.001~0.1)A,(45~65)Hz	<i>U</i> _{rel} =0.012%		
				(0.1~10000)A,(45~65)Hz	<i>U</i> _{rel} =0.005%		
		Time		0.5s~10s	0.01s		
84	Single phase and three phase multifunction calibration source	DC Voltage	Calibration method for single phase and three phase multifunction calibration source (calibration method for multi-functional instrument calibration source) NIMTT(CM) 079	0.01V~1000V	<i>U</i> _{rel} =0.001%		
		AC Voltage		0.01V~1000V (40Hz~10kHz)	<i>U</i> _{rel} =0.01%		
		DC Current		10 μ A~100A	<i>U</i> _{rel} =0.01%		
		AC Current		100 μ A~100A(40~65)Hz	<i>U</i> _{rel} =0.01%		
				0.2A~10A (65Hz~10kHz)	<i>U</i> _{rel} =0.05%		
		AC Power		3× (3~600) V/3× (0.005~100) A, (40~65)Hz	<i>U</i> _{rel} =0.01%		
				5V~600V/0.025A~10A, (65Hz~1kHz)	<i>U</i> _{rel} =0.05%		
		DC Power		(3~1000)V/(0.001~500)A	<i>U</i> _{rel} =0.02%		
		Frequency		1Hz~100kHz	<i>U</i> _{rel} =1×10 ⁻⁵		
		Resistance		10 Ω ~100 Ω	<i>U</i> _{rel} =0.01%		
				100 Ω ~100k Ω	<i>U</i> _{rel} =0.002%		



No. CNAS L0893

第 91 页 共 191 页

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

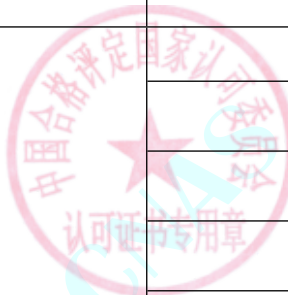
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Phase		100 k Ω ~ 10M Ω	U _{rel} =0.005%		
				10M Ω ~ 100M Ω	U _{rel} =0.01%		
				0° ~ 360° (16~69)Hz	U=0.005°		
				0° ~ 360° (69~450)Hz	U=0.03°		
		Harmonic Voltage		(0.03~300)V,(2~30)times	U _{rel} =0.02%		
				(0.03~300)V,(31~60)times	U _{rel} =0.05%		
		Harmonic Current		(0.005~30)A,(2~30)times	U _{rel} =0.02%		
				(0.005~30)A,(31~60)times	U _{rel} =0.05%		
85	Grounding (conduction) resistance tester	resistance	Earth-continuity testers JJG984	0.1m Ω ~ 11 Ω	U _{rel} =0.2%		
		current		(1~100)A	U _{rel} =0.2%		
		voltage		10mV~20V	U _{rel} =0.1%		
86	field meter	Low Frequency Electric-Field Strength	Calibration Specification for Electric Field meters JJF(J1)154	1V/m~100V/m (10Hz~100kHz)	U=0.5dB		
				100V/m~10kV/m(50Hz)	U=0.5dB		
87	DC total electric field strength measuring instrument	Electric-Field Strength	Calibration Specification for DC total electric field strength measuring instrument NIMTT(CM) 009	0.1kV~±40kV	U _{rel} =4.2%		
88	AC Charging Piles for Electric Vehicles	Alternating-current Electrical Energy	Calibrator of AC Charging Piles for Electric Vehicles JJG 1193	57.7V~380V,0.01A~100A	U _{rel} =1.2×10 ⁻⁴		

No. CNAS L0893

第 92 页 共 191 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 voltage		57.7V~380V,50Hz	$U_{rel}=1.2\times 10^{-4}$		
		AC current		0.01A~100A,50Hz	$U_{rel}=1.2\times 10^{-4}$		
		Phase		0° ~360°	$U=0.1^{\circ}$		
		Frequency		(45~65)Hz	$U_{rel}=1.2\times 10^{-4}$		
		time		0.01s~24h	$U=0.6s$		
89	Off-board Chargers for Electric Vehicles	Electrical Energy	Calibrator of Off-board Chargers for Electric Vehicles JJG 1192	100mV~1000V,10mA~ 500A	$U_{rel}=1.2\times 10^{-4}$		
		DC voltage		100mV~1000V	$U_{rel}=1.2\times 10^{-4}$		
		DC current		10mA~500A	$U_{rel}=1.2\times 10^{-4}$		
		time		0.01s~24h	$U=0.6s$		
90	*DC Standard Resister	Resistances	Verification Regulation of DC Standard Resister JJG982	(10 ⁻³ ~10 ⁻²)Ω	$U_{rel}=1\times 10^{-4}$		
				(10 ⁻² ~1)Ω	$U_{rel}=3\times 10^{-5}$		
				(1~10 ⁷)Ω	$U_{rel}=1\times 10^{-5}$		
				(10 ⁷ ~10 ⁸)Ω	$U_{rel}=5\times 10^{-4}$		
91	Hall Current (Voltage) Transduce	DC Current	Hall Current (Voltage) Transduce JJG(川)136	(0.001~10000)A	$U_{rel}=0.005\%$		
		AC Current		(0.001~0.1)A,(45~ 65)Hz	$U_{rel}=0.012\%$		
				(0.001~1000)A,65Hz~ 1kHz	$U_{rel}=0.3\%$		
				(0.1~10000)A ,45Hz~ 65Hz	$U_{rel}=0.005\%$		
		DC Voltage		10mV~600V	$U_{rel}=0.002\%$		



No. CNAS L0893

第 93 页 共 191 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		10mV~600V,45Hz~1kHz	$U_{rel}=0.005\%$		
92	*Electric recorders	DC Voltage	Calibration Specification of Electric recorders NIMTT(CM) 150	0.01V~1000V	$U_{rel}=0.001\%$		
		AC Voltage		0.01V~1000V,45Hz~10kHz	$U_{rel}=0.01\%$		
		DC Current		10 μ A~20A	$U_{rel}=0.01\%$		
		AC Current		10mA~20A,45Hz~65Hz	$U_{rel}=0.01\%$		
		AC Current		0.2A~10A,65Hz~1kHz	$U_{rel}=0.05\%$		
		Frequency		10Hz~10kHz	$U_{rel}=0.005\%$		
93	*Current Clamp、Current Coil	DC Current	Calibration Specification for Current Clamp、Current Coil NIMTT(CM) 151	(5~10000)A	$U_{rel}=0.1\%$		
		AC Current		(5~10000)A, 45Hz~65Hz	$U_{rel}=0.1\%$		
		AC Current		(5~1000)A, 65Hz~1kHz	$U_{rel}=0.3\%$		
94	Electronic Meters for Measuring Direct-current Electrical Energy	Electrical Energy	Electronic Meters for Measuring Direct-current Electrical Energy JJG 842	100mV~1000V, 10mA~500A	$U_{rel}=3 \times 10^{-4}$		
		time		(-99.99~99.99) s/d	$U=0.06s/d$		
95	*Off-board Charger for Electric Vehicles	Electrical Energy	Off-board Charger for Electric Vehicles JJG1149	100V~1000V, 5A~250A	$U_{rel}=1 \times 10^{-3}$		
96	*AC Charging Spot for Electric Vehicles	Electrical Energy	AC Charging Spot for Electric Vehicles JJG1148	220V, 1A~70A	$U_{rel}=1 \times 10^{-3}$		
		Capacitance	Calibration Specification for Calibration Device of	1 μ F~25000 μ F	$U_{rel}=0.02\%$		

No. CNAS L0893

第 94 页 共 191 页



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

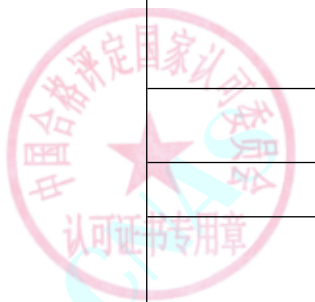
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Power Capacitance Inductance Tester	Inductance	Power Capacitance Inductance Tester NIMTT(CM) 152	1mH~10H	$U_{rel}=0.02\%$		
98	Calibration Device of Zinc Oxide Arrester Tester	AC Voltage	Calibration Specification for Calibration Device of Zinc Oxide Arrester Tester	1V~250V, 50Hz	$U_{rel}=0.02\%$		
		AC Current	NIMTT(CM) 153	0.1mA~20mA 50Hz	$U_{rel}=0.02\%$		
		Phase		0°~360°, 50Hz	$U=0.01^\circ$		
99	Textile Frictional Static Charges Tester	charge quantity	Calibration Specification for Textile Frictional Static Charges Tester JJF(纺织)071	(0.01~2) μ C	$U_{rel}=0.1\%$		
100	Eddy Current Conductivity Meters	conductivity	Calibration Specification for Eddy Current Conductivity Meters JJF 1692	(1.05~95)%IACS	$U=(0.05\sim0.5)\%IACS$		
101	power transformers winding deformation tester	frequency	Calibration specification of power transformers winding deformation tester DL/T 1952	1kHz~1MHz	$U_{rel}=0.01\%$		
		amplitude radio		0dB、-10dB、-20dB、-40dB、-60dB、-80dB	$U=0.26dB$		
102	*DC high- current source	Current	DC high-current source NIMTT(CM) 154	(1000~10000)A	$U_{rel}=1\times10^{-5}$		
103	*Buchholz relay & overspeed shut-off valve detection device	velocity of flow	Buchholz relay & overspeed shut-off valve detection device NIMTT(CM) 072	(1~100)m ³ /h((0.566~5.662)m/s)	$U_{rel}=1\%$		
		volume		(10~1000)mL	$U_{rel}=1.2\%$		
		pressure		(10~250)kPa	$U_{rel}=1\%$		
104	Medical Diagnostic X-ray Non-invasive Current Meters	Current	Calibration Specification for Medical Diagnostic X-ray Non-invasive Current Meters JJF 1473	0.1mA~1A	$U_{rel}=0.4\%$		
105	*Magnetic particle Flow Detectors	Current	Calibration Specification for Magnetic Particle Flaw	(1~10000)A	$U_{rel}=1.5\%$		



No. CNAS L0893

第 95 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Magnetic induction intensity	Detectors JJF 1273	(0~1)mT	$U=0.04$ mT		
		Illuminance		(50~3000)lx	$U_{rel}=2.0\%$		
		Ultraviolet Irradiance (UVA)		(1~10000) μ W/cm ²	$U_{rel}=19\%$		
106	Magnetic Yoke Detectors	Irradiance	Calibration Specification for Magnetic Yoke Detectors JJF 1458	(0.1~500)N	$U_{rel}=4.0\%$		
		Current		(0.1~40)A	$U_{rel}=3.0\%$		
107	Eddy Current Flaw Detector	Frequency	V.R. of Eddy Current Flaw Detector JJG(MH) 0061	1Hz~10MHz	$U_{rel}=0.02\%$		
		Voltage		(0.1~10)V, (1kHz~1MHz)	$U_{rel}=1.2\%$		
108	*Battery Internal Resistance Testers	Resistance	Calibration Specification for Battery Internal Resistance Testers JJF 1620	1m Ω ~ 3k Ω	$U_{rel}=0.06\% \sim 0.2\%$		
		DC Voltage		0.1V~800V	$U_{rel}=0.01\%$		
109	Reference Meter for DC Electrical Energy	Electrical Energy	Verification Regulation of Reference Meter for DC Electrical Energy JJG 1187	100mV~1000V, 10mA~500A, small-signal 1mV~100mV	$U_{rel}=1.2 \times 10^{-4}$		
110	*Verification Equipment for DC Electrical Energy Meters	Electrical Energy	Verification regulation of Verification Equipment for DC Electrical Energy Meters JJG 1186	100mV~1000V, 10mA~500A, small-signal 1mV~100mV	$U_{rel}=1.2 \times 10^{-4}$		
		DC Voltage		100mV~1000V, small-signal 1mV~100mV	$U_{rel}=1.2 \times 10^{-4}$		
		DC Current		10mA~500A	$U_{rel}=1.2 \times 10^{-4}$		
		DC Power		100mV~1000V, 10mA~500A, small-signal 1mV~100mV	$U_{rel}=1.2 \times 10^{-4}$		

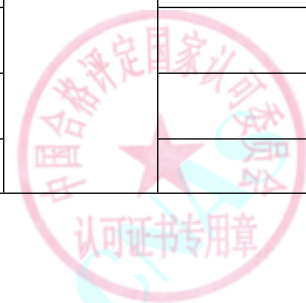


No. CNAS L0893

第 96 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
111	Power Frequency Ground Impedance Testers for Large Grounding Grid	Ground resistance/round impedance	Verification Regulation of Power Frequency Ground Impedance Testers for Large Grounding Grid JJG 1180	50m Ω ~ 200 Ω	$U_{rel}=1.5\%$		
112	Triple-frequency Generators	Output voltage	Calibration Specification for Triple-frequency Generators JJF 2001	(10~1000)V, 150Hz	$U_{rel}=0.4\%$		
		Output frequency		150Hz	$U_{rel}=0.3\%$		
		time		(1~60)s	$U_{rel}=1\%$		
113	Dielectric Strength Detectors of Insulating Oil	Voltage	Calibration Specification of Dielectric strength detectors of insulating oil NIMTT(CM) 181	(10~2000)V	$U_{rel}=0.4\%$		
		Warning current		(10~100) μ A	$U_{rel}=0.2\%$		
		Boost speed		150V/s	$U_{rel}=1.5\%$		
		Frequency		340Hz	$U_{rel}=0.8\%$		
114	*Magnetic Measuring Instruments for Permanent Magnet Materials	Flux	Calibration Specification for Magnetic Measuring Instruments for Permanent Magnet Materials JJF 1829	(1~1000)mWb	$U_{rel}=0.1\%$		
		Magnetic field intensity		(1~600)kAm	$U_{rel}=0.05\%$		
		Uneven magnetic field		0.01%~2%	$U_{rel}=0.1\%$		
		H coil and B coil constants		(0.0005~0.1)m ²	$U_{rel}=0.2\%$		
		J coil constant		(3 $\times 10^{-6}$ ~5 $\times 10^{-5}$)m ²	$U_{rel}=0.6\%$		



No. CNAS L0893

第 97 页 共 191 页

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

在线扫码获取验证

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Magnetic characteristic parameters		Br: $0.92923 \times (1 \pm 0.6\%)$ T、 $1.3827 \times (1 \pm 0.6\%)$ T HcJ: $135.37 \times (1 \pm 0.9\%)$ A/m、 $1628.7 \times (1 \pm 0.9\%)$ A/m HcB: $130.47 \times (1 \pm 0.9\%)$ A/m、 $1049.3 \times (1 \pm 0.9\%)$ A/m (BH) _{max} : $52.193 \times (1 \pm 1.3\%)$ kJ/m ³ 、 $355.06 \times (1 \pm 1.2\%)$ kJ/m ³			
115	*DC Magnetic Properties Measuring Instruments for Magnetically Soft Materials	Current	Calibration Specification for DC Magnetic Properties Measuring Instruments for Magnetically Soft Materials JJF 1830	(0.1~10)A	$U_{rel}=0.02\%$		
		Flux		(0.2~1)mWb	$U=0.02\text{mWb}$		
		H coil constants		(1~20)mWb	$U_{rel}=0.1\text{mWb}$		
		Uneven magnetic field		(0.0005~0.1)m ²	$U_{rel}=0.2\%$		
				0.01%~2%	$U_{rel}=0.1\%$		

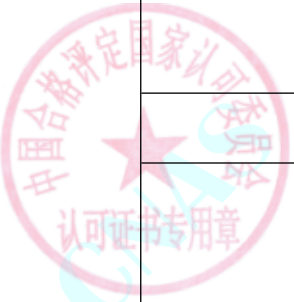


No. CNAS L0893

第 98 页 共 191 页

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

在线扫码获取验证

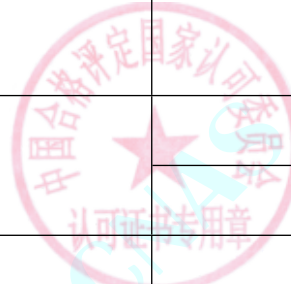
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Magnetic characteristic parameters		Bs: $1.512 \times (1 \pm 1\%)$ T; $1.714 \times (1 \pm 1\%)$ T; Br: $1.030 \times (1 \pm 1\%)$ T; $1.302 \times (1 \pm 1\%)$ T; Hc: $5.77 \times (1 \pm 2\%)$ A/m; $115.7 \times (1 \pm 2\%)$ A/m; μ i: $10.5 \times (1 \pm 5\%)$ mH/m; μ m: $5.23 \times (1 \pm 3\%)$ mH/m、 $92.5 \times (1 \pm 3\%)$ mH/m; B: $(1.646 \sim 2.153)$ T	$U_{rel}=1.3\%(Bs)$; $U_{rel}=1.3\%(Br)$; $U_{rel}=2.5\%(Hc)$; $U_{rel}=6\%(\mu i)$; $U_{rel}=3.5\%(\mu m)$; $U_{rel}=1.3\%(B)$;		
116	Non-contact electrostatic voltmeter	voltage	Contactless electrostatic voltmeter calibration specifications GJB/J 5972	(0.1~30)kV	$U_{rel}=0.1\%$		
117	Medical leakage current tester	Voltage	Verification regulation of Medical Leakage Current Testers JJG 1188	5V~600V	$U_{rel}=0.2\%$		
		Leakage current		10 μ A~20mA	$U_{rel}=0.3\%$		
		Input resistance(DC)		100 Ω ~2000 Ω	$U_{rel}=0.12\%$		
		Input impedance		100 Ω ~2000 Ω , 10Hz~1MHz	$U_{rel}=0.4\% \sim 0.7\%$		
		Frequency response characteristics of transmission impedance		(-70~0)dB	$U_{rel}=0.1$ dB		

No. CNAS L0893

第 99 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
118	*Voltage Transformers in Power System	Difference value	Verification regulation of Instrument Transformers—Part 4:Voltage Transformers in Power System JJG 1189.4	(80～120) %Un:(100/√3～500000/√3)/(100～100/√3)V	U=0.01%		
		Phase difference		(80～120) %Un:(0～999.9)′	U=0.8′		
119	*Current Transformers in Power System	Difference value	Verification regulation of Instrument Transformers—Part 3:Current Transformers in Power System JJG 1189.3	1%In:(0.1～10000)/(1、5)A	U=0.02%		
				5%In:(0.1～10000)/(1、5)A	U=0.01%		
				20%～120%In:(0.1～10000)/(1、5)A	U=0.01%		
		Phase difference		1%In:(0～999.9)′	U=1.2′		
				5%In:(0～999.9)′	U=1.0′		
				20%～120%In:(0～999.9)′	U=0.8′		
120	Electromagnetic field probe	high Frequency Electric-Field Strength	Calibration Specification for Electromagnetic Field Probes from 10kHz to 100MHz JJF 1884	1V/m～100V/m,(10kHz～100MHz)	U=0.6dB		
				0.015A/m～0.5A/m,(10kHz～100MHz)	U=0.6dB		
121	Electric field probe	Electric-Field Strength	Calibration Specification for Electric Field Probes JJF 1886	3V/m～170V/m(1GHz～18GHz)	U=0.76dB		
				3V/m～60V/m(10MHz～1GHz)	U=1.0dB		
122	DC Low-resistance Meter Calibrator	Resistances	Calibration specification of Calibrators for DC Low-resistance Meters JJF(Ⅱ)173	5 μ Ω ～10 μ Ω	U _{rel} =3×10 ⁻³		
				10 μ Ω ～100 μ Ω	U _{rel} =1×10 ⁻³		



No. CNAS L0893

第 100 页 共 191 页

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

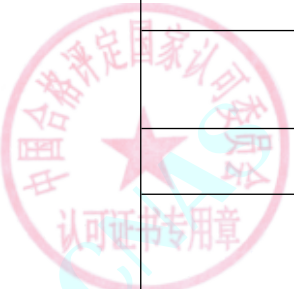
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
				100 μ Ω ~ 10m Ω	<i>U</i> _{rel} =1 × 10 ⁻⁴		
				10m Ω ~ 20k Ω	<i>U</i> _{rel} =3 × 10 ⁻⁵		
123	*Interturn/Surge Tester	Voltage time	(15~50)kVCalibration Specification for Impulse Voltage Testers for Winding Interturn Insulation NIMTT(CM) 155	1kV~50kV 0.1 μ s~50 μ s	<i>U</i> _{rel} =1.2% <i>U</i> _{rel} =3%		
124	*Calibration device for electrical measuring instruments	DC Voltage	Calibration Specification for Verification Equipment of Electrical Measuring Devices JJF1923	0.01V~1000V	<i>U</i> _{rel} =0.01%		
		AC Voltage		0.01V~1000V（40Hz~70Hz）	<i>U</i> _{rel} =0.015%		
		DC Current		10 μ A~100A	<i>U</i> _{rel} =0.012%		
		AC Current		100 μ A~100A(40~70)Hz	<i>U</i> _{rel} =0.012%		
		active power		33×（15~600）V/3×（0.005~100）A， (45~65)Hz	<i>U</i> _{rel} =0.015%		
		reactive power		3×（15~600）V/3×（0.005~100）A， (45~65)Hz	<i>U</i> _{rel} =0.02%		
		Frequency		40Hz~70Hz	<i>U</i> _{rel} =1 × 10 ⁻⁴		
		Phase		0° ~360°	<i>U</i> =0.02°		
VI Radio measuring instrument							
1	Electronic Voltmeter	Voltage Basic Error	Calibration Specification for Low-frequency Volt-meters JJF1925	1mV~300V,（10kHz）	<i>U</i> _{rel} =0.5%		



No. CNAS L0893

第 101 页 共 191 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 Additional Error		1mV~ 300V,(10Hz~1MHz)	$U_{rel}=2.0\%$		
2	UHF Electronic Mill voltmeter	Voltage	Verification Regulation of RF Voltmeters JJG308	1 mV~1 V,(10Hz~ 1000MHz) 1 V~10 V,(10Hz~ 1000MHz)	$U_{rel}=3.0\%$ $U_{rel}=2.5\%$		
3	Frequency Response Test Set	Voltage	Verification Regulation of 300 MHz Frequency Response Test Set JJG359	50mV~300mV (1MHz~300MHz)	$U_{rel}=5\%$		
4	Network analyzer	Reflection	Calibration Specification for Vector network analyzers JJF1495	0~1.00(50MHz~ 50GHz)	$U=0.02\sim0.06$		
		Transmission		(0~50)dB(50MHz~ 50GHz)	$U=0.20\text{dB}\sim0.50\text{dB}$		
		Source output frequency		10Hz~40GHz	$U_{rel}=1\times10^{-9}$		
		Source output power		(-80~+20)dBm	$U=0.15\text{dB}\sim0.20\text{dB}$		
		Background noise		(-160~-50)dB	$U=2.3\text{dB}\sim3.0\text{dB}$		
		Crosstalk		(-160~-50)dB	$U=1.1\text{dB}\sim3.0\text{dB}$		
		Modulus value Trace noise		(0~ 1)dB	$U=0.0013\text{dB}$		
		Phase Trace noise		(0~1) °	$U=0.012^\circ$		
		Modulus dynamic accuracy		(0~90)dB	$U=0.033\text{dB}$		



No. CNAS L0893

第 102 页 共 191 页

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

在线扫码获取验证

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
5	Underground pipeline detector	frequency	calibration specification for Underground pipeline detector NIMTT(CM) 010	8kHz~1MHz	<i>U</i> _{rel} =4.3×10 ⁻⁶		
6	Digital Signal Generator	Level	Calibration Specification for Digital Signal Generator JJF1174	20dBm~-120dBm (100kHz~6GHz)	<i>U</i> =0.2dB~0.5dB		
		Frequency		100kHz~6GHz	<i>U</i> _{rel} =1×10 ⁻⁹		
		Harmonics		0dBc~-100dBc (100kHz~6GHz)	<i>U</i> =0.5dB~2dB		
		Vector Magnitude		0.5%~18%(FSK、MSK、16QAM)	<i>U</i> =0.5%		
		RMS Phase		0.5° ~15° (FSK、MSK、16QAM)	<i>U</i> =0.5°		
		RMS frequency		1kHz~250kHz(FSK、MSK、16QAM)	<i>U</i> =2Hz		
7	*Data Acquisition System	sampling rate	Calibration Specification for Data Acquisition System JJF1048	30Sa/s~15MSa/s	<i>U</i> _{rel} =1×10 ⁻⁶		
		DC voltage		1mV~600V	<i>U</i> _{rel} =2×10 ⁻⁵		
		AC voltage		(10mV~600V)(10Hz~1kHz)	<i>U</i> _{rel} =1×10 ⁻⁴		
				(10mV~200V)(1kHz~100kHz)	<i>U</i> _{rel} =2×10 ⁻⁴		
				(10mV~200V)(100kHz~1MHz)	<i>U</i> _{rel} =4×10 ⁻³		
		CMRR		(20~200)dB	<i>U</i> =5dB		
		interchannel crosstalk		(10~160)dB	<i>U</i> =5dB		
		Linearity		1%~100%	<i>U</i> _{rel} =4×10 ⁻³		



No. CNAS L0893

第 103 页 共 191 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		
8	Standard Capacitors	Capacitance	Verification Regulation of Standard Capacitors JJG183	1pF~1 μ F (1 kHz)	<i>U</i> _{rel} =2×10 ⁻⁵				
				100pF~1000 μ F , (100 Hz)	<i>U</i> _{rel} =5×10 ⁻⁴				
		Loss factor		1×10 ⁻⁵ ~1×10 ⁻²					
				1×10 ⁻² ~1×10 ⁻¹					
				1×10 ⁻¹ ~1					
9	Standard Inductors	Inductance	Verification Regulation of Standard Inductors JJG726	1 μ H~10 μ H (1kHz)	<i>U</i> _{rel} =2%				
				10 μ H~100 μ H (1kHz)	<i>U</i> _{rel} =0.2%				
				100 μ H~1H (1kHz)	<i>U</i> _{rel} =0.02%				
				1H~1000H (100Hz)	<i>U</i> _{rel} =0.06%				
10	Alternating Current Bridge (Capacitance Bridge)	Resistances	Verification Regulation of Alternating Current Bridge JJG441	1 Ω ~1M Ω (1kHz)	<i>U</i> _{rel} =0.01%				
		Inductances		10 μ H~1H (1kHz)	<i>U</i> _{rel} =0.02%				
		Capacitances		1pF~1 μ F (1kHz)	<i>U</i> _{rel} =0.01%				
11	High Voltage Capacitance Bridge	ratio of capacitances	Verification Regulation of High Voltage Capacitance Bridges JJG563	X:(0.1~1)	<i>U</i> _{rel} =0.002%				
				X: (1~1000)	<i>U</i> _{rel} =0.2%				
		dissipation factor		1×10 ⁻⁴ ~0.1	<i>U</i> _{rel} =0.2%				
12	Dielectric Dissipation Factor Tester	capacitances	High Voltage Standard Capacitors JJG1075	10pF~100nF	<i>U</i> _{rel} =0.05%				
		dissipation factor		1×10 ⁻⁵ ~1×10 ⁻³	<i>U</i> =6×10 ⁻⁵				



No. CNAS L0893

第 104 页 共 191 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
13	High frequency Q meter	Q	Calibration Specification of HF Q Meter JJF1073	10~ 500,(50kHz~50MHz)	<i>U</i> _{rel} =5%~10%		
		Frequency		50kHz~500kHz	<i>U</i> _{rel} =2%		
				500kHz~50MHz	<i>U</i> _{rel} =2.4%		
14	Transistor Character Scope	Voltage	Calibration Specification for Semiconductor Device Curve Tracers JJF1236	(0.1~1)V	<i>U</i> _{rel} =1%		
				(1~200)V	<i>U</i> _{rel} =0.5%		
		Current		200 μ A~1mA	<i>U</i> _{rel} =0.8%		
				1mA~1A	<i>U</i> _{rel} =0.6%		
				1A~10A	<i>U</i> _{rel} =0.5%		
15	Radio Communication Tester	RF frequency	Calibration Specification for RF Communication Test Set JJF1065	20kHz~6GHz	<i>U</i> _{rel} =2×10 ⁻⁹		
		RF power		20dBm~- 120dBm(20kHz~6GHz)	<i>U</i> =0.2dB~0.5dB		
		Frequency modulation (FM)		20Hz~200kHz	<i>U</i> _{rel} =3%		
		amplitude modulation(A M)		1%~99%	<i>U</i> _{rel} =3%		
		AF frequency		10Hz~20kHz	<i>U</i> _{rel} =2×10 ⁻⁶		
		AF level		0.1V~50V(10Hz~ 20kHz)	<i>U</i> _{rel} =0.1%		
		DC level		0.1V~50V	<i>U</i> _{rel} =0.01%		
16	Bluetooth tester	output frequency	Calibration Specification for Bluetooth Test Set JJF1278	2.402GHz~2.480GHz	<i>U</i> _{rel} =5×10 ⁻⁸		



No. CNAS L0893

第 105 页 共 191 页

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

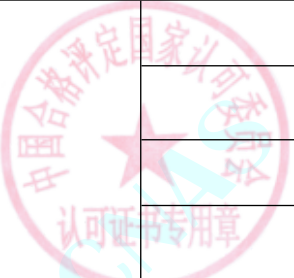
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		output level		(-127~0) dBm, (2.402GHz~2.480GHz)	$U=0.5\text{dB}$		
		Output signal frequency response		(-60~-20) dBm, (2.402GHz~2.480GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120) dBc, (2.402GHz~2.480GHz)	$U=1\text{dB}$		
		Modulation frequency deviation		10Hz~350kHz(GFSK、8DPSK)	$U_{\text{rel}}=2\%$		
17	Wireless LAN tester	output frequency	Calibration Specification for WLAN Test Set JJF1277	2.412GHz~5.825GHz	$U_{\text{rel}}=5\times 10^{-8}$		
		output level		(-127~30) dBm, (2.412GHz~5.825GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120) dBc	$U=1\text{dB}$		
		Single side band phase noise of output signal		(0~-120) dBc/Hz	$U=1\text{dB}$		
		modulation		5%~20%	$U_{\text{rel}}=2\%$		
		Power measurement		(-50~0) dBm	$U=0.3\text{dB}$		
		Vector Magnitude		0.5%~18%	$U_{\text{rel}}=1\%$		
	CDMA digital	output frequency	Calibration Specification for CDMA Digital Radio	0.1GHz~2GHz	$U_{\text{rel}}=2\times 10^{-8}$		



No. CNAS L0893

第 106 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	communication comprehensive test instrument	output level	Communication Testers JJF1177	(-120~-5)dBm(0.1GHz~3GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120)dBc	$U=0.8\text{dB}$		
		Single side band phase noise of output signal		(0~-120)dBc/Hz	$U=1.0\text{dB}$		
		CDMA signal generator Rho		0.9~1.0(0.1GHz~3GHz)	$U=0.0005$		
		CDMA generator EVM		1.5%~50%(0.1GHz~3GHz)	$U=2.0\%$		
		CDMA power level		(-75~-5)dBm	$U=0.5\text{dB}$		
		Audio generator frequency		100Hz~50kHz	$U=0.0008\text{Hz}$		
		Audio generator level		1V~5V(100Hz~5kHz)	$U_{\text{rel}}=0.04\%$		
19	TD-SCDMA digital mobile communication comprehensive test instrument	output frequency	Calibration Specification for TD-SCDMA Digital Radio Communication Testers JJF1204	30MHz~2.7GHz	$U_{\text{rel}}=2 \times 10^{-8}$		
		output level		(-120~-10)dBm, (30MHz~2.7GHz)	$U=0.5\text{dB}$		
		Output signal harmonic		(0~-120)dBc	$U=0.8\text{dB}$		
		Single side band phase noise of output signal		(0~-120)dBc/Hz	$U=1.0\text{dB}$		



No. CNAS L0893

第 107 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		CDMA signal generator Rho		0.9~1.0, (30MHz~2.7GHz)	$U=0.0005$		
		CDMA generator EVM		1.5%~50%, (30MHz~2.7GHz)	$U=2.0\%$		
		Audio generator frequency		100Hz~5kHz	$U=0.0008\text{Hz}$		
		Audio generator level		1V~5V(100Hz~5kHz)	$U_{\text{rel}}=0.06\%$		
20	*artificial mains network	Voltage Division Factor	Calibration Specification of Artificial Mains Networks JJF 1705	0dB~30dB (9kHz~108MHz)	$U=0.5\text{dB}$		
		Impedance Magnitude		$1\ \Omega \sim 300\ \Omega$ (9kHz~108MHz)	$U_{\text{rel}}=7\%$		
		Impedance Phase Angle		$0^\circ \sim 360^\circ$	$U=2.8^\circ$		
21	*coupling/Decoupling network	coupling coefficient	Calibration specification for Coupling/Decoupling Networks of conducted disturbances induced by Radio-Frequency fields Testing JJF 2079	-3dB~3dB,(150kHz~230MHz)	$U=0.34\text{dB}$		
		common-mode impedance		$5\ \Omega \sim 500\ \Omega$,(150kHz~230MHz)	$U_{\text{rel}}=7.3\%$		
		Decoupling Attenuation		0dB~70dB,(150kHz~230MHz)	$U=0.34\text{dB}$		
22	Standard Dissipation Factor	capacitance	Calibration Regulation of Standard Dissipation Factor NIMTT(CM) 050	10pF~500nF	$U_{\text{rel}}=0.05\%$		
		dissipation factor		$1 \times 10^{-5} \sim 1 \times 10^{-1}$	$U=6 \times 10^{-5} \sim 6 \times 10^{-4}$		
23	*Dielectric Dissipation Factor	capacitances	High Voltage Dielectric Loss Tester JJG 1126	100pF~500nF	$U_{\text{rel}}=0.1\%$		



No. CNAS L0893

第 108 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Tester	dissipation factor		0.000%~10%	$U=0.5\% \times \tan \delta + 5 \times 10^{-5}$		
24	Cable and Antenna Analyzers	Level	Calibration Specification for Cable and Antenna Analyzers JJF 1740	(-70~20)dBm(2MHz~18GHz)	$U=(0.25\sim0.15)\text{dB}$		
		Frequency		2MHz~18GHz	$U_{\text{rel}}=2 \times 10^{-7}$		
		Attenuation		(-30~0)dB(2MHz~18GHz)	$U=0.05\text{dB}$		
		SWR		1.00~2.00(2MHz~18GHz)	$U=0.02\sim0.10$		
25	*Spectrum Analyzer	Frequency reading	Calibration Specification for Spectrum JJF 1396	2Hz~67GHz	$U_{\text{rel}}=5 \times 10^{-10}$		
		Frequency counting		2Hz~67GHz	$U_{\text{rel}}=5 \times 10^{-10}$		
		Sweep frequency width		100Hz~67GHz	$U_{\text{rel}}=0.01\%$		
		RBW		1Hz~30MHz(9kHz~50GHz)	$U_{\text{rel}}=0.01\%$		
		Influence of resolution bandwidth conversion		(-3~3)dB	$U=0.2\text{dB}$		
		Input attenuator conversion impact		(-3~3)dB	$U=0.2\text{dB}$		
		Noise sidebands		(-150~-50)dBc/Hz(载波频率 9kHz~67GHz)	$U=1.2\text{dB}$		
		residual FM		(0.2~500)Hz(载波频率 9kHz~67GHz)	$U=2\text{Hz}$		



No. CNAS L0893

第 109 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Reference level		(-90~10)dBm(9kHz~67GHz)	$U=0.2\text{dB}$		
		Absolute amplitude		(-30~0)dBm(50MHz~1GHz)	$U=0.2\text{dB}$		
		Remaining responses		(-150~-80)dBm(100kHz~50GHz)	$U=2\text{dB}$		
		Mirror response		(-130~-70)dBm(10MHz~50GHz)	$U=2\text{dB}$		
		Sweep time		1ms~2000s	$U_{\text{rel}}=1 \times 10^{-7}$		
		Vertical display scale		(-80~0)dB	$U=0.2\text{dB}$		
		Display the average noise level		(-160~-90)dBm, 9kHz~67GHz	$U=1.0\text{dB}$		
		Input frequency response		(-5~5)dB, 9kHz~67GHz	$U=0.2\text{dB} \sim 1.0\text{dB}$		
		Harmonic distortion		(-80~-20)dBc, 9kHz~67GHz	$U=0.5\text{dB} \sim 2.0\text{dB}$		
		Third-order intermodulation distortion		(-100~-50)dBc, 9kHz~67GHz	$U=0.5\text{dB} \sim 2.0\text{dB}$		
		Gain compression		(0~1)dB, 9kHz~67GHz	$U=0.2\text{dB}$		
		VSWR		1~2,(10MHz~43.5GHz)	$U=0.02 \sim 0.10$		
		Calibrate signal level		(0~-40)dBm	$U=0.2\text{dB}$		



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No. CNAS L0893

第 110 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
26	Attenuator	Attenuation	Calibration Specification for Attenuators from Radio Frequency to Microwave Frequency JJF 2092	(0~120)dB (250kHz~26.5GHz)	$U=0.09\text{dB}\sim 0.14\text{dB}$		
				(0~50)dB (26.5GHz~40GHz)	$U=0.14\text{dB}\sim 0.30\text{dB}$		
				(0~50)dB (40GHz~50GHz)	$U=0.30\text{dB}\sim 0.40\text{dB}$		
		SWR		1.00~2.00,(10MHz~40GHz)	$U=0.02\sim 0.10$		
27	Power divider	Insertion loss	Calibration Specification for Microwave Components NIMTT(CM) 101	0~80dB,(250kHz~40GHz)	$U=0.2\text{dB}\sim 0.8\text{dB}$		
		Standing wave ratio		1.00~2.00(250kHz~40GHz)	$U=0.02\sim 0.10$		
28	Low Frequency Signal Generator	Voltage	Verification Regulation of Low Frequency Signal Generator JJG 602	1mV~1V	$U_{\text{rel}}=3\%$		
		Voltage		1V~300V	$U_{\text{rel}}=1.5\%$		
		Frequency		10mHz~1MHz	$U_{\text{rel}}=1\times 10^{-7}$		
		Distortion		0.01%~20%	$U_{\text{rel}}=3\%$		
29	*Signal Generator	Power	Calibration Specification for Signal Generators JJF 1931	20dBm~-120dBm (20Hz~40GHz)	$U=0.16\text{dB}\sim 0.50\text{dB}$		
		Frequency		20Hz~40GHz	$U_{\text{rel}}=5\times 10^{-10}$		
		Amplitude modulation		6%~99%(fm:50Hz~400kHz)	$U_{\text{rel}}=0.7\%\sim 1.8\%$		
		Frequency modulation		1kHz~400kHz(fm:10Hz~200kHz)	$U_{\text{rel}}=0.6\%\sim 3.5\%$		
		Phase modulation		(1~400)rad (50Hz~100kHz)	$U_{\text{rel}}=0.6\%\sim 1.2\%$		



No. CNAS L0893

第 111 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Harmonic distortion	ilac-MEA INTERNATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(0~-100)dBc	$U=0.2\text{dB}\sim 0.8\text{dB}$		
		phase noise		(-30~-140)dBc/Hz	$U=1.0\text{dB}\sim 2.3\text{dB}$		
		Internal modulation generator frequency		20Hz~100kHz	$U_{\text{rel}}=1\times 10^{-6}$		
		Internal modulation generator amplitude		100mV~10V, (20Hz~100kHz)	$U_{\text{rel}}=1\%$		
30	Distortion Meter	Distortion	Calibration Specification for Distortion Meters JJF 1852	0.3%~100%(10Hz~10kHz)	$U_{\text{rel}}=1\%$		
				0.3%~100%(10kHz~100kHz)	$U_{\text{rel}}=3\%$		
				0.3%~100%(100kHz~200kHz)	$U_{\text{rel}}=3.5\%$		
				0.003%~0.3%(10Hz~10kHz)	$U_{\text{rel}}=6\%$		
				0.003%~0.3%(10kHz~100kHz)	$U_{\text{rel}}=6.5\%$		
				0.003%~0.3%(100kHz~200kHz)	$U_{\text{rel}}=9\%$		
		Voltage		(0.001~300)V	$U_{\text{rel}}=1\%$		
31	Digital Oscilloscope	DC Voltage	Calibration Specification for Digital Storage Oscilloscope JJF 1057, Verification Regulation of Digital	-200V~1mV, 1mV~200V(1M Ω)	$U=0.03\%U_x+0.1\text{mV}$		
				-5V~-1mV, 1mV~5V(50 Ω)	$U=0.03\%U_x+0.1\text{mV}$		



No. CNAS L0893

第 112 页 共 191 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
		Square Amplitude	Oscilloscope GJB 7691	5mV~200V(1MΩ)(1kHz)	$U=0.12\%U_x+0.1\text{mV}$		
		5mV~5V(1kHz)		$U=0.12\%U_x+0.1\text{mV}$			
		Frequency bandwidth		50kHz~50GHz	$U_{\text{rel}}=2.5\%$		
		Rise time		17ps~500ns	$U=2\%$		
		Sweep time		200ps~5s	$U_{\text{rel}}=0.6\%$		
32	Analog Oscilloscope	Vertical deflection coefficient	Verification Regulation of Analogue Oscilloscope JJG 262	(1mV~20V)/div	$U_{\text{rel}}=0.6\%$		
		Frequency bandwidth		50kHz~500MHz	$U_{\text{rel}}=2.5\%$		
		Rise time		350ps~500ns	$U_{\text{rel}}=20\%$		
		Sweep time		200ps~5s	$U_{\text{rel}}=0.6\%$		
33	Sampling Oscilloscope	Vertical deflection coefficient	Verification Regulation of 1 GHz Sampling Oscilloscope JJG 491	10mV~200V	$U_{\text{rel}}=0.6\%$		
		Frequency bandwidth		50kHz~50GHz	$U_{\text{rel}}=3\%$		
		Time base		200ps~5s	$U_{\text{rel}}=0.6\%$		
		Rise time		17ps~500ns	$U=2\%$		
34	Oscilloscope Calibrator	Voltage	Verification Regulation of Oscilloscope Calibrator JJG 278	1mV~200V	$U_{\text{rel}}=0.05\%$		
		Time base		25ps~5s	$U_{\text{rel}}=4\times 10^{-8}$		
		Rise Time		25ps~500ns	$U=3\%$		



No. CNAS L0893

第 113 页 共 191 页

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

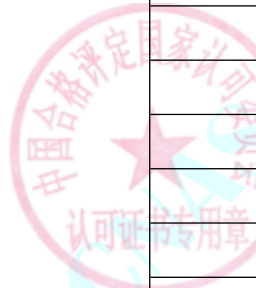
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date		
35	Pulse Generator	Frequency	Verification Regulation of Pulse Generator JJG 490	0.1Hz~3GHz	$U_{rel}=3.4\times 10^{-8}$				
		Pusle wide		10000s~1ns	$U_{rel}=0.35\%$				
		Amplitude		10mV~100V	$U_{rel}=1.0\%$				
		Rise Time		17ps~500ns	$U=3\%$				
36	Audio Analyzer	Voltage	Calibration Specification for Audio Analyzer JJF 1395	(1~220)mV(10Hz~1MHz)	$U_{rel}=0.07\%\sim 0.35\%$				
				(0.22~22)V(10Hz~1MHz)	$U_{rel}=0.06\%\sim 0.28\%$				
				(22~220)V(10Hz~1MHz)	$U_{rel}=0.06\%\sim 1.2\%$				
				(220~300)V(15Hz~1kHz)	$U_{rel}=0.04\%\sim 0.01\%$				
		Distortion		0.003%~0.05%(10Hz~10kHz)	$U_{rel}=10\%\sim 2\%$				
				0.05%~0.3%(10Hz~200kHz)	$U_{rel}=1\%\sim 10\%$				
				0.3%~100%(10Hz~200kHz)	$U_{rel}=1\%\sim 4\%$				
		Source Frequency		10Hz~1MHz	$U_{rel}=1\times 10^{-6}$				
		Source Voltage		(1~220)mV(10Hz~1MHz)	$U_{rel}=0.08\%\sim 0.40\%$				
				(0.22~22)V(10Hz~1MHz)	$U_{rel}=0.10\%\sim 0.48\%$				
				(22~220)V(10Hz~1MHz)	$U_{rel}=0.08\%\sim 1.26\%$				
				(220~300)V(15Hz~1kHz)	$U_{rel}=0.04\%\sim 0.01\%$				

No. CNAS L0893

第 114 页 共 191 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
37	Measuring Receiver	Frequency	Calibration Specification for Measuring Receivers JJF 1173	250kHz~67GHz	$U_{\text{rel}}=1.3 \times 10^{-9}$		
		Level		(0~-120)dB (250kHz~50GHz)	$U=0.006\text{dB} \sim 0.15\text{dB}$		
		Amplitude modulation		5%~99%	$U_{\text{rel}}=0.2\% \sim 0.5\%$		
		Frequency modulation		1kHz~400kHz	$U_{\text{rel}}=0.2\% \sim 0.5\%$		
		Phase modulation		(1~400)rad	$U_{\text{rel}}=0.5\% \sim 2\%$		
38	EMI Receiver	Frequency	Calibration Specification for EMI Testing Receivers JJF1144	9kHz~40GHz	$U_{\text{rel}}=1 \times 10^{-8}$		
		Level		(0~125)dB μ V	$U=0.3\text{dB}$		
		Attenuation		(0~100)dB	$U=0.2\text{dB}$		
		Standing wave ratio		1.00~2.00	$U=0.02$		
		Impulse frequency response		(0~70)dB,(9kHz~1GHz)	$U=1.2\text{dB}$		
39	LCR Digital Bridge(LCR Meter)	Resistances	Verification regulation for wide range digital RLC meter GJB 8817	1 Ω ~ 1M Ω ,(1kHz)	$U_{\text{rel}}=0.01\%$		
		Inductances		10 μ H~ 100 μ H,(1kHz)	$U_{\text{rel}}=0.2\%$		
				100 μ H~ 1H,(1kHz)	$U_{\text{rel}}=0.02\%$		
				1H~1000H,(100Hz)	$U_{\text{rel}}=0.06\%$		
		Capacitances		1pF~ 1 μ F,(1kHz)	$U_{\text{rel}}=0.01\%$		
				1 μ F~ 1000 μ F,(100Hz)	$U_{\text{rel}}=0.05\%$		
				Dielectric Dissipation	$1 \times 10^{-5} \sim 1 \times 10^{-3}$		



No. CNAS L0893

第 115 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Factor		$1 \times 10^{-2} \sim 1 \times 10^{-1}$	$U=3 \times 10^{-4}$		
				$1 \times 10^{-1} \sim 1$	$U=5 \times 10^{-4}$		
40	Power Meter	Standing wave ratio	Verification Regulation of Lower Power Mount	$1.00 \sim 2.00$ (9kHz~40GHz)	$U=0.02 \sim 0.10$		
		Calibration factor	GJB/J3598, Calibration Specification for RF &	$30\% \sim 200\%$ (250kHz~40GHz)	$U_{rel}=2.0\% \sim 3.0\%$		
		Calibration factor	Microwave Power Sensors JJF1887	$30\% \sim 200\%$ (40GHz~50GHz)	$U_{rel}=3.0\% \sim 5.0\%$		
41	Function Signal Generator	Frequency	Verification Regulation of Function Generators	$0.1\text{Hz} \sim 2.7\text{GHz}$	$U_{rel}=4 \times 10^{-8}$		
		Voltage	JJG840, Calibration Specification for Arbitrary	$1\text{mV} \sim 55\text{V}$	$U_{rel}=1\%$		
		Distortion	Waveform Ge-nerator JJF1152	$0.003\% \sim 30\%$	$U_{rel}=1\% \sim 6\%$		
42	*Insulating Oil Dielectric Dissipation Factor and Volume Resistivity Testers	Capacitors	Calibration Specification for	100pF	$U_{rel}=0.1\%$		
		Dielectric Dissipation Factor	Insulating Oil Dielectric Dissipation Factor and	$0.001\% \sim 10\%$	$U_{rel}=0.5\%$		
		Volume Resistivity	Volume Resistivity Testers JJF1618	$1\text{M}\Omega \sim 1\text{T}\Omega$	$U_{rel}=0.5\% \sim 3\%$		
43	*A.C.Resistance Boxes	Resistance	Calibration Specification for A.C.Resistance Boxes JJF1636	$1\Omega \sim 100\Omega$, (100Hz、1kHz)	$U_{rel}=0.03\%$		
		Resistance		$100\Omega \sim 100\text{k}\Omega$, (100Hz、1kHz)	$U_{rel}=0.02\%$		
		Resistance		$100\text{k}\Omega \sim 10\text{M}\Omega$, (100Hz、1kHz)	$U_{rel}=0.1\%$		
44	Oscilloscope voltage probes	Attenuation ratio	Calibration Specification for Oscilloscope Voltage Probes JJF1437	$1 \sim 1000$	$U_{rel}=0.6\%$		

No. CNAS L0893

第 116 页 共 191 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
		Bandwidth		250kHz~2GHz	<i>U</i> _{rel} =5%		
		Rise time		58ps~50ns	<i>U</i> =5% <i>t</i> +2ps		
45	*Power Capacitance and Inductance Testers	Capacitance	Calibration Specification for Power Capacitance and Inductance Testers JJF(zhe) 1139	1 μ F~2000 μ F	<i>U</i> _{rel} =0.2%		
		Inductance		1mH~5H	<i>U</i> _{rel} =0.2%		
46	*Network Cable Analyzer	length	Calibration Specification for Network Cable Analyzers JJF 1494	(20~100)m	<i>U</i> _{rel} =2.5%		
		DC Loop Resistance		(0.1~100) Ω	<i>U</i> _{rel} =0.3%		
		transmission delay		(85~445)ns,10MHz	<i>U</i> _{rel} =2.5%		
		insertion loss		(0~40)dB,(1~250)MHz	<i>U</i> =0.3dB		
		crosstalk		(10~70)dB,(1~250)MHz	<i>U</i> =0.2dB~0.8dB		
		Return loss		(0~30)dB,(1~250)MHz	<i>U</i> =0.3dB		
47	Coupler	Insertion loss	Calibration Specification for Directional Coupler and SWR Bridges JJF 1680	(0~80)dB,(250kHz~40GHz)	<i>U</i> =0.2dB~0.8dB		
		Standing wave ratio		1.00~2.00,(250kHz~40GHz)	<i>U</i> =0.02~0.10		
VII Time and frequency measuring instrument							
1	Frequency Meters	Frequency	Verification Regulation of Frequency Meters JJG603	10Hz~20kHz	<i>U</i> _{rel} =5×10 ⁻⁵		
2	Vibrating Wire Frequency Readouts	Frequency	Calibration Specification for Vibrating Wire Frequency Readouts JJF1401	(300~6000)Hz	<i>U</i> =(0.03~0.6)Hz		
3	High Voltage	Switch on/off Time	Verification regulation of High Voltage Switch	(1~20000)ms	<i>U</i> =0.02ms		



No. CNAS L0893

第 117 页 共 191 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
	Bridges	Synchronism of switch on/off	Operation Characteristic Testers JJG1120	(1~100)ms	<i>U</i> =0.02ms		
		Bounce time		(1~100)ms	<i>U</i> =0.02ms		
4	Mechanical stopwatch	Time	Verification Regulation of Stopwatches JJG237	240s/900s/1800s/3600s	<i>U</i> =(0.01~0.2)s		
				60s/30s/6s	<i>U</i> =(0.01~0.2)s		
5	Electronic stopwatch	Time	Verification Regulation of Stopwatches JJG237	(0~86400)s	<i>U</i> =(0.003~0.03)s		
6	Timer and Charge System of SPC Exchange	Time Length	Verification Regulation of the Timer and Charge System of SPC Exchange JJG(Ⅱ)87	(0.1~864000)s	<i>U</i> =0.1% <i>t</i> +0.01s		
7	Coast-down Time Testers	Velocity	Calibration Specification for Coast-down Time Testers JJF1360	0.1km/h~20km/h	<i>U</i> =0.01km/h		
				20km/h~130km/h	<i>U</i> _{rel} =4.6×10 ⁻⁴		
		Time		0.1s~150s	<i>U</i> =1.1ms		
		Diameter		0mm~300mm	<i>U</i> =0.03mm		
8	GNSS Vehicle Comprehensive Performance Tester	Response time of localization	Calibration Specification for Vehicle Comprehensive Performance Tester JJF(Mechanics)1017	(0~1000)s	<i>U</i> =0.02s		
		Time		(0~1000)s	<i>U</i> =0.02s		
		Velocity		(5~300)km/h	<i>U</i> =0.08km/h		
		Distance		(0.1~10000) m	<i>U</i> _{rel} =0.02%		
		Positioning accuracy		Longitude(0~180)° ,Latitude(0~90)°	<i>U</i> =0.0002′		
9	GNSS Signal Simulators	Power range	Calibration Specification for GNSS Signal Simulators	(-50~-90) dB	<i>U</i> =0.2dB		



No. CNAS L0893

第 118 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Power resolution	JJF1471	0.1dB~2dB	$U=0.06\text{dB}$		
		Harmonic		(-100~0)dBc	$U=2.0\text{dB}$		
		Frequency		1GHz~2.7GHz	$U_{\text{rel}}=3.6 \times 10^{-10}$		
		1s Frequency stability		$5 \times 10^{-11}/\text{s}$	$U_{\text{rel}}=1.6 \times 10^{-12}$		
		Speed range		(0~ 2.0×10^5)m/s	$U=0.04\text{m/s}$		
		Acceleration range		(0~ 2×10^4)m/s ²	$U=0.02\text{m/s}^2$		
		Acceleration range		(0~ 2×10^3)m/s ³	$U=0.01\text{m/s}^3$		
		Pseudorange resolution		(0.01~0.1)m	$U=0.06\text{m}$		
		Pseudorange ratio resolution		(0.01~0.1)m/s	$U=0.006\text{m/s}$		
10	Calibration device of high voltage switch characteristic tester	Time	Calibration device of high voltage switch characteristic tester NIMTT(CM) 070	(1~20000)ms	$U=2 \times 10^{-4}\text{ms}$		
		Speed		(0.1~2)m/s	$U=(0.0002 \sim 0.0023)\text{m/s}$		
11	Crystal Oscillators inside the Electrical Measurement Instruments	Relative frequency deviation	Calibration Specification for Crystal Oscillators inside the Electrical Measurement Instruments JJF 1984	1MHz、5MHz、10MHz	$U=3.0 \times 10^{-10}$		
		Warm-up		1MHz、5MHz、10MHz	$U=4.2 \times 10^{-10}$		
		Daily aging rate		1MHz、5MHz、10MHz	$U=5.2 \times 10^{-12}$		
		1 second frequency stability		1MHz、5MHz、10MHz	$U=3.0 \times 10^{-11}$		



No. CNAS L0893

第 119 页 共 191 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 reproducibility		1MHz、5MHz、10MHz	$U=4.2 \times 10^{-10}$		
12	Quartz Crystal Frequency Standards	Relative frequency deviation	Calibration Specification for Quartz Crystal Frequency Standards JJF 2090	5MHz、10MHz	$U=6.8 \times 10^{-11}$		
		Frequency reproducibility		5MHz、10MHz	$U=6.0 \times 10^{-11}$		
		1s Frequency stability		5MHz、10MHz	$U=7.0 \times 10^{-12}$		
		Daily aging rate		5MHz、10MHz	$U=1.0 \times 10^{-12}$		
		Phase noise		(-170~-80)dBc/Hz, 5MHz、10MHz	$U=3\text{dB}$		
		GNSS taming quartz frequency standard relative frequency deviation		5MHz、10MHz	$U=6.8 \times 10^{-11}$		
		GNSS taming quartz frequency standard second pulse timing deviation		5MHz、10MHz	$U=14\text{ns}$		



No. CNAS L0893

第 120 页 共 191 页

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

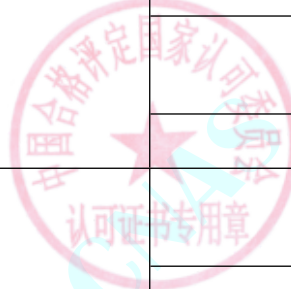
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		GNSS timing quartz frequency standard second pulse timing stability		5MHz、10MHz	$U=2\text{ns}$		
13	Frequency Comparators	Comparing uncertainty	Verification Regulation of Frequency Comparators JJG 545	5MHz、10MHz	$U=3.4 \times 10^{-12} / \tau$		
		Input sensitivity		(-20~10)dBm	$U=2\text{dB}$		
14	Microwave Frequency Counters	Relative frequency deviation	Verification Regulation of Microwave Frequency Counters JJG 841	1MHz、5MHz、10MHz	$U=3.0 \times 10^{-10}$		
		Warm-up		1MHz、5MHz、10MHz	$U=4.2 \times 10^{-10}$		
		Daily aging rate		1MHz、5MHz、10MHz	$U=5.2 \times 10^{-12}$		
		1 second frequency stability		1MHz、5MHz、10MHz	$U=3.0 \times 10^{-11}$		
		Frequency reproducibility		1MHz、5MHz、10MHz	$U=4.2 \times 10^{-10}$		
		Frequency		100kHz~67GHz	$U_{\text{rel}}=3.0 \times 10^{-10}$		
		Input sensitivity		(-40dBm~10dBm),(100kHz~67GHz)	$U=1\text{dB}$		
15	Universal Counters	Relative frequency deviation	Verification Regulation of The Universal Counters JJG 349	1MHz、5MHz、10MHz	$U_{\text{rel}}=3.0 \times 10^{-10}$		



No. CNAS L0893

第 121 页 共 191 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
		Warm-up		1MHz、5MHz、10MHz	$U_{\text{rel}}=4.2\times10^{-10}$		
		Daily aging rate		1MHz、5MHz、10MHz	$U_{\text{rel}}=5.2\times10^{-10}$		
		1 second frequency stability		1MHz、5MHz、10MHz	$U_{\text{rel}}=3.0\times10^{-11}$		
		Frequency reproducibility		1MHz、5MHz、10MHz	$U_{\text{rel}}=4.2\times10^{-10}$		
		Frequency		1Hz~18GHz	$U_{\text{rel}}=3.0\times10^{-10}$		
		Period		1ns~100s	$U_{\text{rel}}=3.0\times10^{-10}$		
		Time interval		10ns~10000s	$U_{\text{rel}}=2\times10^{-7}$		
		Input sensitivity		(10mV~330mV),(1Hz~1GHz),(10ns~100s)	$U=2\text{mV}$		
				(-33dBm~-20dBm),(1GHz~18GHz),(1ns~10ns)	$U=1\text{dB}$		
16	Time Calibrators	Warm-up	Verification Regulation of Time Calibrators JJG 601	1MHz、5MHz、10MHz	$U_{\text{rel}}=4.2\times10^{-10}$		
		Relative frequency deviation		1MHz、5MHz、10MHz	$U_{\text{rel}}=3.0\times10^{-10}$		
		Time interval		0.1ms~86400s	$U_{\text{rel}}=3.0\times10^{-6}\sim6.0\times10^{-7}$		
17	Time Interval Meters	Relative frequency deviation	Verification Regulation of Time Interval Meter JJG 238	1MHz、5MHz、10MHz	$U_{\text{rel}}=3.0\times10^{-10}$		
		Warm-up		1MHz、5MHz、10MHz	$U_{\text{rel}}=4.2\times10^{-10}$		



No. CNAS L0893

第 122 页 共 191 页

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

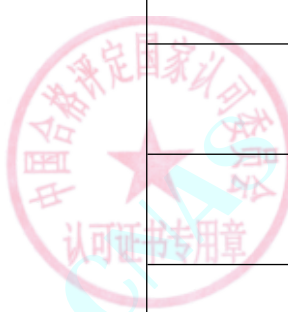
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (<i>k</i> =2)	Note	Effective Date
		Daily aging rate		1MHz、5MHz、10MHz	<i>U</i> _{rel} =5.2×10 ⁻¹²		
		1 second frequency stability		1MHz、5MHz、10MHz	<i>U</i> _{rel} =3.0×10 ⁻¹¹		
		Frequency reproducibility		1MHz、5MHz、10MHz	<i>U</i> _{rel} =4.2×10 ⁻¹⁰		
		Time interval		10ns~10000s	<i>U</i> _{rel} =2.0×10 ⁻⁵ ~2.0×10 ⁻⁷		
18	Time Interval Generators	Relative frequency deviation	Calibration Specification for Time Interval Generators JJF 1902	1MHz、5MHz、10MHz	<i>U</i> _{rel} =3.0×10 ⁻¹⁰		
		Warm-up		1MHz、5MHz、10MHz	<i>U</i> _{rel} =4.2×10 ⁻¹⁰		
		Daily aging rate		1MHz、5MHz、10MHz	<i>U</i> _{rel} =5.2×10 ⁻¹²		
		1 second frequency stability		1MHz、5MHz、10MHz	<i>U</i> _{rel} =3.0×10 ⁻¹¹		
		Frequency reproducibility		1MHz、5MHz、10MHz	<i>U</i> _{rel} =4.2×10 ⁻¹⁰		
		Time interval		10ns~1ms	<i>U</i> =0.5ns		
				1ms~10000s	<i>U</i> _{rel} =6.0×10 ⁻⁹		
				Rise time	1ns~10ns		<i>U</i> =0.26ns
		VIII Optics measuring instrument					
1	Illuminance Meter	Illuminance	Verification Regulation of Illuminance Meter JJG245	(10 ⁻³ ~10 ⁻¹)lx	<i>U</i> _{rel} =(2.5%~2.0%)		



No. CNAS L0893

第 123 页 共 191 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 ⁻¹ ~10)lx	U _{rel} =(2.0%~1.0%)		
				(10~3000)lx	U _{rel} =1.0%		
				(3000~10000)lx	U _{rel} =(1.0%~2.5%)		
2	Standard Lamp of Luminous Intensity	Luminance	Verification Regulation of Standard Lamp of Luminous Intensity JJG 246	(1~10)cd	U _{rel} =(1.2%~0.8%)		
				(10~1200)cd	U _{rel} =0.8%		
				(1200~5000)cd	U _{rel} =(0.8%~2.0%)		
3	Standard Incandescent Lamp for Total Luminous Flux	Total Luminous Flux	Verification Regulation of Standard Incandescent Lamp for Total Luminous Flux JJG 247	(50~2×10 ⁴)lm	U _{rel} =1.0%		
4	Luminance Meter	Luminance	Verification Regulation of Luminance Meter JJG 211	(0.05~0.3) cd/m ² /	U _{rel} =2.4%		
				(0.3~3000) cd/m ²	U _{rel} =2.0%		
				(3000~50000) cd/m ²	U _{rel} =3.0%		
		x,y: 0.0~0.9		U=0.004			
5	Spectral Radiometers	Wavelength	Calibration Specification for Spectralradiometers JJF1975	(250~2500)nm	U=0.1nm		
		spectral radiation		(200~250) nm: (0.001~100) μ W/(cm ² ·nm)	U _{rel} =12%~4.1%		
				(250~400) nm: (0.001~100) μ W/(cm ² ·nm)	U _{rel} =4.1%~2.8%		
				(400~800)nm: (0.001~ 100) μ W/(cm ² ·nm)	U _{rel} =2.8%		



No. CNAS L0893

第 124 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		spectral radiation		(800~2500) nm: (0.001~100) μ W/(cm ² · nm)	$U_{rel}=2.8\%\sim 5.3\%$		
				(200~250) nm: (0.01~ 1×10^5) μ W/(cm ² · nm · sr)	$U_{rel}=12\%\sim 4.1\%$		
				(250~400) nm: (0.01~ 1×10^5) μ W/(cm ² · nm · sr)	$U_{rel}=4.1\%\sim 2.8\%$		
				(400~800)nm: (0.01~ 1×10^5) μ W/(cm ² · nm · sr)	$U_{rel}=2.8\%$		
				(800~2500) nm: (0.01~ 1×10^5) μ W/(cm ² · nm · sr)	$U_{rel}=2.8\%\sim 5.3\%$		
		Stray Light		(0~5)%	$U=0.2\%$		
6	Color meter	Chromaticity Coordinate	Calibration Specification for Color Temperature Meters JJF 2100	x: 0.0~0.9	$U=0.0008$		
				y: 0.0~0.9	$U=0.0006$		
		Color Temperature		(2042~3200)K	$U=(6\sim 15)K$		
				(3200~9500)K	$U=(15\sim 80)K$		
		Rendering Index		100	$U=0.3$		
7	Cathode Ray Tubes(CRT) Analyzers	Color Temperature	Calibration Specification of Cathode Ray Tubes(CRT) Analyzers JJF 1079	(6500~9300)K	$U=1.0\times 10^2K$		
		Chromaticity Coordinate		x,y: 0.0~0.9	$U=0.002$		



No. CNAS L0893

第 125 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Luminance		(50~500)cd/m ²	$U_{rel}=3.5\%$		
8	Lovibond Comparable Colormeter	Lovibond Chromaticness	Verification Regulation of Lovibond Comparable Colormeter JJG 758	R: (0.1~79.9) Y: (0.1~79.9) B: (0.1~49.9) N: (0.1~3.9)	$U=0.6$ $U=0.6$ $U=0.6$ $U=0.6$		
9	Colormeters and Color Difference Meters	Stimulus value Y Chromaticity coordinate	Verification Regulation of Colormeters and Color Difference Meters JJG 595	Y: 1~100 x,y: 0.0~0.9	$U=0.9\sim 1.3$ $U=0.0074\sim 0.0086$		
10	Color Standard Plates	Spectral reflectance Spectral reflection Stimulus value Stimulus value Chromaticity coordinate Chromaticity coordinate Lightness index Chroma index Chromatic aberration	Verification Regulation of Color Standard Plates JJG 453	(0~100) % (0~100) % X: 0~100,Y: 0~ 100,Z: 0~150 X: 0~100,Y: 0~ 100,Z: 0~150 x,y: 0.0~0.9 x,y: 0.0~0.9 0~100 a*: (-100~100) ,b*: (- 100~100) 0~100	$U=0.96\%$ $U=1.0\%\sim 1.3\%$ $U=0.13\sim 1.3$ $U=0.01\sim 0.77$ $U=0.0017\sim 0.0046$ $U=0.0013\sim 0.0025$ $U=0.36\sim 0.53$ $U=0.53\sim 2.0$ $U=0.4$		



No. CNAS L0893

第 126 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Blue Whiteness	ilac-MEAS CNAS NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	0~100	$U=1.0\sim 1.2$		
		G-s Whiteness		0~100	$U=1.2\sim 1.3$		
		Light tone index		(-3~3)	$U=0.5$		
		Hunter Whiteness		0~100	$U=1.1\sim 1.4$		
		Smokemetric tablet		0.1~10.0	$U=0.3$		
11	Whiteness Meter	Whiteness	Verification Regulation of Whiteness Meter JJG 512	Instrument: W:0~100	$U=1.0\sim 1.3$		
				White board: W:0~100	$U=1.0\sim 1.3$		
12	*Laser for Medicine	Laser Power	Verification Regulation of Laser for Medicine JJG 581	0.1 mW~100 mW	$U_{rel}=2.0\%$		
		Laser Power		0.1 W~150 W	$U_{rel}=5.0\%$		
		Laser Energy		10 μ J~10 J	$U_{rel}=4.0\%$		
13	Laser Energy Meter	Laser Energy	Verification Regulation of laser energy meter JJG312	10 μ J~850mJ	$U_{rel}=4\%$	合格评定国家认可委员会 认可证书专用章	
14	laser beams Analysis	Laser beam width	Calibration Specification for laser beam Analysis NIMTT(CM) 118	0.2mm~5mm	$U_{rel}=5\%$		
15	0.1mW~200W Laser Power Meter	Laser Power	Verification Regulation of 0.1mW~200W laser power meter JJG249	0.1mW~100mW	$U_{rel}=2.0\%$		
		Laser Power		0.1W~200W	$U_{rel}=4.0\%$		
16	200W~10000W Laser Power Meter	Laser Power	Calibration Specification for 200W~10000W laser power meter NIMTT (CM) 171	200 W~5000 W	$U_{rel}=5.0\%$		
17	UV Irradiance Meter	Ultraviolet Irradiance	Verification Regulation of Ultraviolet Irradiance Meters	UVA: (1~40000) μ W/cm ²	$U_{rel}=12\%$		



No. CNAS L0893

第 127 页 共 191 页

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

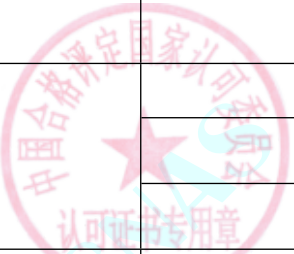
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			JJG 879	UVB: (1~1000) μ W/cm ²	$U_{rel}=12\%$		
				UVC: (1~1000) μ W/cm ²	$U_{rel}=12\%$		
18	Ultraviolet Radiant Exposure Meters	Radiation Exposure Amount	Calibration Specification for Ultraviolet Radiant Exposure Meters JJF 2130	(100~5000)mJ/cm ²	$U_{rel}=16\%$		
19	Wide-band Irradiance Meters	Wide-band Irradiance	Calibration Specification for Wide-band Irradiance Meters JJF 1660	(250~400) nm: (0.001~100) μ W/(cm ² · nm)	$U_{rel}=4.1\%\sim 2.8\%$		
				(400~800) nm: (0.001~100) μ W/(cm ² · nm)	$U_{rel}=2.8\%$		
				(800~2500) nm: (0.001~100) μ W/(cm ² · nm)	$U_{rel}=2.8\%\sim 5.3\%$		
20	Spectral Irradiance Standard Lamp	Spectral Irradiance	Verification Regulation of Spectral Irradiance Standard Lamp JJG 384, Calibration Specification for Deuterium Lamps Spectral Irradiance (200 nm~400 nm) JJF 2169	(200~250) nm: (0.001~200) μ W/(cm ² · nm)	$U_{rel}=12\%\sim 4.1\%$		
				(250~400) nm: (0.001~200) μ W/(cm ² · nm)	$U_{rel}=4.1\%\sim 2.8\%$		
				(400~800) nm: (0.001~200) μ W/(cm ² · nm)	$U_{rel}=2.8\%$		
				(800~2500) nm: (0.001~200) μ W/(cm ² · nm)	$U_{rel}=2.8\%\sim 5.3\%$		



No. CNAS L0893

第 128 页 共 191 页

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

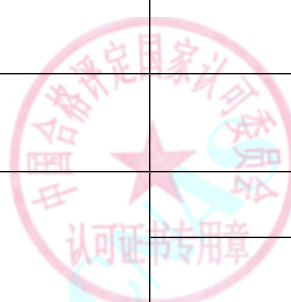
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
21	*Artificial Accelerated Weathering Apparatus of Xenon Arc Lamp	Spectral Irradiance	Calibration Specification of radiometers used in aging test JJF 1525	(250~400) nm: (0.001~200) μ W/(cm ² ·nm)	$U_{rel}=4.1\%\sim 2.8\%$		
				(400~800) nm: (0.001~200) μ W/(cm ² ·nm)	$U_{rel}=2.8\%$		
				(800~2500) nm: (0.001~200) μ W/(cm ² ·nm)	$U_{rel}=2.8\%\sim 5.3\%$		
22	Spectral Radiance Standard Lamp	Spectral Irradiance	Verification Regulation of Spectral Radiance Standard Lamp JJG 383	(250~400) nm: (0.01~2000) μ W/(cm ² ·nm·sr)	$U_{rel}=4.6\%\sim 3.5\%$		
				(400~800) nm: (0.01~2000) μ W/(cm ² ·nm·sr)	$U_{rel}=3.5\%$		
				(800~2500) nm: (0.01~2000) μ W/(cm ² ·nm·sr)	$U_{rel}=3.5\%\sim 5.7\%$		
23	Radiation Fluxmeters	Irradiance	Verification Regulation of Radiation Fluxmeters JJF1572	(0.1 ~2.0)kW/m ²	$U_{rel}=5\%$		
24	Stabilized Laser Sources for Optical Transmit	output power	Verification Regulation of Stabilized Laser Sources for Optical Transmit JJG 958	(-70~30)dBm	$U=0.09$ dB		
		Central wavelength		(600~1700)nm	$U=0.05$ nm		
		Spectral bandwidth		(600~1700)nm	$U=0.05$ nm		
25	Optical Attenuator for Telecommunication	Attenuation value	Calibration Specification of Optical Attenuator for Telecommunications JJF1199	(800~1700)nm: (0~60)dB	$U=0.08$ dB		



No. CNAS L0893

第 129 页 共 191 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
	ns	Insertion loss		(800~1700)nm: (0~60)dB	<i>U</i> =0.08dB		
26	Optical Return Loss Meters	Optical return loss	Calibration Specification of Optical Return Loss Meters for Telecommunications JJF1325	(800~1700) nm, (0~60) dB	<i>U</i> =(0.4~0.6) dB		
27	Filter	Spectraltransmittance	Calibration Specification for Light filter NIMTT(CM) 066	(0.01~100) %	<i>U</i> _{rel} =0.3%		
		wavelength		(200~850) nm	<i>U</i> =0.2 nm		
				(850~2600) nm	<i>U</i> =(0.2~0.5) nm		
28	Interference Filter	Spectraltransmittance	Verification Regulation of Interference filter JJG 812	(0.1~100)%	<i>U</i> _{rel} =0.3%		
		centerwavelength		(280~800) nm	<i>U</i> =0.2 nm		
29	Haze Tablets	Haze	Calibration Specification for Haze tablets JJF 1814	0.1~35.0	<i>U</i> =0.2		
		Integral transmittance		0.9~1.0	<i>U</i> =0.003		
30	Standard Neutral Filters of Automobile Test Equipment	Absorptance	Calibration Specification for Standard neutral filters of automobile test equipment JJF 2046	(0~100) %	<i>U</i> =0.3%		
		Integral transmittance		0.01~1.0	<i>U</i> =0.003		
31	Fiber Optica power meter	Optica power	Verification Regulation of Fiber Optical Power Meters JJG813	(-70~10)dBm	<i>U</i> _{rel} =2.3%		
32	Passive Optical Network Power Meters	Burst optical power	Calibration Specification for Passive Optical Network Power Meters JJF 1755	(-50~10)dBm	<i>U</i> =0.2dB		
		Continuous optical power		(-70~10)dBm	<i>U</i> _{rel} =2.3%		
33	*Solar simulator	Spectral match	Calibration Specification of Solar Simulator JJF 1615	(300~1100)nm	<i>U</i> _{rel} =9.0%		

No. CNAS L0893

第 130 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Non-uniformity of irradiance		(200~2000)W/m ²	$U_{rel}=2.6\%$		
		Temporal instability of irradiance		(200~2000)W/m ²	$U_{rel}=2.6\%$		
34	Verification device of Pupil Distance Meters	Length	Calibration specification for verification device of pupillary distance meter JJF 1996	(55~85)mm	$U=(3+L/100) \mu m(L:mm)$		
35	Reflectometers	Reflectivity	Calibration Specification for Reflectometers JJF 1232	仪器: 50~95	$U=0.9\sim 1.3$		
				Working plates: 0~100	$U=0.9\sim 1.3$		
36	Standard Lenses of Vertex Power	Vertex Power	Verification Regulation of Standard Lenses of Vertex Power JJG 866	(-25.0~+25.0)m ⁻¹	$U=(0.02\sim 0.03) m^{-1}$		
37	Trial case lenses	Vertex Power	Verification Regulation of Trialcase lenses JJG 579	(-25.0~+25.0)m ⁻¹	$U=(0.02\sim 0.03) m^{-1}$		
38	Focimeters	Vertex Power	Verification Regulation of Focimeters JJG 580	(-25.0~+25.0)m ⁻¹	$U=(0.02\sim 0.03) m^{-1}$		
39	Eye Refractometers	Vertex Power	Verification Regulation of Eye Refractometers JJG 892	Sphere(Objective):(-20~+20)m	$U=(0.15\sim 0.30) m^{-1}$		
				Sphere(Subjctive):(-15~+15)m ⁻¹	$U=0.04 m^{-1}$		
				Cylinder: -3 m ⁻¹	$U=0.15 m^{-1}$		
				radius of curvature: (5.5~10.0) mm	$U=0.017 mm$		
				axial position: (0~180) °	$U=2^{\circ}$		



No. CNAS L0893

第 131 页 共 191 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	Black and White Step Tablet	Transmission density	Verification Regulation of Black and White Step Tablet JJG 452	D: (0.0~4.0)	U=0.02		
				D: (4.0~5.10)	U=0.03		
41	Visual Densitometer	Transmission density	Verification Regulation of Diffuse Transmission Visual Densitometer JJG 920	D: (0.00~4.00)	U=0.02		
				D: (4.00~5.10)	U=0.03		
42	Abbe Refractometer	Refractive index	Verification Regulation of Abbe Refractometer JJG 625	n_D : 1.47001~1.67248	$U=1 \times 10^{-4}$		
		Dispersion		$n_F - n_C$: 0.00708~0.02086	$U=7 \times 10^{-5}$		
43	Specular Gloss Meters and Gloss Plates	Gloss	Verification Regulation of Specular Gloss Meters and Gloss Plates JJG 696	Specular Gloss Meters: (0.0~120.0)GU	U=1.0 GU		
				Gloss Plates (0.0~120.0) gloss unit	U=1.2 GU		
44	Transmittance Measuring Equipment For Ophthalmic Products	Spectral transmittance	Calibration Specification of Transmittance Measuring Equipment For Ophthalmic Products JJF 1106	0.1%~100%	U=1.5%		
45	Optical detector	Spectral Responsivity	Calibration Specification for Relative Spectral Responsivity for Photoelectric Detectors JJF 1150	(300~400) nm	$U_{rel}=3.0\%$		
				(400~1050) nm	$U_{rel}=2.0\%$		
				(1050~1600) nm	$U_{rel}=3.0\%$		
46	Retroreflection Meters	Coefficient of Retroreflection	C. S. for Retroreflectometer JJF 1809	(0.1~1999) $cd \cdot lx^{-1} \cdot m^{-2}$	$U_{rel}=7.5\%$		
		Coefficient of Retroreflected Luminance		(0.1~1999) $mcd \cdot lx^{-1} \cdot m^{-2}$	$U_{rel}=12\%$		



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No. CNAS L0893

第 132 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
47	Retroreflection Coefficient Meters for Motor Vehicle's Reflecting Marking	Coefficient of Retroreflection	Calibration Specification of Retroreflection Coefficient Meters for Motor Vehicle's Reflecting Marking JJF 1747	$(2\sim 500) \text{ cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$	$U_{\text{rel}}=7.5\%$	only measuring the incident angle at -4° , observation angle at 0.2°	
48	Water Colorimeter	Water Chromaticness	Calibration Specification for Water Colorimeter JJF 1689	$(1\sim 100) \text{ PCU}$	$U_{\text{rel}}=2.4\%$		
49	Platinum-Cobalt Colorimeters	Water Chromaticness	Calibration Specification for Platinum-Cobalt colorimeters JJF 1947	$(1\sim 100) \text{ Pt-Co}$	$U_{\text{rel}}=2.4\%$		
50	Reflection densitometer	Optical Density	Calibration Specification for Reflection densitometer JJF 1492	$0.07\sim 1.00$	$U=0.03$		
				$1.00\sim 2.04$	$U=0.04$		
51	Transmittance meter	Transmittance	Calibration Specification for Transmittance meter NIMTT(CM) 146	$(0\sim 100) \%$	$U=0.4\%\sim 0.8\%$		
		Stimulus value Y		$0\sim 100$	$U=1.0$		
		Chromaticity coordinate		$0.0\sim 0.9$	$U=0.0064$		
52	*UV pretreatment test chamber of photovoltaic module	Distribution of UV spectrum radiation	Calibration Specification for UV Preconditioning Test of Photovoltaic Module NIMTT(CM) 143	$(250\sim 400) \text{ nm}$	$U_{\text{rel}}=12\%$		
		Nonuniformity of UV irradiance		$(0.1\sim 40) \text{ mW/cm}^2$	$U_{\text{rel}}=8\%$		
		UV irradiance		$(0.1\sim 40) \text{ mW/cm}^2$	$U_{\text{rel}}=15\%$		



No. CNAS L0893

第 133 页 共 191 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
53	UV Analyzers	Peak Wavelength	Calibration Specification for UV Analyzers JJF 1936	(250~400) nm	<i>U</i> =0.5 nm		
		UV Irradiance		(1~1000) μ W/cm2	<i>U</i> _{rel} =15%		
54	Standard Lamps for Distribution (Colour) Temperature	Distribution Temperature	Verification Regulation of Standard lamps for Distribution(Colour) Temperature JJG 213	(2042~2353)K	<i>U</i> =(5.0~6.5)K		
				(2353~2856)K	<i>U</i> =(6.5~9.0)K		
				(2856~3200)K	<i>U</i> =(9.0~14)K		
				(3200~6500)K	<i>U</i> =(14~22)K		
				(6500~9500)K	<i>U</i> =(22~40)K		
		Chromaticity Coordinate		x,y: 0.0~0.9	<i>U</i> (x)=0.0008, <i>U</i> (y)=0.0006		
		Rendering Index		1~100	<i>U</i> =0.3		
55	*I-V Curve measuring instrument	Open circuit voltage	Calibration Specification of I-V Curve Measuring Instrument NIMTT(CM) 120	10mV~80V	<i>U</i> _{rel} =1.0%		
		Short-circuit current		(0.1~20) A	<i>U</i> _{rel} =1.4%		
56	*Hazemeter	Haze	Calibration Specification for Hazemeter JJF1303	1~30	<i>U</i> =0.31		
		Transmission ratio		0.7~0.9	<i>U</i> =0.008		
57	*Transmittance Reference Filter	Wavelength	Verification Regulation of Transmittance Reference Filter JJG1034	(200~2600)nm	<i>U</i> =(0.10~0.35)nm		
		Transmittance		0.01~1.00	<i>U</i> _{rel} =0.26%~0.40%		



No. CNAS L0893

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

第 134 页 共 191 页

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
58	*Artificial Accelerated Weathering Apparatus of Fluorescent UV Lamps	irradiance	Calibration Specification for Artificial Accelerated Weathering Apparatus of Fluorescent UV Lamps: Irradiance JJF 2132	(250~400) nm: (0.01~2000) $\mu\text{W}/(\text{cm}^2 \cdot \text{nm})$	$U_{\text{rel}}=4.1\% \sim 2.8\%$		
59	*Standard Integrating Sphere Sources	spectral radiance	Calibration Specification for Standard Integrating Sphere Sources JJF 1990	(250~400) nm	$U_{\text{rel}}=4.6\% \sim 3.5\%$		
				(400~800) nm	$U_{\text{rel}}=3.5\%$		
				(800~2500) nm	$U_{\text{rel}}=3.5\% \sim 5.7\%$		
		luminance		(0.05~50000) cd/m^2	$U_{\text{rel}}=3.5\%$		
		color temperature		(2042~3200)K	$U=(6 \sim 15)\text{K}$		
		chromaticity coordinates		(3200~9500)K	$U=(15 \sim 80)\text{K}$		
60	Infrared Standard Filters	wave number	Calibration Specification for Infrared Standard Filter JJF 1750	4000 $\text{cm}^{-1} \sim 400 \text{ cm}^{-1}$	$U=0.53 \text{ cm}^{-1}$		
		Transmittance ratio		0.01~1.00	$U=0.60\%$		
61	Optical Time Domain Reflectometer	distance	Verification Regulation of Optical Time Domain Reflectometer JJG 959	(0~10)km	$U=0.6\text{m}$		
				(10~50)km	$U=3.2\text{m}$		
		loss deviation		(0~10)dB	$U=0.040\text{dB}/\text{dB}$		
		attenuation coefficient		(0~10)dB/km	$U=0.015\text{dB}/\text{km}$		
		central wavelength		(600~1700)nm	$U=0.13\text{nm}$		



No. CNAS L0893

第 135 页 共 191 页

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

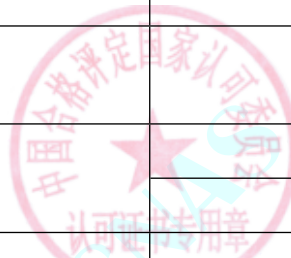
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		dynamic range		(0~60)dB	$U=1.8\text{dB}$		
		attenuation dead zone		(0~50)km	$U=0.2\text{m}$		
		event dead zone		(0~50)km	$U=0.2\text{m}$		
62	Spectral illuminance meter	Illuminance	Calibration Specification for spectral illuminance meter JJF1989	(10~10000) lx	$U_{\text{rel}}=1.4\%$		
		wavelength		(380~780)nm	$U=0.1\text{nm}$		
		A light source transmits color palette chromaticity/		x: 0~1	$U=0.0015$		
		A light source chromaticity		y: 0~1	$U=0.0015$		
		Directionality		(10~10000) lx	$U_{\text{rel}}=1.4\%$		
63	Specification for Averaged Color Temperature Standard Lamp	Average color temperature	Calibration Specification for Averaged Color Temperature Standard Lamp JJF 1976	(2700~6700) K	$U=14\text{ K}\sim 27\text{ K}$		
		Chromaticity Coordinate		0.0~0.9	$U=0.0017$		
64	*Ellipsometers	Wavelength	Calibration Specification for Ellipsometers JJF 1932, Verification regulation for measurement equipment of optical film refractive index and thickness GJB 8687	(250~800) nm	$U=0.20\text{nm}$		
		Incident angle		$0^\circ \sim 360^\circ$	$U=0.015^\circ$		
		Wave plate delay		$0^\circ \sim 360^\circ$	$U=0.4^\circ$		
		Elliptical angle		$0^\circ \sim 180^\circ$	$U(\Psi)=0.4^\circ, U(\Delta)=0.5^\circ$		
		Refractive index		1.0~3.0	$U=0.020$		
		Thickness		(20~200) nm	$U=1.0\text{ nm}+0.8\%H$		



No. CNAS L0893

第 136 页 共 191 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
65	*Smoke density test device		Verification procedure for test equipment of rubber plastic wire and cablePart 16: Smoke density test device JB/T 4278.16	(0.05~100) %	<i>U</i> =6.4 mm <i>U</i> =0.4 cm ² <i>U</i> =0.06 V <i>U</i> =1.0 m ³ /min		
		size		(0.1~5) m			
		area		(0~10) m ²			
		voltage		(0~20) V			
		air volume		(0~200) m ³ /min			
IX Chemistry measuring instrument							
1	*Wavelength Dispersive X-Ray Fluorescence Spectrometers	Count rate	Verification Regulation for Wavelength Dispersive X-Ray Fluorescence Spectrometers JJG810	(10~2000)kcps	<i>U</i> _{rel} =0.3%		
2	*Hand Saccharimeter (Content-meter) and Hand Refractometer	Sugar content	Verification Regulation of Hand Saccharimeter (Content-meter) and Hand Refractometer JJG820	(1~60) %	<i>U</i> =0.06%		
		Refractive index		<i>n</i> _D : (1.3~1.5)	<i>U</i> _{rel} =1%		
3	*Colorimeter	content	Calibration Specification for Colorimeters NIMTT(CM) 073	(0.2~10.0) mg/L	<i>U</i> _{rel} =1%		
4	*Polarimeter	specific rotation	Verification Regulation of Polarimeter and Polarimetric Saccharimeters JJG536	-45° ~+45°	<i>U</i> =0.002°		
5	*Mercury Analyzers	Detection limit	Verification Regulation of Mercury Analyzers JJG548	absorption: ≤1.0 ng	<i>U</i> _{rel} =48%		
				Fluorescence: ≤0.1 ng	<i>U</i> _{rel} =48%		
6	*Flame Photometer	Detection limit	Verification Regulation of Flame Photometer JJG630	K: ≤0.004 mmol/L	<i>U</i> _{rel} =48%		
				Na: ≤0.008 mmol/L	<i>U</i> _{rel} =48%		

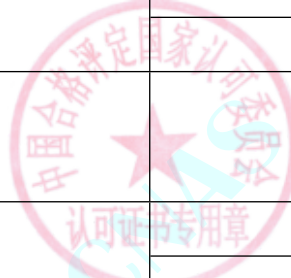


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No. CNAS L0893

第 137 页 共 191 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
7	*UV-VIS-NIR Spectrophotometers	Wavelength	Verification Regulation of UV-VIS-NIR Spectrophotometers JJG178	(200~700)nm	U=0.01 nm		
				(700~900)nm	U=0.2 nm		
				(900~2600)nm	U=0.1 nm		
		Transmittance		(7~55)%	U _{rel} =0.37%		
8	*Fourier Transform Infrared Spectrometer	wave number	Calibration Specification for Fourier Transform Infrared Spectrometer JJF1319	(900~3300)cm ⁻¹	U=(0.03~0.10) cm ⁻¹		
9	*Dispersive Infrared Spectrophotometers	wave number	Verification Regulation of Dispersive Infrared Spectrophotometers JJG681	(900~3300)cm ⁻¹	U=(0.03~0.10) cm ⁻¹		
10	*Atomic Absorption Spectrophotometers	Wavelength	Verification Regulation of Atomic Absorption Spectrophotometers JJG694	(190~1000)nm	U=0.1 nm		
		detection limit		Cu:≤0.02 μg/mL	U _{rel} =48%		
				Cd:≤4 pg	U _{rel} =48%		
11	*Fluorescence Spectrophotometer	Wavelength	Verification Regulation of Fluorescence Spectrophotometer JJG537	(240~550)nm	U=0.1 nm		
		Detection limit		type A: ≤5×10 ⁻¹⁰ g/mL	U _{rel} =48%		
				type B: ≤1×10 ⁻⁸ g/mL	U _{rel} =48%		
12	*Atomic Fluorescence Spectrophotometers	Detection limit	Verification Regulation of Atomic Fluorescence Spectrophotometers JJG939	As、Sb: ≤0.4 ng	U _{rel} =48%		
13	*Emission Spectrometer	Wavelength	Verification Regulation of Emission Spectrometer JJG768	(190~1000)nm	U=0.01 nm		
		Detection limit		Zn: ≤0.01 mg/L(ICP)	U _{rel} =48%		



No. CNAS L0893

第 138 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Ni: ≤ 0.03 mg/L(ICP)	$U_{\text{rel}}=48\%$		
				Mn: ≤ 0.005 mg/L(ICP)	$U_{\text{rel}}=48\%$		
				Cr: ≤ 0.02 mg/L(ICP)	$U_{\text{rel}}=48\%$		
				Cu: ≤ 0.02 mg/L(ICP)	$U_{\text{rel}}=48\%$		
				Ba: ≤ 0.005 mg/L(ICP)	$U_{\text{rel}}=48\%$		
				C: $\leq 0.02\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				Si: $\leq 0.02\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				Mn: $\leq 0.02\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				Cr: $\leq 0.01\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				Ni: $\leq 0.02\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				V: $\leq 0.01\%$ (Direct reading spectrometer)	$U_{\text{rel}}=48\%$		
				Spectrograph: $\leq 0.003\%$	$U_{\text{rel}}=48\%$		
14	*Flow Analyzers with Spectrophotography	Detection limit	Calibration Specification for Flow Analyzers with Spectrophotography JJF 1568	cyanide: ≤ 0.002 mg/L	$U_{\text{rel}}=48\%$		
				Volatile phenol: ≤ 0.002 mg/L	$U_{\text{rel}}=48\%$		
				Cr ⁶⁺ : ≤ 0.004 mg/L	$U_{\text{rel}}=48\%$		
				sulfide: ≤ 0.005 mg/L	$U_{\text{rel}}=48\%$		
				TP: ≤ 0.01 mg/L	$U_{\text{rel}}=48\%$		



No. CNAS L0893

第 139 页 共 191 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
				TN: ≤0.04 mg/L	<i>U</i> _{rel} =48%		
		Amino Nitrogen: ≤0.04 mg/L		<i>U</i> _{rel} =48%			
		Anion Active Detergent: ≤0.05 mg/L		<i>U</i> _{rel} =48%			
		wavelength	(210~1100) nm	<i>U</i> =0.2 nm			
15	*Capillary Electrophoresis Instruments	Detection limit	Verification Regulation of Capillary Electrophoresis Instruments JJG964	≤1×10 ⁻⁶ g/mL（VB ₆ ）	<i>U</i> _{rel} =10%		
16	*Gas Chromatographs	Temperature	Verification Regulation of Gas Chromatographs JJG700	(20~300)°C	<i>U</i> =0.06°C		
		Sensitivity		TCD: ≥800 mV·mL / mg	<i>U</i> _{rel} =3.5%		
		Detection limit		FID:≤5 ng/s	<i>U</i> _{rel} =14%		
				FPD:≤0.5 ng/s (S)	<i>U</i> _{rel} =14%		
				FPD:≤0.1 ng/s (P)	<i>U</i> _{rel} =14%		
				NPD:≤5 pg/s （N）	<i>U</i> _{rel} =14%		
				NPD:≤10 pg/s （P）	<i>U</i> _{rel} =14%		
				ECD:≤5 pg/mL	<i>U</i> _{rel} =14%		
17	*on-line Gas Chromatograph	Temperature	Verification Regulation of On-line Gas Chromatograph JJG1055	(20~300)°C	<i>U</i> =0.06°C		
		Sensitivity		TCD: ≥1000 mV·mL / mg	<i>U</i> _{rel} =3.5%		
		Detection limit		PID: ≤5×10 ⁻¹² g/mL	<i>U</i> _{rel} =14%		
18	*Liquid	Flow	Verification Regulation of	(0.5~10) mL/min	<i>U</i> _{rel} =0.3%		



No. CNAS L0893

第 140 页 共 191 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
	Chromatographs	Temperature	Liquid Chromatographs JJG705	(10～90)℃	<i>U</i> =0.06℃		
		Wavelength		(200～400)nm	<i>U</i> =0.2nm		
		Detection limit		UV-VIS/DAD: ≤5×10 ⁻⁸ g/mL	<i>U</i> _{rel} =10%		
				FLD: ≤5×10 ⁻⁹ g/mL	<i>U</i> _{rel} =10%		
				RID: ≤5×10 ⁻⁶ g/mL	<i>U</i> _{rel} =10%		
				ELSD: ≤5×10 ⁻⁶ g/mL	<i>U</i> _{rel} =10%		
19	*Gel Documentation Systems	Flow	Calibration Specification for Gel Documentation Systems JJG342	(0.5～10) mL/min	<i>U</i> _{rel} =0.3%		
		Temperature		(10～90)℃	<i>U</i> =0.06℃		
		molecular weight		Organic phase: (1× 10 ³ ～5×10 ⁵) g/mol	<i>U</i> _{rel} =8%		
				Water phase: (1× 10 ³ ～5×10 ⁵) g/mol	<i>U</i> _{rel} =8%		
20	*Ion Chromatograph	Flow	Verification Regulation of Ion Chromatograph JJG823	(0.5～10) mL/min	<i>U</i> _{rel} =0.3%		
		Temperature		(10～90)℃	<i>U</i> =0.06℃		
		Detection limit		Conductivity detector (Cl ⁻ 、Li ⁺) : ≤0.02 μ g/mL	<i>U</i> _{rel} =10%		
				UV-VIS detector (NO ₂ ⁻) : ≤0.02 μ g/mL	<i>U</i> _{rel} =10%		
				Electrochemical detector (I ⁻) : ≤0.02 μ g/mL	<i>U</i> _{rel} =10%		



No. CNAS L0893

第 141 页 共 191 页

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

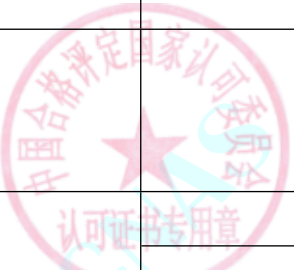
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
21	*Portable Gas Chromatography-Mass Spectrometers	SNR	Calibration Specification for Portable Gas Chromatography-Mass Spectrometers NIMTT(CM) 015	Toluene: $S/N \geq 3:1$	$U_{rel}=14\%$		
22	*Quadrupole Inductively Coupled Plasma Mass Spectrometers	detection limit	Calibration Specification for Quadrupole Inductively Coupled Plasma Mass Spectrometers JJF1159	Be: ≤ 30 ng/L	$U_{rel}=48\%$		
				In: ≤ 10 ng/L	$U_{rel}=48\%$		
				Bi: ≤ 10 ng/L	$U_{rel}=48\%$		
23	*Bench Top Gas Chromatography-Mass Spectrometers	SNR	Calibration Specification for Gas Chromatography-Mass Spectrometries JJF1164	Ion trap, single quadrupole (EI^+ , CI^+ , CI^-): $S/N \geq 10:1$	$U_{rel}=14\%$		
				Triple quadrupole (EI^+ , CI^+): $S/N \geq 10:1$	$U_{rel}=14\%$		
				Time of flight, electrostatic orbit(EI^+ : $S/N \geq 50:1$	$U_{rel}=14\%$		
24	*Liquid Chromatography-Mass Spectrometers	SNR	Calibration Specification for Liquid Chromatography-Mass Spectrometers JJF1317	Triple quadrupole(ESI^+ , $APCI^+$): $\geq 30:1$	$U_{rel}=14\%$		
				Triple quadrupole (ESI^-): $\geq 10:1$	$U_{rel}=14\%$		
				Single quadrupole, Ion trap: (ESI^+ , ESI^- , $APCI^+$): $\geq 10:1$	$U_{rel}=14\%$		
25	*Time of Flight Mass Spectrometers	M/R	Calibration Specification for Time of Flight Mass Spectrometers JJF1528	(100~5000)	$U_{rel}=1 \times 10^{-5}$		



No. CNAS L0893

第 142 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
26	*Nitrate-Nitrogen Automatic Analyzers	concentration	Verification Regulation of Nitrate-Nitrogen Automatic Analyzers JJG656	(0~500) μ g/mL	$U=(0.30\sim6.0)\text{mg/L}$		
27	*Analyzers for Oil Content in Water	concentration	Verification Regulation of Analyzers for Oil Content in Water JJG950	(0~1000) mg/L	$U=(0.2\sim20)\text{mg/L}$		
28	*Silicate Analyzers	Concentration	Calibration Specification for Silicate Analyzers JJF1539	(0.02~100) μ g/mL	$U_{\text{rel}}=(4\sim2)\%$		
29	*Ammonia-Nitrogen Automatic Analyzers	Concentration	Verification Regulation of Ammonia-Nitrogen Automatic Analyzers JJG631	(0.01~500) μ g/mL	$U_{\text{rel}}=1.5\%$		
30	*Total Organic Carbon Analyzer	Concentration	Verification Regulation of Total Organic Carbon Analyzer JJG821	TOC: (0.01~1000) μ g/mL	$U_{\text{rel}}=2.1\%$		
		Concentration		TIC: (0.01~1000) μ g/mL	$U_{\text{rel}}=2.1\%$		
31	*Chemical Oxygen Demand(COD) Meters	Concentration	Verification Regulation of Chemical Oxygen Demand(COD) Meters JJG975	A type instrument: (0.01~1500) (mg/L)	$U_{\text{rel}}=1\%$		
		Concentration		B type instrument: (0.01~1500) (mg/L)	$U=0.52\text{mg/L}$		
		Temperature		(100~200) $^{\circ}\text{C}$	$U=0.06^{\circ}\text{C}$		
32	*On-line Automatic Determination of Chemical Oxygen Demand (COD)	Concentration	Verification Regulation of On-line Automatic Determination of Chemical Oxygen Demand (COD) JJG1012	(16~1000) mg/L	$U_{\text{rel}}=1\%$		
33	*Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen	Concentration	Verification Regulation of Water Quality On-line Analyzers of Total Phosphorus and Total Nitrogen JJG1094	TP: (0.1~500) mg/L	$U_{\text{rel}}=2.3\%$		
		Concentration		TN: (0.1~100) mg/L	$U_{\text{rel}}=2.2\%$		

No. CNAS L0893

第 143 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
34	*Turbidimeter	Turbidity	Verification Regulation of Turbidimeter JJG880	(0.1~400)NTU	$U_{rel}=3.1\%$		
35	*Dissolved Oxygen Meters	Dissolved Oxygen	Verification Regulation of Dissolved Oxygen Meters JJG291	(5~12)mg/L	$U=0.02$ mg/L		
		Temperature		(0~50) °C	$U=0.18^{\circ}\text{C}$		
36	*Water Quality On-line Analyzers of Heavy Metals	Concentration	Calibration Specification for Water Quality On-line Analyzers of Heavy Metals JJF1565	Pb、Cd、Hg、As、Cr ⁶⁺ 、Cr、Cu、Zn、Ni、Fe、Mn: (0.001~100) mg/L	$U_{rel}=(1\sim3)\%$		
37	*Instrument for KF Coulometry Titration	weight	Verification Regulation of Instrument for KF Coulometry Titration JJG1044	10 μg	$U=1.4$ μg		
				100 μg	$U=1.8$ μg		
				1000 μg	$U=71$ μg		
				5000 μg	$U=71$ μg		
38	*Thermogravimetric Moisture Meters	weight	Verification Regulation of Thermogravimetric Moisture Meters JJG658	(0~210)g	$U=0.5\text{mg}$		
		Concentration		(94.98~95.02)%	$U=0.20\%$		
39	*Instruments for measuring the moisture content of grain with capacitance and resistance method	Moisture	Verification Regulation of Instruments for Measuring the Moisture Content of Grain with Capacitance and Resistance Method JJG891	(8~33)%	$U=0.1\%$	合格评定国家认可 认证证书专用章	
40	*Wood moisture content measuring meters	Concentration	Verification Regulation of Wood Moisture Content Measuring Meters JJG986	(6~28)%	$U=0.3\%$		
41	*Moisture	Concentration	Calibration Specification for Moisture meter NIMTT(CM) 110	(0~100)%	$U=0.8\%$		



No. CNAS L0893

第 144 页 共 191 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	Routon Capillary Viscometer	Kinematic viscosity	Verification Regulation of Routon Capillary Viscometer JJG155	$(1\sim 10^5)\text{mm}^2/\text{s}$	$U_{\text{rel}} = (0.16\%\sim 0.61\%)$		
43	Viscosiuefer for Roll-Down Ball Type	Kinematic viscosity	Verification Regulation of Viscosiuefer for Roll-Down Ball Type JJG214	$(1\sim 10^5)\text{mPa}\cdot\text{s}$	$U_{\text{rel}} = (0.16\%\sim 0.61\%)$		
44	*Rotational Viscometers	Viscosity	Verification Regulation of Rotational Viscometers JJG1002	$(1\sim 10^5)\text{mPa}\cdot\text{s}$	$U_{\text{rel}} = (0.16\%\sim 0.61\%)$		
45	Engler Viscosimeter	time	Verification Regulation of Engler Viscosimeter JJG742	$(50\sim 52)\text{s}$	$U_{\text{rel}}=0.2\%$		
46	Flow Cup Viscometers	Kinematic viscosity	Verification Regulation of Flow Cup Viscometers JJG743	$(1\sim 10^5)\text{mm}^2/\text{s}$	$U_{\text{rel}} = (0.16\%\sim 0.61\%)$		
47	*Kinematic Viscosity Tester	Kinematic viscosity	Calibration Specification for Kinematic Viscosity Tester JJF1274	$(0.3\sim 30000)\text{mm}^2/\text{s}$	$U_{\text{rel}}=(0.24\sim 0.61)\%$		
		Temperature		$(20\sim 100)^\circ\text{C}$	$U=0.003^\circ\text{C}$		
48	*Oscilloscopic Polarograph	Concentration	Verification Regulation of Oscilloscopic Polarograph JJG748	$\text{Cd}: (0.01\sim 100)\text{mg/L}$	$U_{\text{rel}}=(1.2\sim 2)\%$		
49	Verifying Meter for pH Meters	potential	Verification Regulation of Verifying Meter for pH Meters JJG919	$(-2000\sim +2000)\text{mV}$	$U=(0.00058\sim 0.048)\text{mV}$		
		pH		pH: $0\sim 14$	$U=0.00006\sim 0.00018$		
50	*Laboratory pH Meters	pH	Verification Regulation of Laboratory pH Meters JJG119	electric unit: $(0\sim 14)$	$U=0.001$		
				instrument: $(4\sim 10)$	$U=0.006$		
		Voltage		$(-2000\sim 2000)\text{mV}$	$U=0.1\text{mV}$		
51	*Laboratory Ion Meters	pX	Verification Regulation of Laboratory Ion Meters JJG757	$(0\sim 14)$	$U=0.001$		



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No. CNAS L0893

第 145 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
		Potential		(-2000~2000) mV	$U=0.1$ mV		
52	*Automatic Potentiometric Titrators	Potential	Verification Regulation of Automatic Potentiometric Titrators JJG 814	(-2000~2000) mV	$U=0.1$ mV		
		Capacity		(0.1~50) mL	$U=0.001$ mL		
		Concentration		(0.09~0.11) mol/L	$U_{\text{rel}}=0.3\%$		
53	*Electrolytic Conductivity Meters	Conductance	Verification Regulation of Electrolytic Conductivity Meters JJG376	(100 pS · m ⁻¹ ~ 0.25 μS · cm ⁻¹ (electronic unit)	$U_{\text{rel}}=0.7\%$		
				(0.25~2.5) μS · cm ⁻¹ (electronic unit)	$U_{\text{rel}}=0.2\%$		
				(2.5 μS · cm ⁻¹ ~ 10 S · cm ⁻¹ (electronic unit)	$U_{\text{rel}}=0.05\%$		
				(0.000118~0.13110)S · cm ⁻¹ (instrument)	$U_{\text{rel}}=0.3\%$		
54	*On-line pH Meters	pH	Calibration Specification for on-line pH Meters JJF 1547	electric unit:(0~14)	$U=0.001$		
				instrument:(4~10)	$U=0.01$		
		Potential		(-2000~2000) mV	$U=0.1$ mV		
		Temperature		(0~60)°C	$U=0.18$ °C		
55	*alarmer detectors of combustible gas	gas concentration	Verification regulation of alarmer detectors of combustible gas JJG693	Methane, isobutane,propane, hydrogen, acetylene: (1~100)%LEL	$U_{\text{rel}}=0.7\%$		
				Methane, hydrogen: (3~98)×10 ⁻²	$U_{\text{rel}}=0.7\%$		
56	*carbon monoxide detector	gas concentration	Verification Regulation of carbon monoxide detector	(10.0~200.0)×10 ⁻⁶	$U_{\text{rel}}=2.0\%~0.8\%$		



No. CNAS L0893

第 146 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
			JJG915	$(200 \sim 1000) \times 10^{-6}$	$U_{\text{rel}}=0.8\%$		
				$(1000 \sim 2000) \times 10^{-6}$	$U_{\text{rel}}=0.7\%$		
57	*carbon monoxide and carbon dioxide infrared gas analyzer	gas concentration	Verification Regulation of carbon monoxide and carbon dioxide infrared gas analyzer JJG635	CO: $(10.0 \sim 200.0) \times 10^{-6}$	$U_{\text{rel}}=1.7\% \sim 1.1\%$		
				CO: $(200 \sim 1000) \times 10^{-6}$	$U_{\text{rel}}=1.4\% \sim 1.2\%$		
				CO: $(1000 \sim 10000) \times 10^{-6}$	$U_{\text{rel}}=1.1\%$		
				CO: $(1.00 \sim 5.00) \times 10^{-2}$	$U_{\text{rel}}=2.1\% \sim 1.4\%$		
				CO: $(5.00 \sim 20.00) \times 10^{-2}$	$U_{\text{rel}}=1.2\%$		
				CO ₂ : $(0.050 \sim 1.000) \times 10^{-2}$	$U_{\text{rel}}=1.7\% \sim 1.1\%$		
				CO ₂ : $(1.00 \sim 5.00) \times 10^{-2}$	$U_{\text{rel}}=1.4\% \sim 1.2\%$		
				CO ₂ : $(5.00 \sim 20.00) \times 10^{-2}$	$U_{\text{rel}}=1.1\%$		
58	*Electrochemical Oxygen Meter	gas concentration	Verification Regulation of Electrochemical Oxygen Meter JJG 365	$0.1 \times 10^{-2} \sim 10 \times 10^{-2}$	$U_{\text{rel}}=2.8\% \sim 0.9\%$		
				$10 \times 10^{-2} \sim 50 \times 10^{-2}$	$U_{\text{rel}}=0.8\%$		
				$50 \times 10^{-2} \sim 100 \times 10^{-2}$	$U_{\text{rel}}=0.7\%$		
59	*Zirconia Oxygen Analyzers	gas concentration	Verification Regulation of Zirconia Oxygen Analyzers JJG 535	$0.1 \times 10^{-2} \sim 10 \times 10^{-2}$	$U_{\text{rel}}=2.8\% \sim 0.9\%$		
				$10 \times 10^{-2} \sim 50 \times 10^{-2}$	$U_{\text{rel}}=0.8\%$		
				$50 \times 10^{-2} \sim 100 \times 10^{-2}$	$U_{\text{rel}}=0.7\%$		
60	*Paramagnetic Oxygen Analyzer	gas concentration	Verification Regulation of Paramagnetic Oxygen Analyzer JJG 662	$0.1 \times 10^{-2} \sim 10 \times 10^{-2}$	$U_{\text{rel}}=2.7\% \sim 0.9\%$		
				$10 \times 10^{-2} \sim 50 \times 10^{-2}$	$U_{\text{rel}}=0.8\%$		
				$50 \times 10^{-2} \sim 100 \times 10^{-2}$	$U_{\text{rel}}=0.7\%$		



No. CNAS L0893

第 147 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
61	*Thermal Conductivity Hydrogen Analyzer	gas concentration	Verification Regulation of Thermal Conductivity Hydrogen Analyzer JJG663	$(0.50 \sim 9.99) \times 10^{-2}$	$U_{\text{rel}}=1.4\% \sim 0.8\%$		
				$(10.0 \sim 100.0) \times 10^{-2}$	$U_{\text{rel}}=1.1\% \sim 0.8\%$		
62	*Sulfur Hydrogen Gas Detectors	gas concentration	Verification Regulation of Sulfur Hydrogen Gas Detectors JJG 695	$5 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{\text{rel}}=2.5\% \sim 1.5\%$		
				$100 \times 10^{-6} \sim 500 \times 10^{-6}$	$U_{\text{rel}}=1.7\% \sim 1.5\%$		
63	*Micro Oxygen Analyzers	gas concentration	Verification Regulation of Micro Oxygen Analyzers JJG 945	1×10^{-6}	$U_{\text{rel}}=3.5\%$		
				$2 \times 10^{-6} \sim 10 \times 10^{-6}$	$U_{\text{rel}}=2.4\% \sim 1.6\%$		
				$10 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{\text{rel}}=1.4\% \sim 0.8\%$		
				$100 \times 10^{-6} \sim 1000 \times 10^{-6}$	$U_{\text{rel}}=0.7\%$		
64	*Volatile Organic Compounds Photo Ionization Detectors	gas concentration	Calibration Specification for Volatile Organic Compounds Photo Ionization Detectors JJF 1172	$1 \times 10^{-6} \sim 2000 \times 10^{-6}$	$U_{\text{rel}}=3.0\% \sim 1.4\%$		
65	*Ammonia Gas Detectors	Gas concentration	Verification Regulation of Ammonia Gas Detectors JJG1105	$(20 \sim 300) \times 10^{-6}$	$U_{\text{rel}}=3.4\% \sim 2.1\%$		
66	*Chlorine Alarm Detectors	Gas concentration	Calibration Specification for Chlorine Alarm Detectors JJF1433	$(10 \sim 100) \times 10^{-6}$	$U_{\text{rel}}=4.8\% \sim 2.2\%$		
67	*Alarmer detector of Sulfur Hexafluoride	Gas concentration	Calibration Specification for the Alarmer Detector of Sulfur Hexafluoride JJF1263	$(10 \sim 100) \times 10^{-6}$	$U_{\text{rel}}=6.2\% \sim 1.6\%$		
				$(100 \sim 1000) \times 10^{-6}$	$U_{\text{rel}}=1.5\% \sim 1.2\%$		
68	*Chemiluminescent NO/NO _x Analyzers	Gas concentration	Verification Regulation of Chemiluminescent NO/NO _x Analyzers JJG801	NO: $(10 \sim 1000) \times 10^{-6}$	$U_{\text{rel}}=3.8\% \sim 0.8\%$		
				NO: $(1000 \sim 5000) \times 10^{-6}$	$U_{\text{rel}}=0.7\%$		



No. CNAS L0893

第 148 页 共 191 页

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

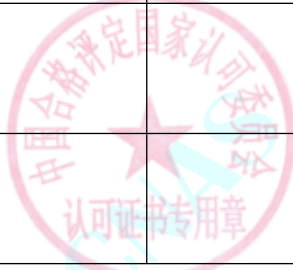
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
69	*Air Samplers	Flow	Verification Regulation of Air Samplers JJG956	(0.1~6)L/min	$U_{rel}=1.4\%$		
		Time		(0~3600) s	$U=0.1s$		
		Temperature		(0~50)°C	$U=0.6\text{ }^{\circ}\text{C}$		
70	*Dust Sampler	Flow	Verification Regulation of Dust Sampler JJG520	(0.1~60)L/min	$U_{rel}=1.2\%$		
		Time		(0~3600) s	$U=0.1s$		
71	Flue Gas Samplers	Flow	V. R. of Flue Gas Samplers JJG 1169	(0.1~2)L/min	$U_{rel}=1.4\%$		
		Temperature		(0~300)°C	$U=0.11\text{ }^{\circ}\text{C}$		
		pressure		(-20~0) kPa	$U=0.15\text{ kPa}$		
		atmospheric pressure		(80~106) kPa	$U=2.9\text{ kPa}$		
		time		(10~3600) s	$U=0.1s$		
72	*Flue Gas Analyzers	gas concentration	Verification Regulation of Flue Gas Analyzers JJG 968	CO: $10\times 10^{-6}\sim 1000\times 10^{-6}$	$U_{rel}=2.0\%\sim 1.2\%$		
				CO: $1000\times 10^{-6}\sim 5000\times 10^{-6}$	$U_{rel}=1.1\%$		
				O ₂ : $1\times 10^{-2}\sim 3\times 10^{-2}$	$U_{rel}=2.0\%\sim 1.1\%$		
				O ₂ : $3\times 10^{-2}\sim 30\times 10^{-2}$	$U_{rel}=0.8\%$		
				SO ₂ : $2\times 10^{-6}\sim 500\times 10^{-6}$	$U_{rel}=2.7\%\sim 1.4\%$		
				SO ₂ : $500\times 10^{-6}\sim 5000\times 10^{-6}$	$U_{rel}=1.4\%$		
				NO: $10\times 10^{-6}\sim 500\times 10^{-6}$	$U_{rel}=2.0\%\sim 0.7\%$		
				NO: $500\times 10^{-6}\sim 5000\times 10^{-6}$	$U_{rel}=0.7\%$		



No. CNAS L0893

第 149 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
73	Samplers for Stack Dust	Flow	Verification Regulation of Samplers for Stack Dust JJG 680	(0.1~100)L/min	$U_{rel}=1.4\%$		
		Temperature		(80~300)°C	$U=0.9^{\circ}\text{C}$		
		Time		(0~3600) s	$U=0.1\text{s}$		
		Pressure		(-50~+50) kPa	$U=0.1\text{kPa}$		
74	*Total Suspended Particulates Sampler	Flow	Verification Regulation of Total Suspended Particulates Sampler JJG943	(80~150)L/min	$U_{rel}=1.4\%$		
		Time		(0.8~1.2)m ³ /min	$U_{rel}=1.4\%$		
		Pressure		(0~3600) s	$U=0.1\text{s}$		
		Length		(0.01~10) kPa	$U_{rel}=0.2\%$		
75	*Airborne Particle Counter	Particles concentration	Calibration Specification for Airborne Particle Counter JJF1190	(35~350×10 ⁶)particule/m ³ /su	$U_{rel}=14\%$		
		Time		(0~3600) s	$U=0.1\text{s}$		
76	Ozone Gas Analyzers	Gas concentration	Verification Regulation of Ozone Gas Analyzers JJG1077	(0.1~400)×10 ⁻⁶	$U_{rel}=(2.3\sim1.7)\%$		
77	*Static Light Scattering Particle Size Analyzers	Length	Calibration Specification for Static Light Scattering Particle size Analyzers JJF1211	Median particle size: (1~150) μm	$U_{rel}=(4.6\sim1.6)\%$		
78	Calibration device for formaldehyde gas analyzers	Gas concentration	Calibration Specification of Calibration Device for Formaldehyde Gas Analyzers NIMTT(CM) 091	(0.1~10)mg/m ³	$U_{rel}=2.9\%$		



No. CNAS L0893

第 150 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
79	formaldehyde gas analyzer	Gas concentration	Verification Regulation of Formaldehyde Gas Analyzers JJG 1022	$(0.08 \sim 1.5) \times 10^{-6}$	$U_{\text{rel}}=2.6\%$		
80	*Verifying Meter for Breath Alcohol Analyzers	Gas concentration	Calibration Specification of Verification Device for for Breath Alcohol Analyzers NIMTT(CM) 059	$(0.05 \sim 2) \text{ mg/L}$	$U_{\text{rel}}=1.4\% \sim 1.1\%$		
		temperature		$(0 \sim 40) ^\circ\text{C}$	$U=0.2 ^\circ\text{C}$		
		flow rate		$(50 \sim 50000) \text{ mL/min}$	$U_{\text{rel}}=0.8\%$		
		pressure		$(0 \sim 2500) \text{ Pa}$	$U=10 \text{ Pa}$		
81	Breath Alcohol Analyzers	concentration	Verification Regulation of Breath Alcohol Analyzers JJG 657	$(0.05 \sim 2) \text{ mg/L}$	$U_{\text{rel}}=1.1\%$		
82	*Melting-point Measurement Instruments	Temperature	Verification Regulation of Melting-point Measurement Instruments JJG701	Melting-point: $(50 \sim 300) ^\circ\text{C}$	$U=0.13 ^\circ\text{C}$		
83	*Bomb Calorimeter	Calorific Value	Verification Regulation of The bomb calorimeter JJG672	$(26000 \sim 27000) \text{ J/g}$	$U=27 \text{ J/g}$		
84	*Differential Scanning Calorimeters	Temperature	Verification Regulation of the Differential Scanning Calorimeters JJG936	Fusion Temperature: $(50 \sim 600) ^\circ\text{C}$	$U=0.06 ^\circ\text{C}$		
		Heat		Fusion heat: $(20 \sim 110) \text{ J/g}$	$U=0.18 \text{ J/g}$		
85	*Open/Closed Cup Flash Point Testers	Temperature	Calibration Specification for Open/Closed Cup Flash Point Testers JJF1384	Open cup flash point: $(80 \sim 260) ^\circ\text{C}$	$U=(6.2 \sim 8.8) ^\circ\text{C}$		
				Closed cup flash point: $(60 \sim 200) ^\circ\text{C}$	$U=(3.2 \sim 4.4) ^\circ\text{C}$		
86	*Osmometer	Osmometer	Verification Regulation of Osmometers JJG1089	$(99 \sim 101) \text{ mOsmol/kg}$	$U=1.5 \text{ mOsmol/kg}$		
				$(199 \sim 201) \text{ mOsmol/kg}$	$U=1.5 \text{ mOsmol/kg}$		



No. CNAS L0893

第 151 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(299~301)mOsmol/kg	$U=1.5\text{mOsmol/kg}$		
				(399~401)mOsmol/kg	$U=1.9\text{mOsmol/kg}$		
				(499~501)mOsmol/kg	$U=2.3\text{mOsmol/kg}$		
				(599~601)mOsmol/kg	$U=2.8\text{mOsmol/kg}$		
				(699~701)mOsmol/kg	$U=3.2\text{mOsmol/kg}$		
87	*Automatic Amino Acid Analyzer	Detection limit	Verification Regulation of Automatic Amino Acid Analyzer JJG1064	histidine: $\leq 1\text{nmol/L}$	$U_{\text{rel}}=20\%$		
88	*Elemental Analyzers	Content	Calibration Specification for Elemental Analyzers JJF 1321	Carbon, hydrogen and nitrogen analyzer、Hydrogen detector C: 50%~80%	$U_{\text{rel}}=0.9\%\sim 0.3\%$		
				Carbon, hydrogen and nitrogen analyzer、Hydrogen detector H: 2%~5%	$U_{\text{rel}}=6.5\%\sim 2\%$		
				Carbon, hydrogen and nitrogen analyzer、Hydrogen detector N: 0.5%~2%	$U_{\text{rel}}=7.5\%\sim 2\%$		
				Full (semi) automatic nitrogen analyzer N: (0.5~20) mg/mL	$U_{\text{rel}}=0.4\%$		
				Oxygen, nitrogen and hydrogen detector O: 0.00058%~0.0120%	$U_{\text{rel}}=19\%\sim 5\%$		



No. CNAS L0893

第 152 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Oxygen, nitrogen and hydrogen detector N: 0.00075%~0.142%	$U_{rel}=15\%\sim 3\%$		
				Oxygen, nitrogen and hydrogen detector H: (0.9~6.6) $\times 10^{-6}$	$U_{rel}=23\%\sim 3.5\%$		
89	*Determinators for Total Sulfur in Coal	Content	Verification Regulation of Determinators for Total Sulfur in Coal JJG 1006	0.1%~1.00%	$U=0.02\%$		
				1.00%~4.00%	$U=0.05\%$		
				4.00%~6.00%	$U=0.06\%$		
90	*Carbon-sulfur Analyzers	Content	Verification Regulation for carbon-sulfur Analyzers JJG 395	Automatic high-speed carbon-sulfur analyzer(C): 0.030%~0.100%	$U=0.001\%$		
				Automatic high-speed carbon-sulfur analyzer(C): 0.100%~0.500%	$U=0.003\%$		
				Automatic high-speed carbon-sulfur analyzer(C): 0.500%~1.000%	$U=0.007\%$		
				Automatic high-speed carbon-sulfur analyzer(C): 1.00%~4.00%	$U=0.01\%$		
				Infrared carbon-sulfur analyzer(C): 0.005%~0.010%	$U=0.0002\%$		



No. CNAS L0893

第 153 页 共 191 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
				Infrared carbon-sulfur analyzer(C): 0.010%~0.100%	U=0.001%		
				Infrared carbon-sulfur analyzer(C): 0.100%~1.00%	U=0.003%		
				Infrared carbon-sulfur analyzer(C): 1.00%~4.00%	U=0.01%		
				Automatic high-speed carbon-sulfur analyzer(S): 0.003%~0.010%	U=0.0002%		
				Automatic high-speed carbon-sulfur analyzer(S): 0.010%~0.050%	U=0.001%		
				Automatic high-speed carbon-sulfur analyzer(S): 0.050%~0.100%	U=0.001%		
				Automatic high-speed carbon-sulfur analyzer(S): 0.100%~0.200%	U=0.003%		
				Infrared carbon-sulfur analyzer(S): 0.003%~0.010%	U=0.0002%		
				Infrared carbon-sulfur analyzer(S): 0.010%~0.100%	U=0.001%		



No. CNAS L0893

第 154 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Infrared carbon-sulfur analyzer(S): 0.100%~0.200%	$U=0.003\%$		
91	*Industrial Analyzers	Content	Verification Regulation of Industrial Analyzers JJG 1140	ash content: 1%~15%	$U=0.10\%\sim0.11\%$		
				ash content: 15%~30%	$U=0.13\%\sim0.19\%$		
				ash content: 30%~40%	$U=0.12\%$		
				volatile matter: 1%~20%	$U=0.19\%\sim0.33\%$		
				volatile matter: 20%~40%	$U=0.31\%\sim0.34\%$		
92	*Hand-held X-ray Fluorescence Spectrometer	Detection limit	Calibration Specification for Hand-held X-ray Fluorescence Spectrometer JJF(Chuan) 165	Cr: $\leq 0.05\%$	$U_{rel}=48\%$		
				Ni: $\leq 0.05\%$	$U_{rel}=48\%$		
93	*Low-level Total Organic Carbon Analyzer	Concentration	Calibration Specification for Low-level Total Organic Carbon Analyzer JJF(Chuan) 141	(200~1000) $\mu\text{g/L}$	$U_{rel}=5\%$		
94	*Oxidation-reduction Potential Meters	Potential	Calibration Specification for Oxidation-reduction Potential Meters NIMTT(CM) 052	electronic unit: -2000 mV~+2000 mV	$U=0.1\text{ mV}$		
				solution: (30~500)mV (25 $^{\circ}\text{C}$)	$U=0.4\text{ mV}$		
		temperature		(0~50) $^{\circ}\text{C}$	$U=0.1\text{ }^{\circ}\text{C}$		
95	*Liquid chromatograph-Atomic Fluorescence Spectrometers	Minimum detection quantity	Verification Regulation of Liquid chromatograph-Atomic Fluorescence Spectrometers JJG 1151	As(V) $\leq 1.0\text{ng}$; DMA、MMA $\leq 0.7\text{ng}$	$U_{rel}=58\%$		



No. CNAS L0893

第 155 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
96	*Gas Chromatographs with Helium Ionization Detector	LOD	C. S. for Gas Chromatographs with Discharge Helium Ionization Detector JJF(Chuan) 167	≤ 10 pg/s	$U_{rel}=14\%$		
97	*Gas Chromatographs with Discharge Helium Ionization Detector	LOD	Calibration Specification for Gas Chromatographs with Sulfur Chemiluminescence Detector JJF 1953	≤ 10 pg/s	$U_{rel}=25\%$		
98	*Residual Chlorine Meter	Concentration	C. S. for Residual Chlorine Meter JJF 1609	(0.1~10) mg/L	$U_{rel}=1.6\%$		
99	*Alarmer Detectors of Benzene	gas concentration	Calibration Specification for Alarmer Detectors of Benzene JJF 1674	$1 \times 10^{-6} \sim 10 \times 10^{-6}$	$U_{rel}=5.1\% \sim 2.3\%$		
				$10 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=2.1\%$		
100	*Sulfur Hexafluoride Decomposition Products Detectors	gas concentration	Calibration Specification for Sulfur Hexafluoride Decomposition Products Detectors JJF 1711	SO ₂ : $1 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=3.3\% \sim 2.4\%$		
				H ₂ S: $1 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=3.3\% \sim 2.4\%$		
				CO: $10 \times 10^{-6} \sim 500 \times 10^{-6}$	$U_{rel}=2.5\% \sim 2.3\%$		
101	*Alarms and Detectors of Chloroethylene Gas	gas concentration	Verification Regulation of Alarms and Detectors of Chloroethylene Gas JJG 1125	$10 \times 10^{-6} \sim 100 \times 10^{-6}$	$U_{rel}=2.2\%$		
102	Optical Cavity Ring-Down Moisture Meter	Dew temperature	Calibration Specification of Optical Cavity Ring-Down Moisture Meter JJF(chuan) 166	(-90~+20) °C	$U=(0.4 \sim 0.2)$ °C		
		moisture content		$(0.096 \sim 23625) \times 10^{-6}$ mol/mol	$U_{rel}=0.3\% \sim 0.8\%$		
103	*Ammonia-Nitrogen Analyzers	Concentration	Calibration Specification for Off-line Ammonia-Nitrogen Analyzers JJF(chuan)181	(0.01~1000)mg/L	$U_{rel}=1.1\%$		



No. CNAS L0893

第 156 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
104	*Total Phosphorus Meters	Concentration	Calibration Specification for Total Phosphorus Meters NIMTT(CM) 162	(0.01~100)mg/L	$U_{rel}=2.3\%$		
105	*Total Nitrogen Meters	Concentration	Calibration Specification for Total Nitrogen Meters NIMTT(CM) 161	(0.01~100)mg/L	$U_{rel}=2.3\%$		
106	*Nitrite Meters	Concentration	Calibration Specification for Nitrite Meters NIMTT(CM) 159	Nitrite: (0.001~500)mg/L	$U_{rel}=1.4\%$		
				Nitrite Nitrogen: (0.001~100)mg/L	$U_{rel}=2.5\%$		
107	*Gas-phase Molecular Absorption Spectrometers	detection limit	Calibration Specification for Gas-phase Molecular Absorption Spectrometers NIMTT(CM) 158	Nitrite Nitrogen: ≤ 0.01 mg/L	$U_{rel}=45\%$		
				Nitrate Nitrogen: ≤ 0.01 mg/L	$U_{rel}=45\%$		
				Sulfide: ≤ 0.01 mg/L	$U_{rel}=45\%$		
				Ammonia Nitrogen: ≤ 0.02 mg/L	$U_{rel}=45\%$		
				Total Nitrogen: ≤ 0.05 mg/L	$U_{rel}=45\%$		
108	*Water Quality Meters of Heavy Metals	Concentration	Calibration Specification for Water Quality Meters of Heavy Metals NIMTT(CM) 160	Cr(VI), Cr, Fe, Cu, Ni, Zn, Pb, Cd, Hg, As, Mn: (0.001~100)mg/L	$U_{rel}=0.5\%\sim 1.6\%$		
109	*Ultraviolet Fluorescence Sulfur Analyzers	Concentration	Calibration Specification for Ultraviolet Fluorescence Sulfur Analyzers JJF 1685	(1~10)mg/L	$U=0.11$ mg/L		
				(10~200)mg/L	$U_{rel}=2.2\%$		
110	*Karl Fischer Volumetric Titrators for Water Content	quality	Verification Regulation of Karl Fischer Volumetric Titrators for Water Content JJG 1154	(1~20)mg	$U_{rel}=(1.6\sim 1.3)\%$		



No. CNAS L0893

第 157 页 共 191 页

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

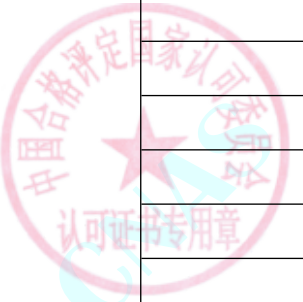
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
111	*Urea Analyzers of Water Sample Detection	Urea	Calibration Specification for Urea Analyzers of Water Sample Detection JJF1822	(0.1~5)mg/L	$U_{rel}=0.6\%$		
112	*on-line Automatic Monitors of Permanganate Index	Concentration	Calibration Specification for on-line Automatic Monitors of Permanganate Index JJF1875	(0.01~20)mg/L	$U_{rel}=3.2\%$		
113	*Sulfur Dioxide Gas Detectors	gas concentration	Verification Regulation of Sulfur Dioxide Gas Detectors JJG 551	$2 \times 10^{-6} \sim 5000 \times 10^{-6}$	$U_{rel}=1.8\% \sim 1.4\%$		
114	*Dilution device	flow	Calibration Specification for Dilution device NIMTT(CM)016	(5~50000)mL/min	$U_{rel}=0.33\%$		
		dilution ratio		0.1%~100%	$U_{rel}=0.96\%$		
115	*Pour Point and Cloud Point Testers of Petroleum Product	Temperature	Calibration Specification for Pour Point and Cloud Point Testers of Petroleum Products JJF 1869	Pour Point: (-30.0~0)°C	$U=2.8^{\circ}\text{C}$		
				Cloud Point: (-17.0~2.0)°C	$U=1.8^{\circ}\text{C}$		
116	McFarland Bacterial Turbidity Analyzer	Turbidity	Calibration Specification for McFarland Bacterial Turbidity Analyzers JJF 1825	(0.1~6)MCF	$U=(0.04 \sim 0.22)\text{MCF}$		
117	*(Automatic) Nucleic Acid Extractors	Temperature	Calibration Specification for (Automatic) Nucleic Acid Extractors JJF 1874	(10~110)°C	$U=0.5^{\circ}\text{C}$		
		Frequency		(1~100)Hz	$U=0.6\text{Hz}$		
		Volume		(10~1000) μL	$U=1.3 \mu\text{L}$		
		Recovery rate		(40~120)%	$U=2.0\%$		
118	*Colony Counter	Colony count	Calibration Specification for Colony Counter JJF 1751	(20~350)CFU	$U_{rel}=3\%$		
119	*Polymerase Chain Reaction	Temperature	Calibration Specification for Polymerase Chain Reaction	(10~110)°C	$U=(0.20 \sim 0.34)^{\circ}\text{C}$		



No. CNAS L0893

第 158 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Analyzers	Concentration	Analyzers JJF1527	$5.78 \times 10^2 \sim 5.78 \times 10^8$ copies/μL	$U_{\text{rel}}=5.0\%$		
120	*Gel imaging system	Illuminance	Gel imaging system calibration specifications JJF 1530	(50~3000)lx	$U_{\text{rel}}=1.5\%$		
121	*Thermogravimetric Analyzers	mass	Verification Regulation of Thermogravimetric Analyzers JJG 1135	(0~20) mg	$U=0.15$ mg		
		temperature		(100~800)°C	$U=2$ °C		
122	*Portable Stripping Voltammetry Heavy Metal Detectors	concentration	Calibration Specification for Portable Stripping Voltammetry Heavy Metal Detectors JJF 2037	Cd、Pb、Cu: (0.001~1000) mg/L	$U_{\text{rel}}=5.6\% \sim 7.2\%$		
123	*Iodine Element Automatic Detectors	concentration	Calibration Specification for Iodine Element Automatic Detectors JJF (Chuan) 188	Iodine: (50, 100, 200, 300, 400, 600, 800) μg/L	$U_{\text{rel}}=48\%$		
124	*Rotating Disc Electrode Atomic Emission Spectrometers	concentration	Calibration Specification For Rotating Disc Electrode Atomic Emission Spectrometers JJF 1929	Fe、Al、Cr (0.01~100) μg/g	$U_{\text{rel}}=3.1\% \sim 4.3\%$		
125	*Hand-held Laser-Induced Breakdown Spectrometers	Detection limit	Calibration Specification For Hand-held Laser-Induced Breakdown Spectrometers JJF (Chuan) 201	Cr: (0.177~4.40) % Ni: (0.294~4.33) % Si: (0.051~13.96) % Mn: (0.092~3.60) % Mg: (0.248~1.55) % Zn: (0.055~38.86) %	$U_{\text{rel}}=45\%$ $U_{\text{rel}}=45\%$ $U_{\text{rel}}=45\%$ $U_{\text{rel}}=45\%$ $U_{\text{rel}}=45\%$ $U_{\text{rel}}=45\%$		



No. CNAS L0893

第 159 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				Ti: (0.028~0.296) %	$U_{rel}=45\%$		
126	*Fourier Transform Infrared Gas Analyzers	gas concentration	Calibration Specification for Fourier Transform Infrared Gas Analyzers JJF (Chuan) 198	SO ₂ : (2~5000)×10 ⁻⁶ mol/mol	$U_{rel}=2.5\%\sim 1.4\%$		
				NO: (10~5000)×10 ⁻⁶ mol/mol	$U_{rel}=2.0\%\sim 0.7\%$		
				NO ₂ : (10~500)×10 ⁻⁶ mol/mol	$U_{rel}=2.7\%\sim 2.2\%$		
				CO: (10~5000)×10 ⁻⁶ mol/mol	$U_{rel}=1.7\%\sim 1.1\%$		
				CO ₂ : (10×10 ⁻⁶ ~1×10 ⁻²) mol/mol	$U_{rel}=1.6\%\sim 1.1\%$		
				CO ₂ : (1~20)×10 ⁻² mol/mol	$U_{rel}=1.1\%$		
				HCl: (10~100)×10 ⁻⁶ mol/mol	$U_{rel}=2.8\%\sim 2.1\%$		
127	*Gas detectors of tetrahydrothiophene	gas concentration	Calibration Specification of Gas Detectors of Tetrahydrothiophene NIMTT (CM) 188	(8~50) mg/m ³	$U_{rel}=3\%$		
128	*Energy Dispersive X-Ray Fluorescence Spectrometers	content	Calibration Specification for Energy Dispersive X-Ray Fluorescence Spectrometers JJF 2024	polymer matrix: (5.9~1159) mg/kg	$U_{rel}=(3.4\sim 6.8)\%$		
				other matrix: (0.00013~99.95) %	$U_{rel}=(0.2\sim 50)\%$		
129	Multi-function tester for flue gas conditions	moisture content	C. S. for Multi-function tester for flue gas conditions NIMTT(CM) 189	(0.1~40)%	$U_{rel}=3\%$		
		Temperature		(0~400)℃	$U=0.6\text{ }^{\circ}\text{C}$		
		Pressure		(0~2500)Pa	$U=0.5\text{ Pa}$		



No. CNAS L0893

第 160 页 共 191 页

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

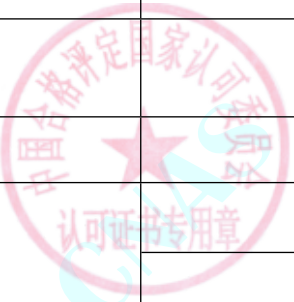
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
130	*Hydrogen Chloride Gas Detectors and Alarms	gas concentration	Calibration Specification of Hydrogen Chloride Gas Detectors and Alarms JJF 1888	$(10 \sim 100) \times 10^{-6} \text{ mol/mol}$	$U_{\text{rel}} = 4.2\% \sim 2.7\%$		
X Ionizing radiation measuring instrument							
1	α 、 β Surface Contamination Monitors	Activity	Verification Regulation of α 、 β Surface Contamination Monitors JJG 478	α : $(10^2 \sim 10^5)(\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}} = 10\%$		
				β : $(10^3 \sim 10^6)(\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}} = 10\%$		
2	Radon Measuring Instruments	Activity	Verification Regulation of Radon Measuring Instruments JJG 825	$(350 \sim 30000) \text{ Bq/m}^3$	$U_{\text{rel}} = 7.2\%$		
3	Radioactivity Meter	activity	Verification Regulation of Radioactivity Meter JJG 377	$(3.7 \times 10^4 \sim 3.7 \times 10^{10}) \text{ Bq}$	$U_{\text{rel}} = 4.5\%$		
4	*Gamma Radio-immunoassay Counters	activity	Verification Regulation of Gamma Radio-immunoassay CoUnters JJG 969	$(500 \sim 3300) \text{ Bq}$	$U_{\text{rel}} = 6.0\%$		
5	**Germanium Gamma-ray Spectrometers	activity	Calibration Specification for Germanium Gamma-ray Spectrometers JJF 1850	$(10 \sim 4 \times 10^4) \text{ Bq}$	$U_{\text{rel}} = 5.0\%$		
6	*Low Background Alpha/Beta Measuring Instruments	Activity	Verification Regulation of Low Background Alpha/Beta Measuring Instruments JJG 853	α : $(10^4 \sim 2.0 \times 10^5)(\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}} = 7.0\%$		
				β : $(2.0 \times 10^4 \sim 1.2 \times 10^5)(\text{min} \cdot 2 \pi \text{ sr})^{-1}$	$U_{\text{rel}} = 7.0\%$		
7	*Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT)	dose index	Verification Regulation of Medical Diagnostic X-ray Radiation Source for Spiral Computed Tomography (CT) JJG 961	$(1.0 \sim 1000) \text{ mGy}$	$U_{\text{rel}} = 7.5\%$		
		CT number		$(-1000 \sim 1000) \text{ HU}$	$U = 0.1 \text{ HU}$		
		slice thickness		$(0.5 \sim 15) \text{ mm}$	$U = 0.04 \text{ mm}$		



No. CNAS L0893

第 161 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
8	*Medical Diagnostical X-ray RadiationSource	Air kerma	Verification Regulation of Medical Diagnostical X-ray Radiation SoUrce JJG 744	(0.01~199)mGy	$U_{rel}=4.2\%$		
9	*Medical Diagnostical X-ray RadiationSource	Air kerma	Verification Regulation of Medical Diagnostic X-ray Source for Dental Panorama JJG 1101	(0.01~199)mGy	$U_{rel}=4.2\%$		
10	*Medical Diagnostical X-ray RadiationSource	Air kerma	Verification Regulation of Medical Diagnostic X-ray Radiation Source for Medical Digital Subtraction Angiography JJG 1067	(0.01~199)mGy	$U_{rel}=4.2\%$		
11	*Medical Diagnostical X-ray RadiationSource	Air kerma	Verification Regulationof X- ray Radiation Sources for Medical Computed Radiography System and Digital Radiography System JJG 1078	(0.01~199)mGy	$U_{rel}=4.2\%$		
12	*Medical Diagnostical X-ray RadiationSource	Air kerma	Verification Regulation of X- ray Radiation Source for Radiotherapy Simulating Localization JJG 1028	(0.01~199)mGy	$U_{rel}=4.2\%$		
13	*Appartus for Gamma Radiography	Air kerma rate	Verification Regulation of AppartUs for Gamma Radiography JJG 933	(0.01~10)Gy/min	$U_{rel}=5.0\%$		
14	*X-ray Flaw Detectors	Air kerma rate	Verification Regulation of X- ray Flaw Detectors JJG 40	(0.01~10)Gy/min	$U_{rel}=5.0\%$		
15	*Radiotherapyunit	Absorbed Dose	Verification Regulation of Radiation SoUrce Used in the External Beam Radiotherapy JJG 589	Photon Beam:(0.01~ 10.00)Gy	$U_{rel}=3.8\%$		
				Electron Beam:(0.01~ 10.00)Gy	$U_{rel}=4.0\%$		



No. CNAS L0893

第 162 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Absorbed Doserate		Photon Beam:(0.01~10.0)Gy/min Electron Beam:(0.01~10.0)Gy/min	$U_{rel}=3.8\%$ $U_{rel}=4.0\%$		
16	Portable Ambient Dose Equivalent (Rate) Meters and Monitors for X and γ Radiations	air kerma Air kerma rate Air kerma rate dose equivalent dose equivalent rate	Verification Regulation of Portable Ambient Dose Equivalent (Rate) Meters and Monitors for X and γ Radiations JJG 393	1 μ Gy~1 Gy 1 μ Gy/h~400 mGy/h 1 μ Gy/h~1 Gy/h 10 μ Sv~1 Sv 1 μ Sv/h~700 mSv/h	$U_{rel}=3.8\%$ $U_{rel}=3.8\%$ $U_{rel}=5.2\%$ $U_{rel}=5.6\%$ $U_{rel}=5.6\%$		
17	Personal dose equivalent Hp(10) Monitors for X and γ Radiations	dose equivalent dose equivalent rate kerma rate	Verification Regulation of Personal dose equivalent Hp(10) Monitors for X and γ Radiations JJG 1009	10 μ Sv~1 Sv 1 μ Sv/h~700 mSv/h 1 μ Gy/h~1 Gy/h	$U_{rel}=5.6\%$ $U_{rel}=5.6\%$ $U_{rel}=5.2\%$		
18	*X-ray Security Inspection Equipment	Air kerma rate	Calibration Specification for X-ray Security Inspection Equipment JJF 1275	0.01 μ Sv/h~50 mSv/h	$U_{rel}=8.7\%$		
19	*Installed Personnel α 、 β Surface Contamination Monitoring Assemblies	activity	Verification Regulation of Installed Personnel α 、 β Surface Contamination Monitoring Assemblies JJG 1102	α : $(10^4 \sim 10^6)/(\text{min} \cdot 2 \pi \text{ sr})$; β : $(10^4 \sim 10^6)/(\text{min} \cdot 2 \pi \text{ sr})$	$U_{rel}=6.0\%$		
20	Diagnostic dosimeters for X	Air kerma rate	Calibration Specification for Diagnostic Dosimeters	$(6 \times 10^{-5} \sim 1)\text{Gy/min}$	$U_{rel}=2.9\%$		

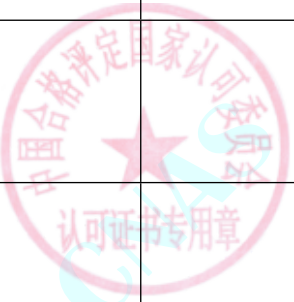
No. CNAS L0893

第 163 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
	ray	Air kerma lenth	JJF1621	$(1 \times 10^{-6} \sim 50) \text{Gycm}$	$U_{\text{rel}}=2.0\%$		
21	Non- invasive X-ray Tube Voltage Meters Used in Medical Diagnosis	tube voltage	Calibration Specification for Non- invasive X-ray Tube Voltage Meters Used in Medical Diagnosis JJF1474	$(50 \sim 150) \text{kV}$	$U_{\text{rel}}=0.8\%$		
22	Medical Diagnostics X-ray Non- invasive Exposure Time	Exposure time	Calibration Specification for Medical Diagnostics X-ray Non- invasive Exposure Time JJF1432	$(10 \sim 6000) \text{ms}$	$U=0.05 \text{ ms}$		
23	Diagnostic Dosimeters for X- ray	Air kerma rate	Calibration Specification for Diagnostic Dosimeters of Mammography NIMTT(CM)032	$(6 \times 10^{-5} \sim 1) \text{Gy/min}$	$U_{\text{rel}}=2.0\%$		
24	Non-Invasive X- ray Tube Voltage Meters Used in Mammography	tube voltage	Calibration Specification for Non-Invasive X-ray Tube Voltage Meters Used in Mammography JJF 2042	$(20 \sim 50) \text{kV}$	$U=0.5 \text{ kV}$		
25	Dose Area Product	Dose area product	Calibration Specification for Dose Area Product Meters JJF1479	$(0.01 \sim 5 \times 10^3) \mu \text{Gym}^2$	$U_{\text{rel}}=2.0\%$		
26	Monitor of Radiouclide Identification	Dose equivalent rate	Calibration Specification for Hand-held Radiation Monitors for Detection and Identification of Radianuclides JJF1687	$1 \mu \text{Sv/h} \sim 700 \text{mSv/h}$	$U_{\text{rel}}=4.8\%$		
27	γ Ray Spectrometers of Scintillation Detectors	activity	Calibration Specification of γ Ray Spectrometers of Scintillation Detectors JJF1744	$(5 \times 10^2 \sim 1 \times 10^4) \text{Bq}$	$U_{\text{rel}}=12\%$		



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No. CNAS L0893

第 164 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
28	real-time focus meter	focal spot	Calibration Specification for Real-time Focus Meters JJF1688	(0.1~6.0)mm	$U=0.04$ mm		
29	3D-watertank	position	Calibration Specification for 3D-Watertank NIMTT(CM) 049	(0~200)mm	$U=0.05$ mm		
30	Half-value Layer Meters of (20~150) kV X-ray beam	Half-value Layer	Calibration Specification for Half-value Layer Meters of (20~150) kV X-ray beam JJF 2017	(0.1~14)mmAl	$U_{\text{rel}}=2.0\%$		
31	*Medical X-ray Radiation Sources for Mammographic Equipment	Absorbed dose	Verification Regulation of Medical X-ray Radiation Sources for Mammographic Equipment JJG1145	(0.1~199)mGy	$U_{\text{rel}}=4.2\%$		
32	*X-ray industry real time imaging system	air kerma rate	Calibration Specification X-Ray Industry Real Time Imaging System JJF1596	(0.01~10)Gy/min	$U_{\text{rel}}=3.3\%$		
33	Personal Dose Equivalent Rate Warning Devices for X and γ Radiation	kerma rate	Verification Regulation of Personal Dose Equivalent Rate Warning Devices for X and γ Radiation JJG 962	1 μ Gy/h ~ 1 Gy/h	$U_{\text{rel}}=5.2\%$		
34	Ion Chamber Dosimeters used in Radiotherapy	Kerma	Verification Regulation of Ion Chamber Dosimeters Used in Radiotherapy JJG912	(0.01~10)Gy	$U_{\text{rel}}=1.8\%$		



No. CNAS L0893

第 165 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
35	Thermoluminescence Dosimetry Systems Used in Personal and Environmental Monitoring for X and γ Radiation	kerma	Thermoluminescence Dosimetry Systems Used in Personal and Environmental Monitoring for X and γ Radiation JJG 593	(0.01~1000)mSv	$U_{rel}=5.7\%$		
XI Special measuring instrument							
1	Pyranometer	Sensitivity	Verification Regulation of Pyranometer JJG 458	$(7\sim 20) \mu V \cdot W^{-1} \cdot m^2$	$U_{rel}=2.4\%$	Accredited only for indoor verification method	
		Irradiance		$(200\sim 1500)W \cdot m^{-2}$	$U_{rel}=2.4\%$		
2	Ultrasonic Anemometers	air speed	Calibration Specification for Ultrasonic Anemometers JJF 1934	$(0.2\sim 30)m/s$	$U=0.14m/s+1.4\%V$		
3	*Water Hardness Meters	water hardness	Calibration Specification for Water Hardness Meters JJF 1949	total hardness: $(0.1\sim 4500) mg/L$	$U_{rel}=1.6\%$		
				Calcium hardness: $(0.1\sim 1000) mg/L$	$U_{rel}=1.1\%$		
				Magnesium hardness: $(0.1\sim 1000) mg/L$	$U_{rel}=1.1\%$		
		Temperature		$(10\sim 30)^{\circ}C$	$U=0.3^{\circ}C$		
4	*ELISA Analytical Instruments	Wavelength	Verification Regulation of ELISA Analytical Instruments JJG861	$(360\sim 800)nm$	$U=0.3 nm$		
		Absorbance		0.2~1.5	$U=0.002\sim 0.006$		
5	*Semiautomatic Clinical Chemistry	wavelength	Verification Regulation of Semiautomatic Clinical	$(300\sim 800) nm$	$U=0.3 nm$		



No. CNAS L0893

第 166 页 共 191 页

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

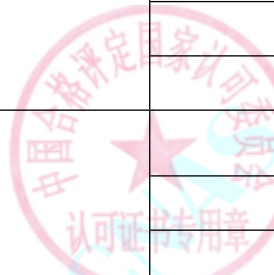
No	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	Analyzers	absorbance	Chemistry Analyzers JJG 464	0.5~1.0	$U=0.002$		
6	*Blood Cell Analyzers	WBC	Verification Regulation of Blood Cell Analyzers JJG 714	$(2\sim 25) \times 10^9/L$	$U_{rel}=2.5\%$		
		RBC		$(1\sim 8) \times 10^{12}/L$	$U_{rel}=2.0\%$		
		HGB		$(40\sim 180) g/L$	$U_{rel}=2.0\%$		
		PLT		$(40\sim 500) \times 10^9/L$	$U_{rel}=3.0\%$		
7	*Urine Analyzers	pH	Calibration Specification of Urine Analyzers JJF1129	5.5~7.5	$U_{rel}=4\%$		
		PRO		$(0.01\sim 3) g/L$	$U_{rel}=4\%$		
		GLU		$(0.1\sim 60) mmol/L$	$U_{rel}=2\%$		
		SG		1.005~1.08	$U=0.003$		
		time		$(0\sim 3600) s$	$U=0.1 s$		
8	*Full-automatic closed luminous immunoassay analyzer	concentration	Calibration specification of fully automatic closed luminescence immunoassay analyzer JJF 1752	$(0.5\sim 1000) IU/mL$	$U=1.4 IU/mL$		
9	*Fully automatic biochemical analyzer	absorbance	Calibration specification for automatic biochemical analyzer JJF 1720	0~2	$U=0.003$		
		ALT		$(30\sim 110) IU/L$	$U_{rel}=5\%$		
		GLU		$(4\sim 16) mmol/L$	$U_{rel}=3\%$		
10	Sphygmomano-metersDigital electronic Sphygmomano-meters	PressUre	Verification Regulation of Non-Automated Sphygmomanometers JJG 692	$(0\sim 40)kPa$	$U=0.14 kPa$		
		heart rate	Verification Regulation for	$(30\sim 300)min^{-1}$	$U=1.4 min^{-1}$		

No. CNAS L0893

第 167 页 共 191 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
	Patient Monitor	pressure	Multifunction Patient Monitoring Instruments JJG1163	(0.1～30)kPa	<i>U</i> =0.16 kPa		
		Respiratory rate		(10～60)min ⁻¹	<i>U</i> =0.2 min ⁻¹		
12	respiratory rhythm generator	respiratory rate	Calibration Specification for respiratory rhythm generator NIMTT(CM)043	(3～60)min ⁻¹	<i>U</i> =0.22min ⁻¹		
13	Defibrillators Analyzer	heart rate	Calibration Specification for Defibrillator Analyzers JJF 1860	(30～300)min ⁻¹	<i>U</i> _{rel} =0.08%		
		Respiratory		(10～2000) Ω	<i>U</i> _{rel} =0.84%		
		output energy		(2～360)J	<i>U</i> _{rel} =1.4%		
		Amplitude		(0.1～ 3)mV	<i>U</i> _{rel} =1.2%		
		Sine wave signal frequency		(1～25)Hz	<i>U</i> _{rel} =0.08%		
		Distortion		(10~150)Hz	<i>U</i> =0.3%		
14	*the pulmonary function Measuring instrumen	VC	Calibration Specification for the Pulmonary Function Measuring Instrument JJF1213	(0.5～2)L	<i>U</i> =0.026 L		
				(2～8)L	<i>U</i> _{rel} =0.74%		
		Flow		(0～3)L/s	<i>U</i> =0.072 L/s		
				(3～14)L/s	<i>U</i> _{rel} =2.4%		
15	Multiparameter Physiological Simulators	Amplitude of ECG signal	Calibration Specification for Multiparameter Physiological Simulators JJF1470	(0.1～3.0)mV	<i>U</i> _{rel} =1.2%		
		heart rate		(30～300)min ⁻¹	<i>U</i> _{rel} =0.08%		
		Respiratory impedance		(100～3000) Ω	<i>U</i> _{rel} =0.84%		



No. CNAS L0893

第 168 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Analogue signal of blood pressure	ilac-MRA CNAS NATIONAL ACCREDITATION SERVICE FOR CONFORMITY ASSESSMENT SCHEDULE OF ACCREDITATION CERTIFICATE	(0.1~200)mV	$U_{rel}=0.7\%$		
		Cardiac output signal		(10~20)k Ω	$U_{rel}=0.8\%$		
		Temperature analog signal		(1~100)k Ω	$U_{rel}=0.7\%$		
		Amplitude of Reference waveforms		(0.1~3)mV	$U_{rel}=1.2\%$		
		rate of Reference waveforms		(0.05~150)Hz	$U_{rel}=0.08\%$		
16	Medical Syringe Pump and Infusion Pump Analyzers	flow rate	Verification Regulation of Medical Syringe Pump and Infusion Pump Analyzers JJG1098	(5~20)mL/h	$U=0.06$ mL/h		
				(20~200) mL/h	$U=0.3$ mL/h		
				(200~1000) mL/h	$U=0.98$ mL/h		
		occlusion pressure		(1~200)kPa	$U_{rel}=0.8\%$		
17	*Electromyographs and Evoked Response Equipment	Waveform amplitude	Calibration Specification for Electromyographs and Evoked Response Equipments JJF 1896	100 μ V~5 mV	$U_{rel}=3.0\%$	合格评定 国家认可 委员会 认可证书专用章	
		Waveform frequency		1 Hz~3 kHz	$U_{rel}=0.5\%$		
		Stimulus signal strength		(1~100)mA	$U_{rel}=5.7\%$		
		Stimulus pulse width		(0.1~1.0)ms	$U_{rel}=2.0\%$		



No. CNAS L0893

第 169 页 共 191 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
		Stimulus pulse frequency		(1~50)Hz	$U_{\text{rel}}=3.5\%$		
18	Transcutaneous Pacer Analyzer	Current amplitude	Calibration Specification for Transcutaneous Pacer Analyzers NIMTT (CM) 173	(4~200)mA	$U_{\text{rel}}=0.8\%$		
		Pulse frequency		(30~300)min ⁻¹	$U_{\text{rel}}=0.5\%$		
		Pulse width		(10~80)ms	$U_{\text{rel}}=0.8\%$		
19	NIBP Simulators	Pulse rate	Calibration Specification for NIBP Simulators JJF1626	(30~250)min ⁻¹	$U_{\text{rel}}=1.0\%$		
		Static pressure		(1~53.3)kPa	$U=0.052$ kPa		
20	Standard respiratory simulator	VC	Standard respiratory simulator of calibration specifications NIMTT(CM) 040	(0.1~9)L	$U=(1.2+0.67V)$ mL(V :Setting Volume, unit: L)		
		PEF		(1~100)Nm ³ /h	$U_{\text{rel}}=1.4\%$		
21	Ventilator Testers	flow	Calibration Specification for Ventilator Testers JJF 2148	(0.5~180) L/min	$U_{\text{rel}}=1.0\%$		
		tidal volume		(5~2000)mL	$U_{\text{rel}}=1.0\%$		
		pressure		(-2~12) kPa	$U=0.012$ kPa		
		Breathing rate		(12~60) kPa	$U=0.15$ kPa		
		oxygen concentration		(1~150)min ⁻¹	$U_{\text{rel}}=1.0\%$		
				21%~100%	$U=1.0\%$		
22	*Medical Magnetic Resonance Image	Magnetic field intensity	Calibration Specification of Medical Magnetic Resonance Image NIMTT(CM) 047	(0.02~2)T	$U_{\text{rel}}=2.5\%$		
23	Hemodialysis Equipment Tester	conductivity	Calibration Specification for Hemodialysis Equipment	(12.5~15.5)mS/cm	$U=0.04$ mS/cm		



No. CNAS L0893

第 170 页 共 191 页

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

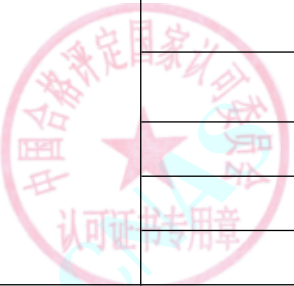
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		temperature	Tester JJF1541	(10~50)°C	$U=0.03^{\circ}\text{C}$		
		pressure		(-110~150)kPa	$U=0.12\text{kPa}$		
		pH		pH: (0~14)	$U=0.01$		
		Flow		(100~2000)mL/min	$U_{\text{rel}}=0.4\%$		
24	Baby Incubator Detector	temperature	Calibration Specification for Baby Incubator Analyzers NIMTT(CM) 096	(20~50)°C	$U=0.04^{\circ}\text{C}$		
		relative humidity		10%~90%	$U=1.3\%$		
25	Spo2 Simulator	oxygen saturation	Calibration Specification for Spo2 Simulator JJF1542	35%~100%	$U=1.4\%$		
		pulse rate value		(30~250) min ⁻¹	$U=1.2\text{min}^{-1}$		
26	Precision microinjection pump	flow rate	Calibration Specification for Precision microinjection pump NIMTT(CM) 098	(1~1000)mL/h	$U=0.01\text{mL/h}$		
27	Electrosurgical Generator Analyzers	power	Calibration Specification for Electrosurgical Generator Analyzers NIMTT(CM) 104	(1~300)W	$U_{\text{rel}}=1.2\%$		
		leakage current		(5~1000)mA	$U_{\text{rel}}=0.42\%$		
		Respiratory		(50~10000) Ω	$U_{\text{rel}}=0.84\%$		
28	Calibration Device for Electrocardiograph and Electroencephalogr aph	Distortion	Verification Regulation of Verification Instrument for Electrocardiograph and Electroencephalograph JJG749	0.1%~30%, (10Hz~ 200Hz)	$U_{\text{rel}}=10\%$		
		Voltage		0.1mV~20V	$U_{\text{rel}}=0.7\%$		
		Frequency		0.01Hz~500Hz	$U_{\text{rel}}=8\times 10^{-5}$		
29	Railway Track Gage	Length	Verification Regulation of Calibrator for Railway Track Gage JJG404	(1410~1470)mm	$U=0.02\text{mm}$		



No. CNAS L0893

第 171 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
30	Standard Gauge Railway	Length	Verification Regulation of Track Gage for Standard Gauge Railway JJG219	(1338~1470)mm	$U=0.07\text{mm}$		
31	*Mixer	revolution speed	Calibration Specification for Mixer for cement paste JJF(JC) 104	(57~135)r/min	$U=1.7\text{r/min}$		
		Time		(14~121)s	$U=0.4\text{s}$		
		Length		(5~6.5)mm	$U=0.10\text{mm}$		
32	*Nonmetal Building Materials Plastic Limit Measuring Instruments	Length	Calibration Specification for Nonmetal Building Materials Plastic Limit Measuring Instruments JJF1090	(1~83)mm	$U=0.04\text{mm}$	Accredited only for apparatus for normal consistency and setting time of cement paste	
		Mass		(299~301)g	$U=0.2\text{g}$		
		Angle		$43^{\circ} \sim 44^{\circ}$	$U=0.08^{\circ}$		
33	*apparatus of fluidity of cement mortar	Length	Calibration Specification for Flow Table for Determine Cement Mortar Fluidity JJF(Chuan) 164	(20~300)mm	$U=0.1\text{mm}$		
		Time		(24~26)s	$U=0.2\text{s}$		
		Mass		(4.2~4.5)kg	$U=1.8\text{g}$		
34	Apparatus for Determining Penetration of Bituminous Materials	Length	C. S. for Apparatus for Determining Penetration of Bituminous Materials JJF 1208	(0~50)mm	$U=0.02\text{mm}$		
				standard needle: (0.14~1.02)mm	$U=6\text{ }\mu\text{m}$		
		Angle		$8^{\circ} 40' \sim 9^{\circ} 40'$	$U=5'$		
		Mass		(99.95~100.05)g	$U=0.014\text{g}$		
		Temperature		(5~50) $^{\circ}\text{C}$	$U=0.2^{\circ}\text{C}$		
35	*Vibrating Table for Concrete Test	Frequency	Calibration Specification of Vibrating Table for Concrete	(48~52)Hz	$U_{\text{rel}}=2.0\%$		

No. CNAS L0893

第 172 页 共 191 页



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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Amplitude	Test JJF(Chuan) 170	(0.48~0.52)mm	$U_{rel}=3.6\%$		
		Length		(300~1000)mm	$U=0.3\text{mm}$		
36	*Asphalt Mixture's Mixing Machine	Temperature	Verification Regulation of Asphalt Mixture's Mixing Machine JJG(JT) 064	(140~200) °C	$U=0.6^{\circ}\text{C}$		
		Revolution speed		(40~80) r/min	$U=0.4\text{r/min}$		
		Time		(175~185) s	$U=0.3\text{s}$		
37	*Asphalt Aging Oven	Length	Verification Regulation of Asphalt Aging Oven JJG (JT) 056	(1~140) mm	$U=0.06\text{mm}$		
		Temperature		(162~164)°C	$U=0.3^{\circ}\text{C}$		
		Revolution speed		(4~16)r/min	$U=0.2\text{r/min}$		
		flow rate		(3800~4200)mL/min	$U_{rel}=1.8\%$		
38	*Apparatus for Softening Point of Bitumen	Length	Verification Regulation of Apparatus for Softening Point of Bitumen JJG (JT) 057	(6~30) mm	$U=0.03\text{mm}$		
		weight		(3~4) g	$U=1.2\text{mg}$		
		heating rate		(4.5~5.5) °C/min	$U=0.4^{\circ}\text{C/min}$		
		Temperature		(20~100)°C	$U=0.20^{\circ}\text{C}$		
39	*Verification regulation for cement Mortar mixer complying	revolution speed	Calibration Specification for Mixer for Mixing Mortars JJF (JC)123	(60~128)r/min	$U=1.7\text{r/min}$		
		time		(29~91)s	$U=0.4\text{s}$		
		Length		(7~9)mm	$U=0.10\text{mm}$		
40	*Cement mortar specimen jolting table	Time	C.S.for cement mortar specimen jolting table compiyng with ISO 679 JJF(JC) 124	(58~62)s	$U=0.4\text{s}$		
		Mass		(12~13)kg	$U=0.07\text{kg}$		



No. CNAS L0893

第 173 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
41	Voltage Probe(EMC)	Insert Loss	calibration specification for voltage probe NIMTT(CM) 065	(0~80)dB,(10kHz~10MHz)	$U=2.0\text{dB}$		
				(0~80)dB,(10MHz~200MHz)	$U=2.3\text{dB}$		
42	Current Probe(EMC)	Transfer impedance	calibration specification for Current probe NIMTT(CM) 064	(-60~14)dB Ω , (10kHz~10MHz)	$U=0.5\text{dB}$		
				(-60~14)dB Ω , (10MHz~200MHz)	$U=0.6\text{dB}$		
43	Microwave radiation and leakage measuring instrument(Including Microwave field probe)	Power density	Verification Regulation for Microwave Radiation and Leakage Energy Measuring Instruments JJG776	(1~1000) $\mu\text{W}/\text{cm}^2$, (2450MHz)	$U=1.7\text{dB}$		
				(1000~5000) $\mu\text{W}/\text{cm}^2$, (915MHz,2450MHz)	$U=1.7\text{dB}$		
44	*Impulse Voltage generator	Voltage(Peak)	calibration specification for impulse voltage generator NIMTT(CM) 122	100V~7000V	$U_{\text{rel}}=4\%$		
		Voltage rise time		0.1 μs ~10 μs	$U_{\text{rel}}=4\%$		
		Voltage duration time		1 μs ~1000 μs	$U_{\text{rel}}=4\%$		
		current (Peak)		100A~8000A	$U_{\text{rel}}=3\%$		
		current rise time		0.1 μs ~10 μs	$U_{\text{rel}}=4\%$		
		current duration time		1 μs ~1000 μs	$U_{\text{rel}}=4\%$		
45	Voltage dips, short interruptions and voltage variations generator	voltage amplitude	calibration specification for voltage dips, short interruptions and voltage variation tests generator JJF1673	0.1V~400V	$U_{\text{rel}}=2\%$		
		Time at Reduced Voltage		1ms~10s	$U_{\text{rel}}=6\%$		



No. CNAS L0893

第 174 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
		Load current		0.1A~40A	$U_{rel}=5\%\sim 7\%$		
46	*Power frequency magnetic field generator	current	Calibration Specification for Power Frequency Magnetic Field Simulators JJF 1737	(0.01~1000)A	$U_{rel}=3\%$		
		Magnetic field intensity		(1~1000)A/m	$U_{rel}=11\%$		
47	Surge generator	Voltage(Peak)	Calibration Specification for Surge Simulators JJF 1741	0.1kV~6kV	$U_{rel}=4\%$		
		Open-circuit voltage wavefront time		(0.5~10) μ s	$U_{rel}=4\%$		
		Voltage duration time		(10~1000) μ s	$U_{rel}=4\%$		
		current(peak)		0.01kA~8kA	$U_{rel}=3\%$		
		Wavefront time of short-circuit current		(0.5~10) μ s	$U_{rel}=4\%$		
		current duration time		(10~1000) μ s	$U_{rel}=4\%$		
48	Electric Fast Transient Burst generator	Voltage(Peak)	calibration specification for electrical fast transient/burst simulators JJF1672	(0.25~4)kV	$U_{rel}=5\%$		
		pulse rise time		(1~10)ns	$U_{rel}=7\%$		
		Pulse width		(10~150)ns	$U_{rel}=7\%$		
		repetition frequency		(5~100)kHz	$U_{rel}=6\%$		
		Burst Duration		(0.75~300)ms	$U_{rel}=8\%$		
49	electrostatic discharge	voltage	calibration specification for electrostatic discharge	(1~15)kV	$U_{rel}=3.2\%$		



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No. CNAS L0893

第 175 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty (k=2)	Note	Effective Date
	rgesimulators	discharge current	simulators JJF 1397	(7.5~30)A	$U_{rel}=6\%$		
		rise time		(0.7~1.0)ns	$U_{rel}=13\%$		
		discharge current		(2~16)A	$U_{rel}=10\%$		
50	*damped oscillatory wave simulators	Open Circuit Voltage	Calibration specification for damped oscillatory wave simulators JJF 2016	250V~4000V	$U_{rel}=4\%$		
		short circuit current		1.25A~80A	$U_{rel}=5\%$		
		time		10ns~75ns	$U_{rel}=3\%$		
51	Automotive transient interference simulator	voltage	calibration specification for vehicles transient disturbance simulators NIMTT(CM) 008	(-700~-1)V,(1~300)V	$U_{rel}=4\%$		
		rise time		1ns~10ms	$U_{rel}=7\%$		
		duration time		1ms~5s	$U_{rel}=4\%$		
52	Portable 3-CUP anemometer	air speed	Verification Regulation of portable 3-CUP anemometer JJG 431	(0.2~30)m/s	$U=0.14\text{m/s}+1.4\%V$		
53	Thermo-anemoscopes	air speed	Calibration Specification for Thermo-anemoscopes JJF 1939	(0.2~30)m/s	$U=0.14\text{m/s}+1.4\%V$		
Mechanics measuring instrument							
XII Capacity measuring instrument							
1	Working Glass Container	Capacity	Working Glass Container JJG 196	(0.001~0.1)ml	$U=0.00006\text{ml}$		
				(0.1~25)ml	$U=0.002\text{ml}$		
				(25~100)ml	$U=0.005\text{ ml}$		



No. CNAS L0893

第 176 页 共 191 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	$U=0.03 \text{ ml}$		
				(500~2000)ml	$U=0.09 \text{ ml}$		
2	Standard Capacity MeasUres(glass)	Capacity	Standard Capacity MeasUres(glass) JJG 20	(0.001~0.1)ml	$U=0.00006 \text{ ml}$		
				(0.1~25)ml	$U=0.002 \text{ ml}$		
				(25~100)ml	$U=0.005 \text{ ml}$		
				(100~500)ml	$U=0.03 \text{ ml}$		
				(500~2000)ml	$U=0.09 \text{ ml}$		
				(2000~10000)ml	$U=0.16 \text{ ml}$		
3	Color Tubes	Capacity	Color Tubes JJG 10	(0.001~0.1)ml	$U=0.00006 \text{ ml}$		
				(0.1~25)ml	$U=0.002 \text{ ml}$		
				(25~100)ml	$U=0.005 \text{ ml}$		
				(100~500)ml	$U=0.03 \text{ ml}$		
				(500~2000)ml	$U=0.09 \text{ ml}$		
4	Locomotive pipette	Capacity	Locomotive pipette JJG 646	(0.1~20) μL	$U=0.006 \mu\text{L}$		
				(20~10000) μL	$U=0.12 \mu\text{L}$		
5	Standard Glass Hydrometers	Density	Verification Regulation of Standard Glass Hydrometers JJG 86	(650~1500) kg/m^3	$U=0.08 \text{ kg/m}^3$		
		alcohol		$\rho: (0~100)\%$	$U=0.04\%$		
6	Digital Liquid Density Meter-Weighed Method	Density	Verification Regulation of Digital Liquid Density Meter-Weighed Method JJG 999	(650~2000) kg/m^3	$U=(0.08~0.20) \text{ kg/m}^3$		



No. CNAS L0893

第 177 页 共 191 页

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

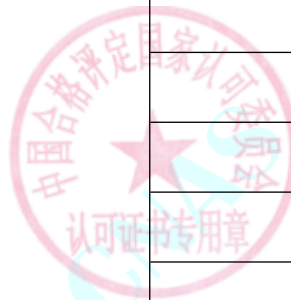
№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
7	Laboratory Oscillation-type Liquid Density meters	Density	Verification Regulation of Laboratory Oscillation-type Liquid Density meters JJG 1058	(650~2000)kg/m ³	$U=(0.08\sim0.20)\text{kg/m}^3$		
8	Special capacity	Capacity	Special capacity self-calibration specification NIMTT(CM) 111	(0.0001~0.1)ml	$U=0.00006\text{ml}$		
				(0.1~25)ml	$U=0.002\text{ ml}$		
				(25~100)ml	$U=0.005\text{ ml}$		
				(100~500)ml	$U=0.03\text{ ml}$		
				(500~2000)ml	$U=0.09\text{ml}$		
				(2000~20000)ml	$U=0.16\text{ ml}$		
9	Working Glass Hydrometers	Density	Verification Regulation of Working Glass Hydrometers JJG 42	(650~2000)kg/m ³	$U=(0.08\sim0.20)\text{kg/m}^3$		
		alcohol		(0~100)%	$U=0.04\%$		
		latex		(1010~1040)kg/m ³	$U=0.10\text{kg/m}^3$		
		Baume		(0~70)Bh	$U=0.04\text{Bh}$		
		sugar		p:(0~80)%	$U=0.03\%$		
10	*Vertical Metal Tank	Capacity (Volume)	Verification Regulation of Vertical Metal Tank Capacity JJG 168	(20~100) m ³	$U_{\text{rel}}=(2.8\times10^{-3}\sim1.3\times10^{-3})$		
				(100~700) m ³	$U_{\text{rel}}=(1.3\times10^{-3}\sim9.8\times10^{-4})$		
				(700 ~200000) m ³	$U_{\text{rel}}=(9.8\times10^{-4}\sim4.2\times10^{-4})$		
11	*Tank Cars Capacity	capacity	Verification Regulation of Tank Cars Capacity JJG 133	(3~40)m ³	$U_{\text{rel}}=0.21\%$		
12	*Horizontal Metallic Tank	Capacity (Volume)	Verification Regulation of the Volume of Horizontal Metallic Tank JJG266	(10 ~200) m ³ ;	$U_{\text{rel}}=(1.9\times10^{-3}\sim8.7\times10^{-4})$		

No. CNAS L0893

第 178 页 共 191 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
13	*Spherical metal Tank	Capacity (Volume)	Verification Regulation of Spherical Metal Tank Capacity JJG642	(80~5000) m ³	<i>U</i> _{rel} =(2.6×10 ⁻³ ~6.6×10 ⁻⁴)		
14	Mud Density Meter	Density	Verification Regulation of Mud Density Meter JJG1045	(700~3000)kg/m ³	<i>U</i> =2 kg/m ³		
15	Syringes for Medical Use	Capacity	Syringes for Medical Use JJG 18	(0.25~25)ml	<i>U</i> =0.002ml		
				(25~100)ml	<i>U</i> =0.005 ml		
XIII Flow measuring instrument							
1	*Float Meter	flow	Verification Regulation of Float Meter JJG 257	DN2~DN100, (0.0001~0.3)L/min(Gas)	<i>U</i> _{rel} =0.92%~0.60%		
				DN2~DN100, (0.3~6)L/min(Gas)	<i>U</i> _{rel} =0.60%~0.98%		
				DN2~DN100, (0.2~40)m ³ /h(Gas)	<i>U</i> _{rel} =0.68%~0.54%		
				DN2~DN100, (40~240)m ³ /h(Gas)	<i>U</i> _{rel} =0.54%~0.55%		
				DN2~DN100, (250~2000)kg/h(Gas)	<i>U</i> _{rel} =1.5%		
2	*Ultrasonic Flowmeters	flow	Verification Regulation of Ultrasonic Flowmeters JJG 1030	DN15~DN100,(0.01~1)m ³ /h(Gas)	<i>U</i> _{rel} =0.40%~0.26%		
				DN15~DN100,(1~40)m ³ /h(Gas)	<i>U</i> _{rel} =0.26%~0.22%		
				DN15~DN100,(40~240)m ³ /h(Gas)	<i>U</i> _{rel} =0.22%~0.23%		
				DN15~DN300,(0.024~0.5)m ³ /h(liquid)	<i>U</i> _{rel} =0.17%~0.16%		
				DN15~DN300,(0.5~5)m ³ /h(liquid)	<i>U</i> _{rel} =0.17%~0.16%		



No. CNAS L0893

第 179 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				DN15~DN300,(5~20)m ³ /h(liquid)	$U_{rel}=0.16\%$		
				DN15~DN300,(20~180)m ³ /h(liquid)	$U_{rel}=0.17\%$		
				DN15~DN300,(1~780)m ³ /h(liquid)	$U_{rel}=0.26\% \sim 0.20\%$		
				DN50~DN1600,(2~50000)m ³ /h(liquid) (2~50000)m ³ /h	$U_{rel}=1.2\%$		
3	Water Gas Meters	flow	Calibration Specification for Water Gas Meters JJF 1357	(0.01~10)m ³ /h	$U_{rel}=0.15\%$		
4	Gas Laminar Flow Transducers	flow	Verification Regulation of Gas Laminar Flow Transducers JJG 736	(0.0001~0.3)L/min	$U_{rel}=0.92\% \sim 0.60\%$		
				(0.3~6)L/min	$U_{rel}=0.60\% \sim 0.98\%$		
				(6~60)L/min	$U_{rel}=0.60\% \sim 0.98\%$		
5	Target Flowmeter	flow	Verification Regulation of Target Flowmeter JJG 461	DN15~DN100,(0.01~5)m ³ /h	$U_{rel}=0.59\% \sim 0.36\%$		
				DN15~DN100,(5~40)m ³ /h	$U_{rel}=0.36\% \sim 0.29\%$		
				DN15~DN100,(40~240)m ³ /h	$U_{rel}=0.29\% \sim 0.25\%$		
6	*Standard Facilities for Liquid Fowerrate	vloumemass	Verification Regulation of Standard Facilities for Liquid Fowerrate JJG 164	(10~25000)L	$U_{rel}=0.05\%$		
		mass		(10~50000)kg	$U_{rel}=0.02\%$		
7	*Vretical Facility for Water meters	volume	Verification Regulation of Vretical Facility for Water meters JJG 1113	(10~10000)L	$U_{rel}=0.1\%$		
8	*Pipe Prover	volume	Verification Regulation of Pipe Prover JJG 209	(10~10000)L	$U_{rel}=0.02\% \sim 0.04\%$		



No. CNAS L0893

第 180 页 共 191 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
9	Critical Flow Venturi Nozzle	flow	Verification Regulation of Critical Flow Venturi Nozzle JJG 620	(0.01～10)m³/h	<i>U</i> _{rel} =0.09%		
				(0.016～1.6) m³/h	<i>U</i> _{rel} =0.20%		
10	*Flow Standard Facilitise by Master Meter Method	flow	Verification Regulation of Flow Standard Facilitise by Master Meter Method JJG 643	(0.01～10)m³/h	<i>U</i> _{rel} =0.23%		
				DN2～DN1000, (0.01～50000)m³/h	<i>U</i> _{rel} =0.1%		
11	*Weirs and Flumes for Flow Measurement	flow	Verification Regulation of Weirs and Flumes for Flow Measurement JJG 711	(0.1×10 ⁻³ ～1300)m³/s	<i>U</i> _{rel} =(3～5)%		
12	Vortex Prscession Flowmeters	flow	Verification Regulation of Vortex Precession Flowmeters JJG 1121	DN15～DN300,(1～780)m³/h(liquid)	<i>U</i> _{rel} =0.26%		
		flow		DN15～DN100,(0.01～1.2)m³/h(Gas)	<i>U</i> _{rel} =0.40%～0.25%		
				DN15～DN100,(1.2～40)m³/h(Gas)	<i>U</i> _{rel} =0.25%～0.21%		
				DN15～DN100,(40～240)m³/h(Gas)	<i>U</i> _{rel} =0.21%～0.26%		
13	*Flow Integration Meters	flow	Verification Regulation of Flow Integration Meters JJG 1003	(1～999999)Flow engineering unit; frequency: (0.1～10)kHz	<i>U</i> _{rel} =0.01%		
				electricity: (0.1～20)mA, voltage: (0.1～10)V, resistance: (50～1000)Ω	<i>U</i> _{rel} =0.05%; (with pressure temperature feedback)		
14	Diaphragm Gas Meters	flow	Verification Regulation of Diaphragm Gas Meters JJG 577	(0.016～40)m³/h	<i>U</i> _{rel} =0.56%～0.47%		
				(40～160)m³/h	<i>U</i> _{rel} =0.47%～0.50%		



No. CNAS L0893

第 181 页 共 191 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	*Standard Bell Powers of Gas Flow	volume	Verification Regulation of Standard Bell Powers of Gas Flow JJG 165	(10~10000)L	$U_{rel}=0.12\%$		
16	Thermal Mass Gas Flowmeters	flow	Verification Regulation of Thermal Mass Gas Flowmeters JJG 1132	DN2~DN100, (0.01~ 10)m ³ /h	$U_{rel}=0.48\%$		
				DN2~DN100, (0.0001~ 0.3)L/min	$U_{rel}=0.92\% \sim 0.60\%$		
				DN2~DN100, (0.3~ 6)L/min	$U_{rel}=0.60\% \sim 0.98\%$		
				DN2~DN100, (0.2~ 40)m ³ /h	$U_{rel}=0.49\% \sim 0.30\%$		
				DN2~DN100, (40~ 240)m ³ /h	$U_{rel}=0.30\% \sim 0.36\%$		
17	*Liquid Positive Displacement Flowmeter	flow	Verification Regulation of Liquid Positive Displacement Flowmeter JJG 667	(0.6~20)m ³ /h	$U_{rel}=0.10\% \sim 0.08\%$		
				(20~60)m ³ /h	$U_{rel}=0.10\% \sim 0.08\%$		
				(1~780)m ³ /h	$U_{rel}=0.21\% \sim 0.16\%$		
				(0.024~0.5)m ³ /h	$U_{rel}=0.076\% \sim 0.070\%$		
				(0.5~5)m ³ /h	$U_{rel}=0.076\% \sim 0.072\%$		
				(5~20)m ³ /h	$U_{rel}=0.072\% \sim 0.069\%$		
18	Gas Displacement Meters	flow	Verification Regulation of Gas Displacement Meters JJG 633	DN10~DN100, (0.01~ 1.2)m ³ /h	$U_{rel}=0.51\% \sim 0.42\%$		
				DN10~DN100, (1.2~ 40)m ³ /h	$U_{rel}=0.42\% \sim 0.25\%$		
				DN10~DN100, (40~ 240)m ³ /h	$U_{rel}=0.25\% \sim 0.32\%$		



No. CNAS L0893

第 182 页 共 191 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	Differential Pressure Flowmeters	flow	Verification Regulation of Differential Pressure Flowmeters JJG 640	DN10~DN100, (0.01~1.2)m ³ /h(Gas)	$U_{rel}=0.85\% \sim 0.64\%$		
				DN10~DN100, (1.2~40)m ³ /h(Gas)	$U_{rel}=0.64\% \sim 0.39\%$		
				DN10~DN100, (40~240)m ³ /h(Gas)	$U_{rel}=0.39\% \sim 0.32\%$		
				DN4~DN300, (1~780)m ³ /h(liquid)	$U_{rel}=0.21\% \sim 0.16\%$		
		Surface roughness		Ra:(0.1~25) μm	$U_{rel}=6\%$		
		Length		d :(12.5~300)mm	$U=(3+d/100) \mu m(d: mm)$		
20	Vortex-shedding Flowmeter	flow	Verification Regulation of Vortex-shedding Flowmeter JJG 1029	DN10~DN100, (0.01~5)m ³ /h(Gas)	$U_{rel}=0.49\% \sim 0.28\%$		
				DN10~DN100, (5~40)m ³ /h(Gas)	$U_{rel}=0.28\% \sim 0.22\%$		
				DN10~DN100, (40~240)m ³ /h(Gas)	$U_{rel}=0.22\% \sim 0.29\%$		
				DN15~DN300, (1~780)m ³ /h(liquid)	$U_{rel}=0.21\% \sim 0.16\%$		
21	*Cold Potable Water Meters	flow	Verification Regulation of Cold Potable Water Meters JJG 162	DN15~DN300, (1~780)m ³ /h standard meter method	$U_{rel}=0.60\% \sim 0.47\%$		
				(2~50000)m ³ /h ultrasonic flowmeter	$U_{rel}=1.2\%$		
22	*Electromagnetic Flowmeters	flow	Verification Regulation of Electromagnetic Flowmeters JJG 1033	(0.024~0.5)m ³ /h	$U_{rel}=0.13\% \sim 0.12\%$		
				(0.5~5)m ³ /h	$U_{rel}=0.13\% \sim 0.12\%$		
				DN4~DN300, (5~20)m ³ /h	$U_{rel}=0.12\%$		



No. CNAS L0893

第 183 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				(20~180)m ³ /h	$U_{rel}=0.13\%$		
				(1~780)m ³ /h	$U_{rel}=0.24\%\sim 0.17\%$		
				(2~50000)m ³ /h	$U_{rel}=1.2\%$		
23	Dry piston flow calibrator	flow	Calibration Specification of Dry piston flow calibrator NIMTT(CM) 057	(0.005~50) L/min	$U_{rel}=0.28\%\sim 0.32\%$		
				(0.2~60) L/min	$U_{rel}=0.2\%\sim 0.3\%$		
24	*Electromagnetic Flowmeters	flow	Online Calibration Specification for Liquid Flowmeter JJF (Chuan) 159	DN50~DN3000, (2~50000) m ³ /h	$U_{rel}=1.2\%$		
25	*p.V.T.t technique	volume	Gas Flow Calibration to p.V.T.t technique JJG 619	(10~30000) L	$U_{rel}=0.03\%$		
		flow		(0.01~4000) kg/h	$U_{rel}=0.05\%$		
26	*measuring systems for natural gas	flow	Calibration Specification of Measuring Systems for Natural Gas NIMTT(CM) 165	(1~999999) flow engineering unit	$U_{rel}=(0.7\sim 1)\%$		
27	Standard Leak	flow	Calibration Specification for Reference Leaks by Soap Film Flowmeter JJF 1627	(0.0001~0.3)L/min	$U_{rel}=(0.92\sim 0.60)\%$		
				(0.3~6)L/min	$U_{rel}=(0.60\sim 0.98)\%$		
28	*Gasoline Vapor Recovery Detectors	flow	Calibration Specification for Gasoline Vapor Recovery Detectors JJF 1948	(18~38) L/min	$U_{rel}=(0.2\sim 0.5)\%$		
		pressure		(-5.0~5.0) kPa	$U=6\text{Pa}$		
29	*Calibration Specification for Door and window performance detection device	flow	Calibration Specification for Door and window performance detection device NIMTT(CM) 164	air: (10~600) m ³ /h	$U_{rel}=0.52\%$		
				water: (100~1000) L/h	$U_{rel}=0.48\%$		
		pressure		(-5000~5000) Pa	$U=6\text{Pa}$		



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No. CNAS L0893

第 184 页 共 191 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		(1~10) mm	$U=7 \mu\text{m}$		
30	*Gas Flow Calibration Facility by Means of Critical Flow Venturi Nozzles	flow	Calibration Specification for Gas Flow Calibration Facility by Means of Critical Flow Venturi Nozzles JJF 1240	(0.01~10)m ³ /h	$U_{\text{rel}}=0.23\%$		
				DN2~DN600, (0.01~50000)m ³ /h	$U_{\text{rel}}=0.2\%$		
31	*Goriolis Mass Flow meters	flow	Verification Regulation of Goriolis Mass Flow meters JJG 1038	DN2~DN200, (0.024~0.5)t/h	$U_{\text{rel}}=0.051\%\sim 0.042\%$		
				DN2~DN200, (0.5~5)t/h	$U_{\text{rel}}=0.051\%\sim 0.046\%$		
				DN2~DN200, (5~20)t/h	$U_{\text{rel}}=0.041\%\sim 0.046\%$		
				DN2~DN200, (20~180)t/h	$U_{\text{rel}}=0.051\%\sim 0.050\%$		
				DN2~DN200, (0.0001~6) L/min, (0.00012~7.2) g/min	$U_{\text{rel}}=0.6\%\sim 0.92\%$		
				DN2~DN200, (0.005~50) L/min, (0.006~60) g/min	$U_{\text{rel}}=0.32\%$		
				DN2~DN200, (0.2~60) L/min, (0.22~66) g/min	$U_{\text{rel}}=0.15\%\sim 0.3\%$		
				DN2~DN200, (0.01~1.2)m ³ /h, (0.011~1.3) kg/h	$U_{\text{rel}}=0.51\%\sim 0.42\%$		
				DN2~DN200, (0.2~40)m ³ /h, (1.3~44) kg/h	$U_{\text{rel}}=0.42\%\sim 0.25\%$		



No. CNAS L0893

第 185 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
				DN2~DN200, (40~240)m ³ /h, (44~260) kg/h	$U_{rel}=0.25\%\sim0.32\%$		
				DN2~DN200, (0.5~1000)m ³ /h, (0.55~1100) kg/h	$U_{rel}=0.32\%$		
				(0.2~60) L/min	$U_{rel}=0.15\%\sim0.3\%$		
32	*Verification Regulation of Soap Film Flow meter	flow	Verification Regulation of Soap Film Flow meter JJG 586	(0.005~50) L/min	$U_{rel}=0.32\%$		
				(0.0001~6) L/min	$U_{rel}=(0.6\sim0.92)\%$		
33	*Turbine Flowmeter	flow	Verification Regulation of Turbine Flowmeter JJG 1037	DN15~DN100,(0.01~5)m ³ /h(Gas)	$U_{rel}=0.43\%\sim0.22\%$		
				DN15~DN100,(5~40)m ³ /h(Gas)	$U_{rel}=0.22\%\sim0.21\%$		
				DN15~DN100,(40~240)m ³ /h(Gas)	$U_{rel}=0.21\%\sim0.26\%$		
				DN4~DN300,(1~780)m ³ /h(liquid)	$U_{rel}=0.21\%\sim0.16\%$		
				DN4~DN300,(0.024~0.5)m ³ /h(liquid)	$U_{rel}=0.13\%\sim0.12\%$		
				DN4~DN300,(0.5~5)m ³ /h(liquid)	$U_{rel}=0.13\%\sim0.12\%$		
				DN4~DN300,(5~20)m ³ /h(liquid)	$U_{rel}=0.12\%$		
				DN4~DN300,(20~180)m ³ /h(liquid)	$U_{rel}=0.13\%$		
34	*Compressed Natural Gas Dispensers	Flow	Verification Regulation of Compressed Natural Gas Dispensers JJG 996	(1~80) kg/min	$U_{rel}=0.22\%$		



No. CNAS L0893

第 186 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
35	*Liquefied Natural Gas Dispensers	Flow	Verification Regulation of Liquefied Natural Gas Dispensers JJG 1114	(1~80) kg/min	$U_{rel}=0.32\%$		
36	*Compressed Hydrogen Dispensers	Flow	Calibration Specification of Compressed Hydrogen Dispensers NIMTT(CM) 013	(0.1~10) kg/min	$U_{rel}=0.66\%$		
XIV、Pressure measuring instrument							
1	*Piezoresistive Vacuum Gauge	Pressure	Verification Regulation of Piezoresistive Vacuum Gauge JJG 932	$(1 \times 10^2 \sim 1 \times 10^5) \text{Pa}$	$U_{rel}=0.9\% \sim 0.6\%$		
2	Pressure Transducer	Pressure	V.R. of Pressure Transducer(static) JJG 860	(-0.1~100)MPa	$U=0.016\% \text{FS}$		
				(100~500)MPa	$U=0.027\% \text{FS}$		
3	Compensated Micro-manometer	Pressure	V.R. of Compensated Micro-manometer JJG 158	-2.5kPa~2.5kPa	$U=0.018\% \text{FS}$		
4	Tilting Tube Micro-manometers	Pressure	V.R. of Tilting Tube Micro-manometers JJG 172	(0~2000)Pa	$U=0.15\% \text{FS}$		
5	Aneroid Barometer & Aneroid Barograph	Pressure	V.R. of Aneroid Barometer & Aneroid Barograph JJG 272	(500~1060)hPa	$U=0.85 \text{hPa}$		
6	Liquid-medium Piston Gauges	Pressure	V.R. of Liquid-medium Piston Gauges JJG 59	(0.02~500)MPa	$U_{rel}=0.012\%$		
7	Pneumatic Piston Gauge	Pressure	V.R. of Pneumatic Piston Gauge JJG 1086	(0.0015~10)MPa	$U_{rel}=0.012\%$		
8	Precise Pressure Gauge	Pressure	V.R. of Elastic Element Precise Pressure Gauges and Vacuum Gauges JJG 49	(-0.1~0)MPa	$U=0.11\% \text{FS}$		
				(0~250)MPa	$U=0.14\% \text{FS}$		



No. CNAS L0893

第 187 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
9	Pressure Gauge	Pressure	V.R.of Elastic Element Precise Pressure Gauges, Pressure-Vacuum Gauges and Vacuum Gauges for General Use JJG 52	$(-0.1 \sim 800)$ MPa	$U=0.6\%FS$		
10	Sphygmomanometer	Pressure	V.R.of Sphygmomanometer JJG 270	$(0 \sim 40)$ kPa	$U=0.6\%FS$		
11	Record Pressure Gauges	Pressure	V.R.of Record Pressure Gauges、Pressure Vacuum Gauges and Vacuum Gauges JJG 926	$(-0.1 \sim 250)$ MPa	$U=0.6\%FS$		
12	Piston Pressure Vacuum Gauge	Pressure	V.R.of Piston Pressure Vacuum Gauges JJG 236	$-0.1\text{MPa} \sim -10\text{kPa}$	$U_{rel}=0.015\%$		
				$10\text{kPa} \sim 0.6\text{MPa}$	$U_{rel}=0.015\%$		
13	Piston Pressure- Vacuum Gauge with Equilibrium Liquid Column	Pressure	V.R.of Piston Pressure- Vacuum Gauge with Equilibrium Liquid Column JJG 51	$-0.1\text{MPa} \sim 0.4\text{MPa}$	$U=0.015\%FS$		
14	Standard Dual Piston Pressure Vacuum Gauge	Pressure	V.R.of Standard Dual Piston Pressure Vacuum Gauge JJG 159	$-0.1\text{MPa} \sim 1\text{MPa}$	$U=0.015\%FS$		
15	Pressure Controllers	Pressure	V.R.of Pressure Controllers JJG 544	$(-0.1 \sim 250)$ MPa	$U=0.8\%FS$		
16	Precision Liquid Manometers of Cistern and U-tube	Pressure	V.R.of Precision Liquid Manometer for Cistern and U-tube JJG 241	$(-40 \sim 40)$ kPa	$U=0.4\%FS$		

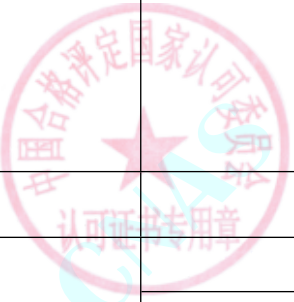


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No. CNAS L0893

第 188 页 共 191 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	Digital Measuring Device for Optical Interference Methane Detector	Pressure	V.R.of Digital Measuring Device for Optical Interference Methane Detector JJG 1040	(0~100)kPa	$U=0.033\%FS$		
18	Pressure SF6 Gas Density Monitors	Pressure	V.R.of Pressure Type SF6 Gas Density Monitors JJG 1073	(-0.1~0.9)MPa	$U=0.6\%FS$		
19	*Thermal Conductivity Vacuum Gauge	Pressure	Calibration Specification of Working Thermal Conductivity Vacuum Gauge JJF 1050	$(1 \times 10^{-1} \sim 3 \times 10^3)Pa$	$U_{rel}=5.3\% \sim 3.9\%$		
				$(3 \times 10^3 \sim 1 \times 10^5)Pa$	$U_{rel}=3.9\% \sim 4.9\%$		
20	Liquid Manometers for Working	Pressure	V. R. of Liquid Manometers for Working JJG 540	(0~2.5)kPa	$U=0.27\%FS$		
				(2.5~20)kPa	$U_{rel}=0.55\%$		
21	Tyre Pressure Gauges	Pressure	V.R.of Tyre Pressure Gauges JJG 927	(0~6)MPa	$U=0.6\%FS$		
22	Ball Pneumatic Dead Weight Testers	Pressure	V.R.of Ball Pneumatic Dead Weight Testers JJG 942	(2~25)kPa	$U_{rel}=0.015\%$		
				25kPa~10MPa	$U_{rel}=0.015\%$		
23	Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge	Pressure	Calibration Specification for Pressure Regulators with Bourdon Tube Pressure Gauge JJF 1328	(0~25)Mpa	$U=0.6\%FS$		
24	Liquid Level Gauges	Pressure	V.R of Liquid Level Gauges JJG 971	(0~10)MPa	$U=0.023\%FS$		
25	Digital Pressure Gauges	Pressure	V. R. of Digital Pressure Gauges JJG 875	(-0.1~100)MPa	$U=0.008\%FS$		
				(100~500) MPa	$U=0.021\%FS$		



No. CNAS L0893

第 189 页 共 191 页

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

№	Instrument	Measurand	Calibration Method	Range	Expanded Uncertainty ($k=2$)	Note	Effective Date
26	Digital Barometers	Pressure	V.R. of Digital Barometers JJG 1084	(0~130)kPa	$U=0.07\text{hPa}$		
27	Pressure Transmitter	Pressure	V. R. of Pressure Transmitter JJG 882	(-0.1~100)MPa	$U=0.016\%\text{FS}$		
				(100~800) MPa	$U=0.027\%\text{FS}$		
28	*Ionization Vacuum Gauge	Pressure	Calibration Specification of Ionization Vacuum Gauge JJF 1062	($3 \times 10^{-7} \sim 1$)Pa	$U_{\text{rel}}=16\% \sim 1.5\%$		
				(1~20)Pa	$U_{\text{rel}}=4.2\%$		
29	*Capacitance Diaphragm Vacuum Gauges	Pressure	Calibration Specification for Capacitance Diaphragm Vacuum Gauges JJF 1503	($1 \times 10^{-1} \sim 1 \times 10^5$)Pa	$U_{\text{rel}}=2.6\% \sim 0.04\%$		
30	*Reference Leaks for Gases	leak rate	Non Destructive Testing - Leak Testing - Calibration of Reference Leaks for Gases ISO 20486, Calibration Specification for Vacuum Helium Leaks JJF 1833	($1 \times 10^{-10} \sim 1 \times 10^{-3}$) Pa · m ³ /s	$U_{\text{rel}}=7.6\% \sim 0.88\%$	Calibration by comparison and calibration by pressure change in a known volume only for ISO 20486	
31	Pressure Reference Leaks	leak rate	Calibration Specification for Pressure Reference Leaks NIMTT(CM) 012	($5 \times 10^{-7} \sim 50$) Pa · m ³ /s	$U_{\text{rel}}=6.2\% \sim 0.7\%$		
32	*Mass Spectrometer Leak Detector	leak rate	Calibration Specification of Helium Mass Spectrometer Leak Detector JJF (jun gong) 186	($1 \times 10^{-10} \sim 1 \times 10^{-5}$) Pa · m ³ /s	$U_{\text{rel}}=14\% \sim 12\%$		
33	*Halogen Leak Detector	leak rate	Calibration Specification for Halogen Leak detector	($1 \times 10^{-6} \sim 1 \times 10^{-5}$) Pa · m ³ /s	$U_{\text{rel}}=24\% \sim 13\%$		

No. CNAS L0893

第 190 页 共 191 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
		Time	JJF1964	(0~10)s	$U=1.1s$		
34	Impression Tonometers	mass	V.R.of Impression Tonometers JJG 574	(0~100)g	$U=0.012g$		
		length		(0~5) mm	$U=0.013mm$		
35	Digital Tyre Pressure Gauges	Pressure	V.R.of Digital Tyre Pressure Gauges JJG 1201	(0~2.5)MPa	$U=0.04\%FS$		
36	Pressure Acquisition Instruments	Pressure	Calibration Specification for Pressure Acquisition Instruments JJF 2095	(0~1)MPa abs	$U=0.008\%FS$		
37	Air Data Test Systems	Pressure	Calibration Specification for Air Data Test Systems JJF 1987	(0~350)kPa abs	$U=0.008\%FS$		



No. CNAS L0893

第 191 页 共 191 页

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